

# WHAT WORKS FOR WOMEN AND GIRLS

Evidence for HIV/AIDS Interventions



[whatworksforwomen.org](http://whatworksforwomen.org)



# WHAT WORKS FOR WOMEN AND GIRLS

---

Evidence for HIV/AIDS Interventions

---

[www.whatworksforwomen.org](http://www.whatworksforwomen.org)

June 2010

*Authors:*

Jill Gay, MA

Karen Hardee, PhD

Melanie Croce-Galis, RN, MPH

Shannon Kowalski, MPA

*with*

Chanelle Gutari, MPH

Claire Wingfield, MPH

Kimberly Rovin, MPH

Kristine Berzin

Suggested citation:

Gay, J.<sup>1</sup>, Hardee, K.<sup>2</sup>, Croce-Galis, M.<sup>3</sup>, Kowalski, S.<sup>4</sup>, Gutari, C.<sup>5</sup>, Wingfield, C.<sup>6</sup>, Rovin, K.<sup>7</sup>, Berzins, K.<sup>8</sup>. 2010. *What Works for Women and Girls: Evidence for HIV/AIDS Interventions*. New York: Open Society Institute. [www.whatworksforwomen.org](http://www.whatworksforwomen.org)

Copyright © Open Society Institute. All rights reserved.

---

<sup>1</sup> Public Health Consultant

<sup>2</sup> Vice President for Research, Population Action International

<sup>3</sup> Global Health Consultant, Artemis Global Consulting

<sup>4</sup> Senior Program Officer, Open Society Institute

<sup>5</sup> MPH candidate, The George Washington University

<sup>6</sup> TB/HIV Project Coordinator, Treatment Action Group

<sup>7</sup> Ph.D. Student, Michigan State University and Former Research Associate, Population Action International

<sup>8</sup> Research Analyst, Population Action International

# Acknowledgements

Compiling a research review of this magnitude would not be possible without the expert input and support of a wide group of people. The authors are extremely grateful to the following reviewers, including those who participated in a review meeting hosted by the Open Society Institute in Cape Town, South Africa on February 17–19, 2010.

▶ **Quarraisha Abdool Karim, Ph.D.**

*Associate Scientific Director*

Centre for the AIDS Programme of Research in South Africa (CAPRISA)  
South Africa

▶ **Avni Amin, Ph.D.**

*Technical Officer*

Department of Gender | Women and Health | World Health Organization  
Geneva, Switzerland

▶ **Jayne Arnott**

*Consultant*

Cape Town, South Africa

▶ **Chris Beyrer, MD, MPH**

*Director*

Johns Hopkins Center for Public Health & Human Rights  
Baltimore, MD, USA

▶ **A. David Brandling-Bennett, MD, DTPH**

*Senior Program Officer*

Infectious Diseases | Global Health Program | Bill & Melinda Gates Foundation  
Seattle, WA, USA

- ▶ **J. Winchester Brown, Ph.D.**  
*Senior Monitoring and Evaluation Advisor*  
U.S. Agency for International Development (USAID)/South Africa  
Pretoria, South Africa
  
- ▶ **Karen Brudney, MD**  
*Director, Infectious Disease/AIDS Clinic and Director, Tuberculosis Service*  
Presbyterian Hospital  
New York, NY, USA
  
- ▶ **Ward Cates, MD, MPH**  
*President of Research*  
Family Health International  
Research Triangle Park, NC, USA
  
- ▶ **Farley Cleghorn, MD, MPH**  
*Senior Vice President and Chief Technical Officer*  
The Futures Group  
Washington, DC, USA
  
- ▶ **Myron Cohen, MD**  
*J. Herbert Bate Distinguished Professor of Medicine and Microbiology*  
Immunology & Public Health | School of Medicine | University of North Carolina  
Chapel Hill, NC USA
  
- ▶ **Nazneen Damji, MSc**  
*Programme Manager*  
Gender Equality and HIV/AIDS | United Nations Development Fund for Women (UNIFEM)  
New York, NY, USA
  
- ▶ **Barbara T. Dente, MPA**  
*Program Associate*  
Public Health Program | Open Society Institute  
New York, NY, USA
  
- ▶ **Anne Eckman, Ph.D.**  
*Independent Consultant*  
Health Policy Initiatives  
Washington, DC, USA

- ▶ **Jose Esparza, MD, Ph.D.**  
*Senior Adviser on HIV Vaccines*  
 Bill & Melinda Gates Foundation  
 Seattle, WA, USA
  
- ▶ **Cynthia Eyakuze, MPH**  
*Director, Public Health Watch*  
 Public Health Program | Open Society Institute  
 New York, NY USA
  
- ▶ **Tamar Ezer, JD, LLM**  
*Program Officer*  
 Law and Health Initiative | Public Health Program | Open Society Institute  
 New York, NY USA
  
- ▶ **Lindiwe Farlane, MA**  
*Monitoring and Evaluation Officer*  
 EngenderHealth  
 Johannesburg, South Africa
  
- ▶ **Nathan Ford, Ph.D.**  
*Head of Medical Unit*  
 Doctors Without Borders (MSF)  
 Cape Town, South Africa
  
- ▶ **Susana Fried, Ph.D.**  
*Senior Gender Advisor*  
 HIV Group, Bureau of Development Policy | United Nations Development Programme  
 (UNDP)  
 New York, NY, USA
  
- ▶ **Adrienne Germain, MA**  
*President*  
 International Women's Health Coalition (IWHC)  
 New York, NY, USA
  
- ▶ **Elena Ghanotakis, MPH**  
*Technical Officer, Global Technical Policy*  
 Elizabeth Glaser Pediatric AIDS Foundation  
 Washington, DC, USA

- ▶ **Françoise Girard, MA, LLB**  
*Director*  
Public Health Program | Open Society Institute  
New York, NY, USA
  
- ▶ **Ali Groves, MHS**  
*Research Coordinator*  
Gillings School of Global Public Health | The University of North Carolina at Chapel Hill  
Chapel Hill, NC, USA
  
- ▶ **Ed Handelsman, MD**  
*NIAID Program Officer*  
Division of AIDS | NIAID/NIH/DHHS  
Bethesda, MD, USA
  
- ▶ **Nina Hasen, Ph.D.**  
*Senior Technical Advisor, HIV Prevention*  
Office of the Global AIDS Coordinator (OGAC) | U.S. Department of State  
Washington, DC, USA
  
- ▶ **Erin E. Howe, MPH**  
*Program Officer*  
Public Health Watch | Public Health Program | Open Society Institute  
New York, NY, USA
  
- ▶ **Jose Jeronimo, MD**  
*Director, START-UP Project*  
Reproductive Health | PATH  
Seattle, WA, USA
  
- ▶ **Nduku Kilonzo, Ph.D.**  
*Director*  
Liverpool VCT Care & Treatment  
Nairobi, Kenya
  
- ▶ **Dr. Douglas Kirby, Ph.D.**  
*Senior Research Scientist*  
ETR Associates  
Scotts Valley, CA, USA

- ▶ **Shyam Kottilil, MD, Ph.D.**  
*Staff Clinician*  
NIH/NIAID/LIR  
Bethesda, MD, USA
  
- ▶ **Vanessa Ludwig**  
*Director*  
The Triangle Project  
Cape Town, South Africa
  
- ▶ **Siddhartha Mahanty, MD, MPH**  
*Staff Physician*  
Laboratory of Parasitic Diseases | NIH/NIAID  
Bethesda, MD, USA
  
- ▶ **Anna Miller, MD**  
*Senior Technical Advisor*  
Elizabeth Glaser Pediatric AIDS Foundation  
Washington, DC, USA
  
- ▶ **Aprajita Mukherjee, Ph.D.**  
*Gender & Development Specialist*  
International Center for Research on Women (ICRW) | Asia Regional Office  
Defence Colony, New Delhi, India
  
- ▶ **Françoise Ndayishimiye, MD**  
*Senior Gender Adviser*  
The Global Fund to Fight AIDS, Tuberculosis and Malaria  
Geneva, Switzerland
  
- ▶ **Florence Nyangara, Ph.D.**  
*Senior Research and Evaluation Specialist*  
Futures Group  
Washington, DC, USA
  
- ▶ **Christian Pitter, MD**  
*Director of Global Technical Policy*  
Elizabeth Glaser Pediatric AIDS Foundation  
Washington, DC, USA

- ▶ **Judith Polsky**  
*Programme Adviser*  
UNAIDS  
Geneva, Switzerland
  
- ▶ **Mark Robson, Ph.D., MPH, MS, ATS**  
*Dean of Agricultural and Urban Programs*  
School of Environmental and Biological Sciences, Rutgers | The State University of New Jersey  
New Brunswick, NJ, USA
  
- ▶ **Naomi Rutenberg, Ph.D.**  
*Vice President, HIV and AIDS Program*  
Population Council  
New York, NY, USA
  
- ▶ **Amitrajit Saha, DGO, MD (PSM)**  
*Associate Director SRH*  
PATH  
New Delhi, India
  
- ▶ **Caroline Sande, MA**  
*Regional Adviser*  
Regional Support Team | Eastern and Southern Africa | UNAIDS  
South Africa
  
- ▶ **Stuart Z. Shapiro, MD, Ph.D.**  
*NIAID Program Officer*  
Division of AIDS | NIAID/NIH/DHHS  
Bethesda, MD, USA
  
- ▶ **Carol Shepherd, Sc.D., MS**  
The Futures Group  
Washington, DC, USA
  
- ▶ **Jacqueline Sherris, Ph.D.**  
*Vice President, Global Programs*  
PATH  
Seattle, WA, USA

- ▶ **Larry Slutsker, MD, MPH**  
*Chief, Malaria Branch*  
Centers for Disease Control and Prevention  
Atlanta, GA, USA
  
- ▶ **Marion Stevens, RN, RM, B Soc Sci (Hons), MM (P&DM)**  
*Project Manager*  
Women and HIV/AIDS Gauge, Health Systems Trust (HST)  
Cape Town, South Africa
  
- ▶ **Laura Subramanian, MS**  
*Program Associate*  
EngenderHealth  
New York, USA
  
- ▶ **Todd Summers**  
*Senior Program Officer for Global Health*  
Bill & Melinda Gates Foundation  
Washington, DC, USA
  
- ▶ **Tracy Swan**  
*Hepatitis/HIV Project Director*  
Treatment Action Group  
New York, NY, USA
  
- ▶ **Vicci Tallis, Ph.D.**  
*Programme Manager, HIV and AIDS*  
Open Society Initiative for Southern Africa (OSISA)  
Johannesburg, South Africa
  
- ▶ **Feiko ter Kuile, MD, Ph.D.**  
*Professor of Tropical Epidemiology*  
Liverpool School of Tropical Medicine  
Liverpool, England, United Kingdom
  
- ▶ **Alejandra Trossero, MSc**  
*Senior HIV Officer*  
International Planned Parenthood Federation (IPPF)  
London, England, United Kingdom

In addition to the authors, a number of people have been involved in compiling the evidence in this document. Carolina Hall, Program Assistant at Population Reference Bureau, contributed to writing the chapters on preventing perinatal transmission and sexual and reproductive health. The following people also contributed to research for this compendium of evidence:

- ▶ Martha Wood, MPH, student in Bachelor's of Midwifery, Flinders University, South Australia
- ▶ Meher Rehman, Atlas Corps Fellow, Population Action International
- ▶ Alana Hairston, MS, Technical Officer, Global Technical Policy Unit, Elizabeth Glaser Pediatric AIDS Foundation
- ▶ Betsy Kidder, MD and Ph.D. student, The George Washington University
- ▶ Kathryn Fleming, Senior Project Specialist, Health and Education, American Institutes for Research
- ▶ Tasha Prados, student, University of North Carolina-Chapel Hill
- ▶ Holly Greb, Program Coordinator, Population Action International

# Table of Contents

<b>List of Abbreviations</b>	13
<b>Executive Summary</b>	17
<b>Chapter 1. Introduction</b>	27
<b>Chapter 2. Methodology</b>	35
<b>Chapter 3. Prevention for Women</b>	43
A. Male and Female Condom Use	50
B. Partner Reduction	63
C. Male Circumcision	67
D. Treating Sexually Transmitted Infections (STIs)	70
<b>Chapter 4. Prevention for Key Affected Populations</b>	75
A. Female Sex Workers	76
B. Women Drug Users and Female Partners of Male IDUs	90
C. Women Prisoners and Female Partners of Male Prisoners	100
D. Women and Girls in Complex Emergencies	103
E. Migrant Women and Female Partners of Male Migrants	106
F. Transgender Women and Men	108
G. Women Who Have Sex with Women (WSW)	110
<b>Chapter 5. Prevention for Young People</b>	113
A. Encouraging Behavior Change	114
B. Increasing Access to Services	137

<b>Chapter 6. HIV Testing and Counseling for Women</b>	143
<b>Chapter 7. Treatment</b>	167
A. Provision and Access	168
B. Adherence and Support	173
C. Reducing Transmission	175
<b>Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living with HIV</b>	183
<b>Chapter 9. Safe Motherhood and Prevention of Vertical Transmission</b>	205
A. Preventing Unintended Pregnancies	210
B. Pre-Conception	215
C. Antenatal Care	220
1. Testing and Counseling	221
2. Treatment	232
D. Delivery	246
E. Postpartum	249
<b>Chapter 10. Preventing, Detecting and Treating Critical Co-Infections</b>	267
A. Tuberculosis	268
B. Malaria	277
C. Hepatitis	284
<b>Chapter 11. Strengthening the Enabling Environment</b>	287
A. Transforming Gender Norms	289
B. Addressing Violence Against Women	298
C. Transforming Legal Norms to Empower Women, including Marriage, Inheritance and Property Rights	309
D. Promoting Women’s Employment, Income and Livelihood Opportunities	317
E. Advancing Education	322
F. Reducing Stigma and Discrimination	328
G. Promoting Women’s Leadership	337
<b>Chapter 12. Care and Support</b>	341
A. Women and Girls	342
B. Orphans and Vulnerable Children	355
<b>Chapter 13. Structuring Health Services to Meet Women’s Needs</b>	369
<b>Glossary of Terms</b>	387
<b>References</b>	395

# List of Abbreviations

3TC	2', 3'-dideoxy-3'-thiacytidine (Lamivudine)
ACT	Artemisinin Combination Therapies
AHI	Acute HIV Infection
ANC	Antenatal Clinics
APN+	Asia Pacific Network of People Living with HIV/AIDS
ART	Antiretroviral Therapy
ARV	Anti-retroviral
ASRH	Adolescent Sexual and Reproductive Health
AYA	African Youth Alliance
AZT	Azido-deoxythymidine
cART	Combination Antiretroviral Therapy
CBO	Community Based Organizations
CDC	Centers for Disease Control
CEDAW	Committee on the Elimination of Discrimination against Women
C-section	Cesarean Section
d4T/3TC/NVP	Stavudine, Lamivudine and Nevirapine
DDL	Didanosine
DHS	Demographic and Health Surveys
DMPA	Depot-medroxyprogesterone Acetate
DOT	Directly Observed Therapy
DOTS-SC	Directly Observed Therapy Short Course
DRC	Democratic Republic of the Congo
EFV	Efavirenz
FC <sub>2</sub>	Female Condom
FP	Family Planning
FSW	Female Sex Workers
GAA	Global AIDS Alliance
GBV	Gender-Based Violence

GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GHESKIO	Haitian Group for the Study of Kaposi's Sarcoma and Opportunistic Infections
GUD	Genital Ulcer Disease
HAART	Highly Active Antiretroviral Therapy
HRW	Human Rights Watch
HSV-2	Herpes Simplex Virus Type 2
HTC	HIV Testing and Counseling
ICRW	International Center for Research on Women
ICW	International Community of Women Living with HIV/AIDS
IDP	Internally Displaced Person
IDU	Injecting Drug User
IEC	Information Education and Communication
ILO	International Labor Organization
IP/PP	Intrapartum/postpartum
IPT	Intermittent Preventive Therapy
IPV	Intimate Partner Violence
IOM	Institute of Medicine
IRC	International Rescue Committee
IRIS	Immune Reconstitution Inflammatory Response
ITN	Insecticide Treated Nets
IU	In Utero
LBW	Low Birth Weight
LPR/r	Lopinavir/ritonavir
MCH	Maternal and Child Health
MDG	U.N. Millennium Development Goals
mDOT	Modified Directly Observed Therapy
MDR-TB	Multi-Drug Resistant Tuberculosis
ML	Milliliter
MNCH	Maternal, Newborn and Child Health
MSM	Men Who Have Sex with Men
M&E	Monitoring and Evaluation
NGO	Non-governmental Organization
NH	Non-hormonal
NNRTI	Non-nucleoside Reverse Transcriptase Inhibitor
NVP	Nevirapine
OC	Oral Contraceptive
OSI	Open Society Institute
OST	Opioid Substitution Treatment
OVC	Orphans and Vulnerable Children
PAC	Post Abortion Care
PCR	Polymerase Chain Reaction

PEP	Post-Exposure Prophylaxis
PHA	Peer Health Advocate
PHR	Physicians for Human Rights
PID	Pelvic Inflammatory Disease
PLHA	People Living with HIV/AIDS
PMTCT	Prevention of Mother-to-Child Transmission of HIV
PPE	Personal Protective Equipment
PPT	Prevention of Perinatal Transmission
PR	Principal Recipients
PT	Preventive Therapy
PRB	Population Reference Bureau
PYs	Person-Years
RCT	Randomized Controlled Trial
RH	Reproductive Health
RHT	Routine HIV Testing
RHR	Reproductive Health for Refugees
RTI	Reproductive Tract Infection
SIL	Squamous Intraepithelial Lesion
Sd NVP	Single-dose nevirapine
SP	Sulfadoxine-pyrimethamine
SRH	Sexual and Reproductive Health
SRHR	Sexual and Reproductive Health and Rights
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
TB	Tuberculosis
TERG	Technical Evaluation Reference Group
TRP	Technical Review Panel
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNFPA	United Nations Population Fund
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
UNODC	United Nations Office on Drugs and Crime
USAID	United States Agency for International Development
VAW	Violence Against Women
VCT	Voluntary Counseling and Testing
WHO	World Health Organization
XDR-TB	Extensively Drug Resistant TB
ZDV	Zidovudine



# Executive Summary

## Background

For more than 25 years AIDS has been taking a devastating global toll. Women now make up half of those living with HIV infection. While HIV epidemics around the world vary, gender inequalities and biological differences still make women and girls especially vulnerable to the epidemic. In sub-Saharan Africa—the region most affected by HIV/AIDS—women account for nearly 60% of those living with HIV. There is increasing interest among governments and donors to address the needs of women and girls in the global AIDS pandemic and to support women as agents of change. As global attention is focused on the unique vulnerabilities of women and girls, identification of which interventions work specifically for women and girls becomes vitally important.

## Purpose

The purpose of [www.whatworksforwomen.org](http://www.whatworksforwomen.org) is to compile and summarize the base of evidence to support successful interventions in HIV programming for women and girls. National AIDS programs, government ministries, implementing partners, donors, civil society groups and others need an easy-to-understand format for identifying what works for women. This review contains findings from evaluated interventions in 90 countries with a focus on developing countries and contains approximately 2000 references for programming related to the continuum of HIV and AIDS; from prevention to treatment, care and support, and strengthening the enabling environment for policies and programming. In all, the evidence for *What Works* and *Promising* interventions includes 455 studies. While this review covers many aspects of HIV/AIDS programming that are relevant for both women and men, it is not intended to be an exhaustive review of all HIV/AIDS programming. Instead, the review focuses on interventions that have an effect on HIV outcomes for women and girls; documenting practices for which there is evidence of successful approaches.

## Methodology

Measuring “what works” is complicated since the outcomes and impacts of interventions depend on a number of factors. Operating in specific socioeconomic, cultural (including gender), and demographic settings, interventions, such as counseling and testing, must affect “proximate determinants” such as number of concurrent partners, condom use, blood safety practices, etc., which must act through biological determinants (exposure, efficiency of transmission per contact and duration of infectivity) to affect HIV transmission. Interventions are determined to work in this compendium of evidence when they have been shown to work through a pathway to affecting HIV—or at least a proximate determinant, such as partner reduction or condom use.

The evidence in this review was identified using SCOPUS searches of peer-reviewed literature. Searches were conducted for 2005–2009, using the search words HIV or AIDS and wom\*n, plus a number of other search word combinations for additional topics. Searches also included gray literature from key relevant organizations. The review focused primarily on interventions in developing countries. Studies met the inclusion criteria if they included an intervention which had an outcome, or outcomes, and had been evaluated for effectiveness. A wide range of experts were enlisted in preparation of this compendium and in reviewing drafts of the document.

## What Works?

This review has found a number of interventions in all aspects of HIV/AIDS programming that work for women or can be seen as promising. These interventions have strong supporting evidence and many are ready to be scaled up. Main findings of only “what works” for women and girls are outlined below by chapter. There are also a number of promising strategies that may be found within the full document and online at [www.whatworksforwomen.org](http://www.whatworksforwomen.org).

### *Prevention for Women*

Prevention is key. In 2007 more people acquired HIV than those who could access treatment. Prevention efforts for women and girls have been successful in numerous countries, but ongoing efforts are needed. Male and female condoms, partner reduction, male circumcision and treating STIs are all important components of prevention efforts. Prevention efforts are also strengthened by addressing factors such as gender norms, violence against women, income and education. Male circumcision has been shown in randomized controlled trials to reduce HIV acquisition for men by 60%, and may, in the long run, reduce transmission for women. Vaccines and microbicides are under development and have not yet been approved for use outside of clinical trial settings.

What works in prevention for women:

1. Consistent use of male condoms can reduce the chances of HIV acquisition by more than 95%.
2. The plausibility of the female condom to prevent HIV transmission is similar to the male condom.
3. Partner reduction, particularly concurrent partnerships, can be effective in reducing transmission of HIV.
4. STI counseling, diagnosis and treatment represent an important access point for women at high risk of HIV, particularly in the earlier stages of the epidemic.

### *Prevention for Key Affected Populations*

Some groups of women are at particular risk of HIV transmission: sex workers; intravenous drug users (IDUs) or female partners of IDUs; women prisoners and female partners of prisoners; women and girls in complex emergencies; migrants and female partners of migrants; transgender men and women; and women who have sex with women. Very little evidence exists on effective programming for women in complex emergencies, for migrant women, transgender men and women, and women who have sex with women.

What works in the remaining categories of key affected populations:

#### *Sex Workers:*

1. Comprehensive prevention programs that include components such as peer education, medical services, and support groups, can be effective in enabling sex workers to adopt safer sex practices.
2. Clinic-based interventions with outreach workers can be effective in increasing condom use among sex workers.
3. Policies that involve sex workers, brothel owners and clients in development and implementation of condom use can increase condom use.
4. Providing accessible, routine, high quality, voluntary and confidential STI clinical services that include condom promotion can be successful in reducing HIV risk among sex workers.
5. Peer education can increase protective behaviors.
6. Interventions targeting male clients can increase condom use and thus reduce HIV risk for sex workers.

#### *Female IDUs and Partners of Male IDUs:*

1. Opioid substitution therapy, particularly maintenance programs with methadone and buprenorphine, leads to reduction in HIV risk behavior among male and female IDUs, and is safe and effective for use by pregnant women.

2. Comprehensive harm reduction programs, including needle exchange programs, condom distribution, substitution therapy and outreach, can reduce HIV risk behaviors and prevalence among male and female IDUs.
3. Peer education can increase protective behaviors among IDUs.
4. Instituting harm reduction programs for IDUs in prisons can reduce HIV prevalence in female prison populations.

*Female Prisoners and Partners of Male Prisoners:*

1. Harm reduction strategies such as education, peer distribution of clean needles and condom provision within prisons can reduce the risk of HIV infection and injection drug use in female prison populations.
2. Making opioid substitution treatment available in prisons can be effective in reducing HIV transmission.

### *Prevention for Young People*

Young people ages 15 to 24 account for an estimated 45% of new HIV infections with young women facing particular risks due to gender norms which value sexual ignorance and limited power in sexual relations. At the same time, gender norms that promote risk taking among young men put both young women and men at risk. Providing young people with information and services, as well as addressing issues such as gender norms, can reduce the risk of HIV acquisition.

What works for young women in encouraging behavior change and increasing access to services:

*Encouraging Behavior Change:*

1. Sex and HIV education with certain characteristics prior to the onset of sexual activity may be effective in preventing transmission of HIV by increasing the age at which girls first engage in sexual activity, and, for those who are sexually active, increasing condom use and reducing the number of sexual partners.
2. Training for teachers to conduct age-appropriate participatory sexuality and AIDS education can improve students' knowledge and skills.
3. Mass media and social marketing campaigns are modestly effective in persuading both female and male adolescents to change risky behaviors.
4. Communication between adults and young people about reproductive health information can increase protective behaviors.

*Increasing Access to Services:*

1. Providing clinic services that are youth friendly, conveniently located, affordable, confidential and non-judgmental can increase use of clinic reproductive health services, including VCT.

## *HIV Testing and Counseling*

Increasing the number of women—and men—who know their serostatus is critical to expanding access to treatment and care and to reducing transmission of HIV. A current challenge for HIV/AIDS programs is how to increase HIV testing and counseling in ways that are equitable for women and men, that allow choice and that do not jeopardize human rights, consent and confidentiality.

What works for women and girls:

### *Voluntary HIV Testing and Counseling:*

1. Voluntary counseling and testing can help women know their HIV infection status and increase their protective behaviors, particularly among those who test HIV-positive.
2. Providing VCT together with other health services can increase the number of people accessing VCT.
3. Mass media interventions can increase the numbers of individuals and couples accessing VCT.
4. Community outreach and mobilization can increase uptake of VCT.
5. Home testing, consented to by household members, can increase the number of people who learn their serostatus.

## *Treatment*

Antiretroviral treatment (ARVs) is not a cure for HIV but does increase life expectancy, often dramatically. ARVs have been provided to both men and women in resource-poor settings with good adherence, good patient retention and good clinical outcomes similar to those in resource-rich settings. Most studies conducted on ARV treatment do not include sex-disaggregated data, although many of the findings are clearly relevant to women as well as men. Therefore specifying what works specifically for women in terms of treatment access and overcoming barriers to adherence is a continuing challenge. HIV prevention in addition to treatment remains critical. The studies included in this chapter attempt to highlight issues women face regarding treatment.

## *Meeting the Sexual and Reproductive Health Needs of Women Living With HIV*

Given that most HIV transmission occurs through sexual intercourse, it is essential to include a sexual and reproductive health (SRH) lens in HIV programming. Because so many women do not know their HIV status, many of the SRH interventions reviewed are appropriate for all women irrespective of their serostatus.

Interventions with evidence for what works for meeting the SRH needs of women living with HIV:

1. Promoting contraceptives and family planning counseling as part of routine HIV services (and vice versa) can increase condom use, contraceptive use, and dual method use, thus averting unintended pregnancies among women living with HIV.

2. Hormonal contraception is safe for women living with HIV and does not seem to affect HIV acquisition or HIV progression.
3. Women with HIV can use IUDs if they have access to medical services in case of IUD expulsion.
4. Providing information and skills-building support to HIV-positive people can reduce unprotected sex.
5. Interventions to support disclosure can increase condom use in discordant couples.

### *Safe Motherhood and Prevention of Vertical Transmission*

Of the 136 million women who gave birth each year globally between 2005–2010, an estimated 60 million gave birth at home and may not have had access to prevention of mother-to-child transmission (PMTCT) services. PMTCT programs will only be effective if maternal health programs are strengthened and provided to all women because so many women only learn their HIV status during pregnancy. Improving health systems and providing evidence-based interventions to ensure safe motherhood is critical for all women, and especially so for women living with HIV. The evidence for what works in preventing perinatal transmission is organized according to the way women access health services, particularly maternal health services: prevention of unintended pregnancies; preconception planning; antenatal care (testing and counseling, treatment); delivery; and postpartum. Some promising strategies exist for preconception planning and delivery, however further evidence is needed. The science surrounding breastfeeding and the risk of vertical transmission is still unresolved.

What works for women and mothers:

#### *Preventing Unintended Pregnancies:*

1. Preventing unintended pregnancies can reduce perinatal transmission.

#### *Antenatal Care—Testing and Counseling:*

1. Routinely offered testing *that is voluntary and accompanied by counseling* is acceptable to most women.
2. Informed and appropriate counseling during antenatal care can lead to increased discussion between partners and increased protective behaviors such as condom use.
3. Involving partners, with women’s consent, can result in increased testing and disclosure.

#### *Antenatal Care—Treatment:*

1. Antiretroviral treatment regimens for pregnant women living with HIV can improve the health of the mother when used as *treatment* and can reduce the risk of mother-to-child transmission when used as *prophylaxis*.

2. For women who are pregnant and not eligible for HAART for their own health, short-course ARV therapy used for prophylaxis can reduce nevirapine resistance.
3. Extending an HIV-positive woman's life increases the long-term survival of her infant.
4. National scale-up of HAART in pregnancy improves maternal and infant outcomes.

*Postpartum:*

1. ARVs, when used for treatment or prophylaxis, can reduce HIV transmission from mothers to infants.
2. Early postpartum visits can result in increased condom use, contraceptive use, HIV testing and treatment.

### *Preventing, Detecting and Treating Critical Co-infections*

Certain infections, when combined with HIV, can be significantly more severe and lead to early death for people living with HIV. Tuberculosis has become the leading cause of death for those living with HIV. HIV/TB co-infection is particularly deadly to women during their childbearing years. Malaria can have serious impacts on pregnant women and HIV/hepatitis co-infection can limit the effectiveness of both HIV and hepatitis treatments. Little evidence is available on HIV/hepatitis co-infection for women in resource-poor settings. More effective diagnostics, treatment and treatment literacy programs are needed for hepatitis C. Evidence for what works for women in TB/HIV and malaria/HIV co-infection is limited.

What works for women in preventing TB and malaria co-infection:

*Tuberculosis:*

1. Intermittent Preventive Therapy (IPT), as well as HAART, can reduce the incidence of TB.

*Malaria:*

1. Co-trimoxazole prophylaxis, antiretroviral therapy and insecticide treated nets can reduce the incidence of malaria in women living with HIV by 95%.
2. Monthly doses of IPT with sulfadoxine-pyrimethamine (SP) is effective in preventing malaria among pregnant HIV-positive women (but should not be combined with co-trimoxazole).

### *Strengthening the Enabling Environment*

Addressing structural factors and the enabling environment, such as gender norms; violence against women; legal norms; women's employment, income and livelihood; advancing education; reducing stigma and discrimination and promoting women's leadership are critical to effective HIV/AIDS interventions for women and girls. However, direct impact on HIV

outcomes has been more difficult to measure. Strengthening women's NGOs and women leaders who can mobilize in-country efforts in the interests of women and girls who are affected by HIV is also critical.

What works for strengthening the enabling environment for women:

*Transforming Gender Norms:*

1. Training, peer and partner discussions, and community-based education about changing gender norms can increase HIV protective behaviors.
2. Mass media campaigns concerning gender equality as part of comprehensive and integrated services can increase HIV protective behaviors.

*Addressing Violence Against Women:*

1. Community-based participatory learning approaches involving men and women can create more gender-equitable relationships, thereby decreasing violence.
2. Establishing comprehensive post-rape care protocols, which include PEP, can improve services for women.
3. Microfinance programs can lead to reduction in gender-based violence when integrated with participatory training on HIV, gender, and violence.

*Transforming Legal Norms to Empower Women, including Marriage, Inheritance and Property Rights:*

1. Enforcing laws that allow widows to take control of remaining property can increase their ability to cope with HIV.

*Promoting Women's Employment, Income and Livelihood Opportunities:*

1. Increased employment opportunities, microfinance, or small-scale income-generating activities can reduce behavior that increases HIV risk, particularly among young people.

*Advancing Education:*

1. Increasing educational attainment can help reduce HIV risk among girls.
2. Abolishing school fees enables girls to attend (or stay in) school.
3. Providing life skills-based education can complement formal education in building knowledge and skills to prevent HIV.

*Reducing Stigma and Discrimination:*

1. Community-based interventions that provide accurate information about HIV transmission (especially that casual contact cannot transmit the virus) can significantly reduce HIV stigma and discrimination.
2. Training for providers can reduce discrimination against people with HIV/AIDS.

## Care and Support

Under care and support programs the bulk of care is provided—mostly unpaid—by women. Few home-based care programs specifically address the needs of women. HIV/AIDS continues to take a huge financial toll on households. While scaling up universal access to treatment is critical, treatment alone will not solve all care and support needs. The studies included in this chapter outline interventions that work in caring for and supporting women and girls in general, both with respect to their own needs in illness and the burden of caring for others who are ill, as well as the care and support of orphans and vulnerable children.

What works in care and support for women, girls, and vulnerable children:

### *Women and Girls:*

1. Continued counseling (either group or individual) for those who are HIV-positive and those who are caregivers can relieve psychological distress.
2. Peer support groups can be highly beneficial to women living with HIV.

### *Orphans and Vulnerable Children:*

1. Accelerating treatment access for adults with children can reduce the number of orphans, reduce pediatric deaths and improve social well-being.
2. Programs that promote the strength of families and offer family-centered integrated economic, health and social support result in improved health and education outcomes for orphans.
3. ARV treatment with good nutritional intake and regular medical care can improve health and survival of HIV-positive children in resource-poor settings.
4. Psychological counseling and mentoring for orphans and vulnerable children improves their psychological well-being.
5. Programs that provide microenterprise opportunities, old age pensions or other targeted financial and livelihood assistance can be effective in supporting orphans.

## Structuring Health Services to Meet Women's Needs

The manner in which health services are structured has an impact on HIV prevention, treatment and care for women and girls. Women often need multiple services, including reproductive health and family planning services in addition to HIV prevention, treatment and care, but most health care facilities are not structured to provide integrated services. Importantly, health care providers must practice in a respectful, non-discriminatory manner.

What works for women in structuring health services includes:

1. Integrating HIV testing and services with family planning, maternal health care or within primary care facilities can increase uptake of HIV testing and other reproductive health services.

2. Promoting contraceptives and family planning as part of routine HIV services (and vice versa) can increase condom use, contraceptive use, and dual method use, thus averting unintended pregnancies among women living with HIV.
3. Providing VCT together with other health services can increase the number of people accessing VCT.
4. Scaling up PMTCT programs increases the number of women who know their serostatus, and improves HIV knowledge.
5. Clinic-based interventions with outreach workers can be effective in increasing condom use among sex workers.
6. Providing accessible, routine, high quality, voluntary and confidential STI clinical services that include condom promotion can be successful in reducing HIV risk among sex workers.
7. Home testing, consented to by household members, can increase the number of people who learn their serostatus.
8. Training providers can reduce discrimination against people with HIV/AIDS.
9. Establishing comprehensive post-rape care protocols, which include PEP, can improve services for women.
10. Providing clinic services that are youth-friendly, conveniently located, affordable, confidential and non-judgmental can increase use of clinic reproductive health services, including VCT.

### *Moving Forward with HIV/AIDS Programming for Women and Girls*

Overall, the review demonstrates that while there is significant evidence for what works, there are still many programming gaps related to women and girls for which no effective evaluated interventions were found. In addition, many studies still do not include sex-disaggregated data to begin the process of addressing the specific needs of women and girls. Structural interventions to improve the enabling environment, such as transforming gender norms and legal reform, are clearly critical but are more difficult to correlate with HIV outcomes. Evidence-based interventions that have been shown to work must be scaled up with clear understanding of local epidemical and gender contexts.

## Introduction

For more than 25 years AIDS has been taking a ravaging global toll. Women now make up half of those living with HIV infection. In sub-Saharan Africa—the region most affected—women account for nearly 60% of those living with HIV (UNAIDS, 2008). Women’s and girls’ vulnerability to HIV infection stems from a greater biological risk that is compounded by gender inequalities, violations of women’s human rights, including violence, and, for some women, criminalization and marginalization.

The impact of the HIV/AIDS epidemic among women and girls has not gone unnoticed. Numerous international political declarations have recognized women’s and girls’ specific risks and needs and have committed to act to address them. Multilateral and bilateral donors have established strategies to better address women, girls, gender equality and HIV/AIDS and a number of countries have developed national action plans. However, the funding and implementation of evidence-based programs for women and girls continue to lag.

There is an urgent need to develop and scale up strategies to address the needs of women and girls in the global AIDS response and to support women as agents of change. To do this effectively, we need evidence. The purpose of *What Works for Women and Girls: Evidence for HIV/AIDS Interventions* is to provide the evidence necessary to inform country-level programming. What Works is a comprehensive review, spanning 2,000 articles and reports with data from more than 90 countries, that has uncovered a number of interventions for which there is substantial evidence of success: from prevention, treatment, care and support to strengthening the enabling environment for policies and programming. What Works also highlights a number of gaps in programming that remain.

---

This document demonstrates the substantial existing evidence on meeting the needs of women and girls in developing countries facing the AIDS pandemic. It also serves to highlight the gaps that must be filled with strongly evaluated research

---

# International Political Commitments on Women, Girls and HIV/AIDS

Since the 1994 International Conference on Population and Development, governments have recognized that action must be taken to prevent HIV infections among women and girls, provide care and support, and address the “social, economic, gender and racial inequities” that increase vulnerability (ICPD Programme of Action, 1994). At the United Nations General Assembly Special Session in 2001, governments noted that “women and girls are disproportionately affected by HIV/AIDS” and committed to develop national strategies to “promote the advancement of women and women’s full enjoyment of all human rights; promote shared responsibility of men and women to ensure safe sex; empower women to have control over and decide freely and responsibly on matters related to their sexuality to increase their ability to protect themselves from HIV infection” (United Nations Declaration on HIV/AIDS, 2001).

In 2006, member states of the United Nations General Assembly went further in the Political Declaration on HIV/AIDS, committing themselves to, among other things:

- ▶ Promote responsible sexual behavior among youth and adolescents (including the use of condoms);
- ▶ Provide evidence- and skills-based, youth-specific HIV education and mass media interventions; and
- ▶ Provide youth-friendly health services;
- ▶ Eliminate gender inequalities, gender-based abuse and violence;
- ▶ Provide health care and services, including for sexual and reproductive health, as well as comprehensive information and education to increase the capacity of women and adolescent girls to protect themselves from the risk of HIV infection;
- ▶ Ensure that women can exercise their right to have control over, and decide freely and responsibly on, matters related to their sexuality in order to increase their ability to protect themselves from HIV infection;
- ▶ Take all necessary measures to create an enabling environment for the empowerment of women and strengthen their economic independence;
- ▶ Strengthen legal, policy, administrative and other measures for the promotion and protection of women’s full enjoyment of all human rights;
- ▶ Ensure that pregnant women have access to antenatal care, information, counseling and other HIV services;
- ▶ Increase the availability of and access to effective treatment to women living with HIV and infants in order to reduce mother-to-child transmission of HIV;
- ▶ Ensure effective interventions for women living with HIV, including voluntary and confidential counseling and testing, with informed consent; access to treatment, especially life-long antiretroviral therapy; and the provision of a continuum of care.

## Global Initiatives on Women, Girls and HIV/AIDS

A number of multilateral and bilateral donors have developed gender policies or strategies, including the two largest donors for AIDS, the Global Fund to Fight AIDS, Tuberculosis and Malaria and the U.S. President's Initiative for AIDS Relief.

The Global Fund's Gender Equality Strategy, approved in late 2008 (The Global Fund to Fight AIDS, TB and Malaria, 2009), is aligned with the principles underpinning the Global Fund's approach: country-led initiatives; evidence-based practices; subject to independent review; and able to be monitored. Based on the Gender Equality Strategy, the Global Fund promotes programs and seeks proposals that:

- ▶ Scale up services and interventions that reduce gender-related risks and vulnerabilities to infection;
- ▶ Decrease the burden of disease for those most at-risk;
- ▶ Mitigate the impact of the three diseases; and
- ▶ Address structural inequalities and discrimination.

The legislation authorizing PEPFAR in 2003 contained strong language related to gender and the need to address the vulnerability of women and girls with strong programming to reduce gender inequity (Ashburn et al., 2009; USAID/AIDSTAR-One, 2009). The Office of the Global AIDS Coordinator (OGAC) defined five strategies to address gender inequity, including:

- ▶ Increasing gender equity in HIV/AIDS activities and services;
- ▶ Reducing violence and coercion;
- ▶ Addressing male norms and behaviors;
- ▶ Increasing women's legal protection; and
- ▶ Increasing women's access to income and productive resources.

## National Strategies Have Been Developed But Implementation Is Lagging

Some countries have also created agendas that address gender issues within the AIDS pandemic. For example, Brazil brought together government agencies, the Ministry of Health and the Special Secretary for Women's Policies, along with leaders in women's rights and health promotion to develop an intersectoral policy to address women's needs in the AIDS pandemic: access to health services; sexual and reproductive health care; social service needs, etc. (Guimaraes de Andrade et al., 2008). Similarly, seven Southern African countries have

established national action plans on women, girls and HIV with multi-stakeholder involvement that include “a range of activities aimed at improving HIV prevention for women and girls and mitigating the impact of AIDS on them.” However, in 2007 only six of these plans had been costed out and partial funding had been provided for their implementation in just three countries (UNAIDS 2007c).

Analysis of the National Composite Policy Index from 130 countries of progress in creating an enabling policy environment for women suggests that policies and strategic plans are integrating women-related issues, but that funding for implementation is lagging (Carael et al., 2009).

## What Works Provides Evidence to Inform Programming

One reason for the lag in program implementation is the lack of easily accessible information on which strategies are most effective in addressing women’s and girls’ HIV prevention, treatment, care and support needs. *What Work for Women and Girls: Evidence for HIV/AIDS Interventions* compiles the evidence available to support successful interventions for HIV and

AIDS among women and girls with some attention to TB, malaria and hepatitis as they relate to HIV and AIDS.

---

Much can be learned for effective interventions globally from the evidence base garnered over the 25 years of the AIDS pandemic (Beck and Mays, 2006).

---

Clearly, the question of “what works,” is complex. A more meaningful question is: “What policies did the country develop that led to implementation of specific interventions that can be shown to have reduced risk behavior resulting in fewer new infections, which became evident in falling HIV prevalence rates?” (Parkhurst, 2008: 276). In designing HIV and AIDS programs, policymakers and program planners are faced with a wide array of interven-

tions. With scarce resources and growing demand for services, program priorities must be based on effective interventions. Most scientific and biomedical research on HIV and AIDS interventions has been written for scientists; little has been written specifically for policymakers. This material is intended for practitioners who are designing HIV and AIDS interventions meant to address the needs of women and girls, and who are deciding among priority interventions. Organizations that provide assistance to programs worldwide will also benefit from this evidence.

This evidence was obtained primarily through detailed searches of peer-reviewed publications documenting evaluated interventions for women and girls. In all, the evidence for *What Works* and *Promising* interventions includes 455 studies. [See *Chapter 2. Methodology*]

There are obvious limitations inherent in this approach: many worthwhile interventions do not have sex-disaggregated data, many interventions are not thoroughly evaluated, still others are not published in peer-reviewed journals or are not published at all. While this review covers many aspects of HIV/AIDS programming that are relevant for both women and men, it is

not intended to be an exhaustive review of all HIV/AIDS programming. Instead, the review focuses on interventions that have an impact on HIV outcomes for women and girls.

This document is also *not* meant to be a set of guidelines for gender-sensitive programming, as it does not cover what *should* be done; it merely documents practices for which there is evidence of successful approaches. This document is best used with the range of guidelines for programming and it highlights some of those guidelines. Ideally, this document will serve to spur more programmers to evaluate their successful approaches and add them to the lexicon of “what works,” as well as to encourage researchers to set research agendas based on areas that are clear and critical gaps for women and girls.

## Scaling Up of Effective Interventions for Women and Girls Is Needed

The interventions highlighted in this compendium are, for the most part, implemented on a small scale. Scant information is available on the costs of the interventions. It will be important to scale up the interventions to reach a broad range of relevant women and girls. In determining the feasibility of scaling up, it is important to assess the geographic coverage of the intervention, how gender was integrated and how well the intervention linked to a broader program strategy. How many countries were included? What populations/contexts within countries were included? Are any data regional, national or cross-national in scale? How well was gender integrated from conceptualization through implementation to evaluation? Was a gender analysis conducted to guide development of the program? Can the evidence be linked to a program strategy? It is also important to assess whether:

- ▶ Political support and buy-in for broad-scale implementation can be secured;
- ▶ Wider standards could be developed from the pilot or smaller-scale intervention;
- ▶ The intervention could be integrated into the public health system;
- ▶ Gender analysis in the broader program context is conducted and the intervention can be implemented given existing gender and epidemiology contexts;
- ▶ The intervention would have wide acceptability;
- ▶ Strategies can be devised to ensure acceptability;
- ▶ Information is available on the costs of the interventions.

Interventions identified as “what works,” will need to be adapted to local contexts and needs. Implementation of successful interventions for women and girls must also always respect their human rights.

## Organization of the Document

This document covers the evidence for gender-sensitive programming for women and girls. The chapters are organized under three broad sections: what works to prevent infection, including in women, young women and women with special prevention needs, such as sex workers and injecting drug users and female partners of injecting drug users; what works for women and girls living with HIV, such as treatment, meeting sexual and reproductive health needs, and preventing perinatal transmission; and what works to support women and girls, including strengthening the enabling environment through, among other things, addressing gender norms, violence against women and stigma and discrimination and promoting women's legal rights and access to education and livelihoods. Supporting women and girls also includes providing care and support, OVC programs and structuring health services to meet women's needs.

Each chapter in the document includes an introduction, followed by a list of interventions that work or are promising followed by the evidence to support the interventions and the remaining gaps in research, programming or evaluation. The document also includes a selection of the most recent clinical manuals and resources for program design, and references (citations for each study and web sites, where possible). In some areas, the evidence is quite limited because few evaluations have been conducted. The Gaps sections of the document are important because they include a number of expert recommendations or recommended interventions based on studies measuring knowledge or attitudes that are expected to work but have not been formally evaluated.

---

This document serves the unique function of bringing all of these topics together to provide a full range of gender-sensitive programming for women and girls.

---

This document serves the unique function of bringing all of these topics together to provide a full range of gender-sensitive programming for women and girls.

It is very important to note that each of these chapters addresses topics that, themselves, could be the focus of multiple books. The authors have endeavored to cover the major evidence in each of these areas about what works for women; however, more nuanced information about these topics can be found in the myriad references and websites devoted to them, some of which are referenced in this document.

The document is not designed to provide complete recommendations on program design for particular topics, but rather serves the unique function of bringing the evidence for all of these topics together to provide a fuller picture of the range of gender-sensitive programming for women and girls.

## Scope of the Evidence

This document includes over 2,000 references from programs and studies in 90 countries, including 30 in sub-Saharan Africa, 13 from East and South East Asia, 4 from South Asia, 16 from Latin America and the Caribbean, 12 from Eastern Europe and Central Asia, three from North Africa and the Near East and 12 from North America, Western and Central Europe and Oceania. Among these countries, the countries generating the most evidence include Uganda and South Africa. In addition, data from a number of additional countries are included in introductions to chapters and sections.

**Table 1.1**  
**Countries included in *What Works* (N=90)**

Africa	East/South East Asia	South Asia	Latin America and the Caribbean	Eastern Europe and Central Asia	North Africa/ Near East	North America/ Western and Central Europe and Oceania
30	13	4	16	12	3	12
Angola	Cambodia	Bangladesh	Argentina	Azerbaijan	Egypt	Australia
Benin	China	India	Bahamas	Bosnia and Herzegovina	Iran	Canada
Botswana	Hong Kong	Nepal	Brazil	Estonia	Turkey	France
Burkina Faso	Indonesia	Sri Lanka	Chile	Georgia		Italy
Cameroon	Laos		Colombia	Kazakhstan		New Zealand
Côte d'Ivoire	Malaysia		Cuba	Kyrgyzstan		Papua New Guinea
Democratic Republic of Congo/Zaire	Mongolia		Dominican Republic	Moldova		Poland
Ethiopia	Myanmar		Ecuador	Romania		Serbia
Gabon	Philippines		Guyana	Russia		Spain
Ghana	South Korea		Haiti	Tajikistan		Switzerland
Kenya	Taiwan		Honduras	Ukraine		United Kingdom
Lesotho	Thailand		Jamaica	Uzbekistan		United States
Liberia	Vietnam		Mexico			
Madagascar			Nicaragua			
Malawi			Peru			
Mauritius			Trinidad and Tobago			
Mozambique						
Namibia						
Nigeria						
Republic of Congo						
Rwanda						
Senegal						
Sierra Leone						
South Africa						
Sudan						
Swaziland						
Tanzania						
Uganda						
Zambia						
Zimbabwe						

## Methodology

Over the past five years, in addition to a wide array of research, advocacy and position papers focusing on the needs of women and girls, there has been an increase in the number of strongly evaluated published interventions that have proven effective in reaching various groups of women and girls and caring for their particular needs. The focus of this document is to gather the evidence of what programs have positive outcomes for women in HIV/AIDS prevention, treatment and care. This document reviews the evidence available on interventions and provides a summary of the evidence, along with the supporting research that documents the effectiveness of interventions designed to address the needs of women and girls.

### The Complexities of Measuring What Works

Measuring “what works” is complicated since the outcomes and impacts of interventions depend on a number of biological and proximate determinants (Boerma and Weir, 2005). Understanding the epidemiology of HIV, how it is spread and who is at risk is critical for developing and evaluating successful interventions (Chin, 2007). The epidemiological concept of the reproductive number for HIV,  $R_0$ <sup>1</sup> is a key component in

---

#### Key Steps in the Methodology

1. Conducted SCOPUS searches on HIV and women
  2. Included searches of gray literature from key websites/ organizations
  3. Reviewed titles/studies for interventions that had outcomes and were evaluated—focusing on what works for women and girls
  4. Summarized relevant studies
  5. Used Gray Scale to evaluate strength of evidence
  6. Sought extensive review by experts
- 

<sup>1</sup> “When, *on average*, one infected person infects more than one other person,  $R_0$  is greater than ( $>$ ) 1 and the result will be epidemic spread of an agent [HIV]. However, when, *on average*, one infected person does not infect more than one other person,  $R_0$  is less than ( $<$ ) 1 and the epidemic spread does not occur. When  $R_0$  is  $<1$ , the infectious agent will slowly disappear and if  $R_0$  stays close to 1 the agent will maintain itself in the population with no or minimal growth (i.e., becomes endemic)” (Chin, 2007: 60).

understanding the epidemic in any given population.  $R_0$  “is the number of secondary cases which one case would produce in a completely susceptible population [which] depends on the duration of the infectious period, the probability of infecting a susceptible individual during one contact, and the number of new susceptible individuals contacted per unit of time” (Dietz, 1993: 23). Not surprisingly, the reproductive number for HIV varies considerably within and across countries and among groups within countries. For this reason, interventions need to be carefully tailored for various groups.

Operating in specific socioeconomic, cultural (including gender), and demographic settings, interventions, such as counseling and testing, must affect “proximate determinants” such as number of concurrent partners, condom use, blood safety practices, etc., which must act through biological determinants (exposure, efficiency of transmission per contact and duration of infectivity) to affect HIV transmission. “The distinction between underlying and proximate determinants is important for the conceptualization of pathways through which underlying determinants, including interventions, may affect infection” (Boerma and Weir, 2005: S64). Thus, when interventions are determined to work in this compendium of evidence, they have been shown to work through a pathway to affecting HIV—or at least a proximate determinant, such as partner reduction or condom use. Yet, a word of caution is due unless biological outcomes are measured. For example, it is possible for an intervention to increase condom use but “the effect of such an increase would depend on the extent to which condoms were used during sexual contact between infected and susceptible partners” (Boerma and Weir, 2005: S66). In this compendium, examples of interventions that improve proximate determinants with no impact on HIV are noted.

Rates of HIV prevalence reflect infections that have happened in the past. Therefore, it is important that programs and policies be based on the question: “Where will the next 1,000 infections occur?” (Bertozzi et al., 2008: 833). Policy and program responses to this question must be based on a clear understanding of the epidemiology of HIV, an understanding of the contexts in which women and girls live and the factors that make them vulnerable to HIV infection and evidence of what works.

## Search Methodology

To search for relevant interventions that had been evaluated, SCOPUS<sup>2</sup> searches were conducted for 2005–2009, using the search words HIV or AIDS and women. Additional topics were researched using “syphilis and HIV;” “gender and HIV;” “malaria and HIV;” “breastfeeding and HIV;” and “abortion and HIV.” For the years 2005 to 2009, a total of 7,744 citations were generated. Of these citations, approximately 2,500 articles were reviewed in full. If the article title indicated that there might be an intervention that could be replicated; then the article

---

2 Scopus is the largest abstract and citation database of peer-reviewed literature and quality web sources with smart tools to track, analyze and visualize research (<http://info.scopus.com/scopus-in-detail/facts/>)

was obtained and reviewed. The lead author read and reviewed all the articles obtained and determined if there was sufficient information to be included in “What Works” and that the intervention took place in Asia, Africa, Latin America and the post-Soviet states. Key interventions that had taken place only in the US, Europe, Japan and Australia were included only if the authors determined that they could be relevant for developing country contexts but had not yet been initiated in developing countries. For example, many of the studies on the safety of contraceptive options for HIV positive women have been conducted in developed countries but are relevant for women throughout the world. Likewise, much of the scientific evidence base for harm reduction for intravenous drug users (IDU) comes from developed country contexts. If studies met the criteria that they included an intervention which had an outcome and had been evaluated for effectiveness, one of the authors read and wrote up the intervention in a standard format: study year, country where the study took place; the numbers included in the study (N); study design; the intervention; and the outcome.

From 2001 to 2005, searches on women and AIDS were conducted using Popline and Medline. Few studies prior to 2005 have been included and only when more recent data are not available. Studies prior to 2005 were included if they were key articles with more robust methodologies, and data than studies in more recent years; or more recent data did not exist. For example, all the studies on treatment options for occupational exposure to HIV were done in the 1990s, so these were included.

In addition, the authors searched the gray literature by reviewing documents from some key websites. Key websites reviewed included: UN agencies, UNAIDS, World Health Organization (WHO), The Cochrane Collaboration; OSI; ICRW; Population Services International (PSI); The Population Council; ICW; World Bank; Family Health International (FHI); AIDStar I, and the Guttmacher Institute.

Themes emerged from these write-ups and the authors shaped those themes into an intervention point. These are the numbered interventions in each chapter. It is important to note that these interventions emerged organically from the evidence; the authors did not select interventions and look for supporting data.

Experts were consulted during the writing of the document (see Acknowledgments). A number of these experts provided review comments that were incorporated into the final document. A review meeting was held in Cape Town, South Africa, February 17–19, 2010. Sources for January and February 2010 have been included only if they provide significant new evidence related to the review. Forthcoming material was not included, as there was no systematic way to include such material.

## Limitations

One limitation of the methodology used is that the search methodology did not capture other endpoints besides HIV/AIDS. For example, increased education for girls is associated with reduced risks of HIV acquisition. The search did not include program interventions to keep

girls in school, for example. The chapter on co-infections, particularly the section on malaria, was not as thoroughly reviewed as other topics in the compendium. Stakeholders should consult the relevant experts for each of those topics. The topic of legal reform related to HIV/AIDS did not receive a systematic review of the legal literature that health related topics received in the public health and HIV/AIDS literature. Stakeholders wishing to work on legal reform should consult with legal experts.

It should be noted that there are likely many valuable interventions that have not been evaluated and/or published in the public peer reviewed literature. Important websites may have been unintentionally missed. Additionally, it is clear that faith-based organizations have played a major role in responding to the AIDS pandemic and they are responsible for a significant proportion of treatment, in addition to care and support, including spiritual support. Their role in prevention has also been strong, although not without controversy. The literature reviewed for this compendium of evidence did not yield many studies based on programs implemented by faith-based organizations that met the criteria for inclusion in this document. Given the role of faith-based organizations, this is a significant gap in the evidence base.

Furthermore, while the authors attempted to undertake a systematic review of the evidence, and to get input from expert reviewers, some key resources here are not an exhaustive list, however, and some important interventions may be inadvertently omitted. This document should be viewed as a living document; to be updated as new information is available.

## How Evidence is Included in the Compendium

This resource contains research published in peer-reviewed publications and study reports with clear and transparent data on the effectiveness of various interventions for women and girls, program and policy initiatives that can be implemented to reduce prevalence and incidence of HIV and AIDS in developing countries. Basic information, as well as policy issues concerning treatment and care for HIV and AIDS is also included. Biomedical information is included in so far as it is relevant to programmatic considerations. Most evidence in the document comes from developing countries; however, where that was not available, evidence from developed countries is included. Articles in English, Spanish and French were reviewed. However, the vast majority of the literature was in English.

Evidence in the compendium was rated, to the extent possible, using the Gray Scale (Gray, 1997), which lists five levels of evidence.

**Table 2.1**  
**Gray Scale of the Strength of Evidence**

Type	Strength of evidence
I	Strong evidence from at least one systematic review of multiple well designed, randomized controlled trials.
II	Strong evidence from at least one properly designed, randomized controlled trial of appropriate size.
III	Evidence from well-designed trials without randomization: single, group, pre-post, cohort, time series, or matched case-control studies.
IV	Evidence from well-designed, non-experimental studies from more than one center or research group.
V	Opinions of respected authorities, based on clinical evidence, descriptive studies or reports of expert committees.

In the case of abstracts from the latest International AIDS Conference (2008) or from relevant conferences in 2009 or 2010, the Gray Scale was not included since it was not always possible to ascertain the appropriate Gray Scale rating from the abstract. All printed abstracts from the XVII International AIDS Conference in Mexico City, Mexico, August 2008 were reviewed and included if they met the criteria for inclusion. The 2008 XVII International AIDS Conference abstracts were searched online ([www.iasociety.org](http://www.iasociety.org) for the 2008 conference) using keywords such as “breastfeed” and “malaria.” Some authors of 2008 abstracts were emailed in 2009 to see if particularly promising data had been published. Where possible, the published articles were included, with the appropriate Gray Scale included. In addition, abstracts from the International Family Planning Conference ([www.fpconference2009.org](http://www.fpconference2009.org)), held in Kampala, Uganda in November 2009, were included.

One weakness of the Gray scale is prioritizing randomized controlled trials, as randomized controlled trials are “primarily a vehicle for evaluating biomedical interventions, rather than strategies to change human behavior. Altering the norms and behaviors of social groups can sometimes take considerable time...” (Global HIV Prevention Working Group, 2008: 12). Much of the evidence cited in this document falls in strength levels IV and V; however, many studies fall in strength level III, with growing numbers of systematic reviews (level I) and randomized control trials (level II). Not all of the interventions listed here have the same weight and those that are promising but require further evaluation are identified. It must also be noted that randomized controlled trials—the gold standard of the Gray ratings—are not always ethical or appropriate for certain HIV interventions and therefore should not be the only factor in judging the relative weight of any particular study. Furthermore, many HIV prevention programs that address key issues in novel, context-specific ways are often not rigorously evaluated (Gupta et al., 2008a).

In cases where a majority of the evidence, and particularly strong evidence, exists for an intervention, this was listed in each section as “what works.” Criteria set for “what works” and “promising” were:

- ▶ *What Works*: strongly rated studies (Gray I, II or III) for at least two countries and/or five weaker studies across multiple settings.
- ▶ *Promising*: studies that were strongly rated but in only one setting or a number of weaker studies in only one country.

Within each intervention, studies are listed in order of Gray Scale, with the strongest studies first (Gray I, II, III, etc.) and abstracts last. In some chapters, such as Chapter 11 that discusses the enabling environment, where structural interventions cannot be linked as directly with impact on HIV infection, the authors, based on comments from reviewers, exercised judgment on “what works,” and promising interventions.

Where an intervention could have both positive outcomes for women and negative outcomes, this was noted. For example: microcredit can reduce HIV-related risk behaviors (Pronyk et al., 2008), but it could also increase violence against women if the intervention is not carefully designed and appropriate to local context (Schuler et al., 1998; Gupta et al., 2008a).

In the course of reviewing the literature to generate “what works,” a number of gaps emerged from the literature.

- ▶ *Gaps*: programs that need to be implemented to meet women’s needs related to the HIV/AIDS pandemic but did not exist with evaluated data.

However, no search mechanism was possible to generate gaps. Where gaps emerged in the literature, these were noted. Evidence of a gap is not exhaustive but illustrative, providing a few examples. Evidence of a problem—such as the prevalence of violence against women—is described in the introduction to each section.

No attempt has been made, as is done in the Cochrane Collaboration, to reanalyze the data on interventions. For some interventions, many large-scale studies including some randomized controlled trials are listed; for other interventions, supporting research is available from only one study using a small sample size. With review articles, the original studies are cited as reported in the review. An attempt has been made to use the original studies and primary sources; but where the original could not be located, the authors relied on review articles. Evidence from review articles is noted (e.g., x cited in y).

When possible, objective measures such as a decrease in HIV seroconversion rates or a decrease in rates of other STIs are used as evidence. If these measures are not available, evidence is drawn from studies using self-reported behavior changes such as condom use, monogamy, sexual abstinence and a decrease in number of sex partners. This document does not address fully the issues of cost, equity, or sustainability.

Where possible, we have included sex disaggregated data. Where an intervention is relevant for both men and women, but does not have sex disaggregated data, it is included. For the chapters that are heavily medical interventions, such as those related to treatment and co-infection, only interventions that apply to women are included in the compendium.

In all, the evidence for *What Works* and *Promising* interventions includes 455 studies.

**Table 2.2**  
**Number of Studies Supporting What Works and Promising Interventions, by Chapter Topic**

Chapter Topic	Number of studies supporting What Works/Promising Interventions*
Prevention for Women	43
Prevention for Key Affected Populations	55
Prevention for Young People	43
HIV Testing and Counseling for Women	47
Treatment	12**
Meeting the Sexual and Reproductive Health Needs of Women Living with HIV	33
Safe Motherhood and Prevention of Vertical Transmission	83
Preventing, Detecting and Treating Critical Co-Infections	17**
Strengthening the Enabling Environment	63
Care and Support	38
Structuring Health Services to Meet Women's Needs	21
<b>Total</b>	<b>455</b>

\* *What works* is based on strongly rated studies (Gray I, II, or III) for at least two countries and/or five weaker studies across multiple settings. *Promising* includes studies that were strongly rated but in only one setting or a number of weaker studies in only one country.

\*\* Most studies conducted on ARV treatment, tuberculosis and hepatitis do not include sex-disaggregated data although many of the findings are clearly relevant to women as well as men (e.g. the effectiveness of ARV treatment in reducing CD4 counts, strong adherence rates). The studies included attempt to highlight issues women face regarding treatment.



## Prevention for Women

- A. Male and Female Condom Use
- B. Partner Reduction
- C. Male Circumcision
- D. Treating Sexually Transmitted Infections

In 2008, more than one million people living with HIV had initiated antiretroviral treatment yet another 2.7 million individuals became HIV-positive (Sepulveda, 2008). More than half of new infections were among women, with the largest proportion among young women. If the HIV pandemic is to be contained, primary prevention efforts for women and men based on scientifically-derived evidence must accompany rapid expansion of antiretroviral treatment (Stover et al., 2007).

Unfortunately, “HIV prevention is neither simple nor simplistic. We must achieve radical behavioural changes—both between individuals and across large groups of at-risk people—to reduce incidence” (Coates et al., 2008: 670). Prevention efforts need to be tailored to the epidemiologic and socio-cultural realities of each country and region, and the specific needs women face. Behavior change (e.g. condom use, partner reduction, use of clean needles) needs to be promoted through a variety of means, including structural changes, such as changes in legal and gender norms, and promoting girl’s education and employment opportunities. [See Chapter 11. *Strengthening the Enabling Environment*] In some countries in sub-Saharan Africa, where 10–30% of the population is living with HIV, everyone must understand the widespread risk for HIV transmission and general interventions for women may be warranted. In other countries, specific key populations of women have much higher levels of HIV prevalence and need to be the focus of prevention efforts. [See Chapter 4. *Prevention for Key Affected Populations*]

---

“We cannot treat our way out of this pandemic.”

(Merson et al., 2008: 485)

---

Sexual behaviors and the sharing of injection equipment that cause most HIV infections worldwide occur due to a variety of motivations (e.g., reproduction, desire, peer pressure, desire to please, access to material goods, gender norms, coercion, etc.). Epidemiological studies have shown that multi-partner sex, paid sex and STIs are important risk factors in the AIDS pandemic, no matter what stage of the epidemic (Chen et al., 2007b). Sustaining behavioral change among individuals, couples, families, peer groups, networks, institutions and/or communities is no easy task, but can occur through educational, motivational, peer-group, skills-building or community normative approaches (Coates et al., 2008).

“A quarter of a century of AIDS responses has created a huge body of knowledge about HIV transmission and how to prevent it, yet every day, around the world, nearly 7,000 people become infected with the virus...with no vaccine in sight and the number of new infections outpacing the progress in access to treatment, we clearly need to take a long-term view in planning our actions...Prevention work takes the longest time, is largely outside of health services, and has no ‘quick win.’ If not tackled, prevention work will also continue to undermine all the other gains” (Piot et al., 2008: 845, 855, 857).

## Prevention Efforts Can Succeed

Prevention successes among women and men have been reported in Cambodia, Kenya, Zambia, Zimbabwe, India and Haiti. In these countries sizable shifts in behavior have occurred, through a combination of government leadership and community activism (Global HIV Prevention Working Group, 2007). In Zambia, among women younger than age 17, HIV seroprevalence declined from 12% in 2002 to 7.7% in 2006 (Stringer et al., 2008). In Kenya, adult prevalence has declined from 10% in the late 1990s to less than 7% by 2004 (Cheluget et al., 2006). Thailand and Uganda reduced rates of HIV infection. Senegal averted an epidemic. Brazil, Côte d’Ivoire, Malawi, Tanzania, Zimbabwe have all reported decreases in HIV transmission related to changes in sexual behavior, as has rural parts of Botswana, Burkina Faso, Namibia and Swaziland and urban parts of Burundi and Rwanda (Kippaz and Race, 2003; Stoneburner and Low-Beer, 2004; UNAIDS, 2001 cited in Coates et al., 2008). Prevalence decreased from 15% in 1995 to 11% in 2002 in Côte d’Ivoire (Msellati et al., 2006). As of 2008, Namibia has increased HIV prevention skills in 79% of secondary schools; as a result, sex before the age of 15 years and the percentage of people reporting multiple partners has dropped (UNAIDS, 2008 cited in Coates et al., 2008).<sup>1</sup>

---

<sup>1</sup> Attributing prevention efforts as a direct cause of HIV prevalence decline is speculative. If HIV prevention programs are implemented when HIV epidemics are at or near their peak, the subsequent decrease in prevalence might be incorrectly attributed to prevention programs (Chin and Bennett, 2007).

## Special Risks for Women

Still, despite the many documented successes of prevention programs, in 2007 fewer than 10% of individuals at risk worldwide received key prevention services (Merson et al., 2008). Those that do receive prevention services are not always the only appropriate target. “When HIV programmes largely focus on sex work, drug use and male-to-male-sex, it contributes to low HIV risk perceptions in the general population. Intimate partners are often left out and there is [a] lack of couple communication about sexual matters” (UNAIDS, 2009: 15). There is also lack of communication about related matters, such as alcohol use, which is associated with risky sex. A review of 73 articles representing research conducted in 19 different sub-Saharan countries published between 1992 and 2007 found that HIV seropositivity and high-risk sexual behavior was correlated with alcohol use (Woolf and Maisto, 2008). Alcohol use inhibits judgment and can lead to unprotected sex and violence. A survey of 3,073 people in Tanzania found that lifetime alcohol users and those who reported intoxication in the past months had greater odds of having recent unprotected sex (Kilonzo et al., 2008b) and a study of 12 focus group discussions in rural Uganda in 2002 found that both men and women viewed men’s alcohol use as related to rape; agreeing with the assumption that women who accept alcohol from men will agree to have sex (Wolff et al., 2006).

Rape survivors need timely access to post-exposure prophylaxis (PEP), as do health providers who have an occupational exposure. Despite the absence of a randomized clinical trial on efficacy of PEP, there is significant evidence from animal transmission models, perinatal HIV transmission studies, observational studies, studies of PEP in health care workers, and meta-analysis indicating that PEP is effective in reducing HIV transmission (CDC, 1998; Bell, 1997; Young et al., 2007 cited in Siika et al., 2009). Although the efficacy of post-rape antiretroviral prophylaxis has not been determined, zidovudine reduces the transmission of HIV after needle stick injury by 81% (Cardo et al., 1997; Petra Study Team, 2002 cited in Carries et al., 2007). “As such, there is current consensus that HIV prophylaxis should be provided immediately after an exposure where there is judged to be risk of HIV acquisition” (Siika et al., 2009: 48). *[See also Chapter 11B. Strengthening the Enabling Environment: Addressing Violence Against Women]*

More prevention interventions are needed on a universal level so that everyone—including married women, for example, who may not realize their level of risk—can communicate with their partners and protect themselves.

## What Works in Prevention for Women

A number of prevention strategies already work to help women prevent HIV. These include male and female condom use, partner reduction, and seeking treatment for sexually transmitted infections. In addition, male circumcision works for men and will likely, in the long run, also protect women. Each of these areas has substantial evidence to justify their use

and a number of promising strategies to help women protect themselves from HIV. While partner reduction can potentially have the greatest impact, less evidence exists for how people can be encouraged to reduce the numbers of concurrent sexual partners, both as adults and adolescents. Each of these topics is discussed in more depth in sections A–D of this chapter. Prevention efforts must be informed by “what works to support women and girls,” particularly to strengthen the enabling environment by transforming gender and legal norms; addressing violence against women, legal capacity, inheritance and property rights; increasing opportunities for employment and income, reducing stigma and discrimination, and promoting women’s leadership. [See Chapter 11. *Strengthening the Enabling Environment*] Women have multiple types of sexual partnerships: some women have only one sexual partner but are still at high risk for HIV acquisition from their sexual partner; some women have multiple sexual partnerships to survive economically [See Chapter 4. *Prevention for Key Affected Populations*]; some women are young and are engaged in cross-generational sex, placing them at high risk [See Chapter 5. *Prevention for Young People and Chapter 12B. Care and Support: Orphans and Vulnerable Children*]. HIV prevention efforts will need to be tailored to a wide spectrum of risks for women. Women, themselves, have been leaders in HIV prevention efforts and creating awareness of the epidemic both at grassroots community levels as well as at the highest levels of government in fighting for prevention efforts to meet their varied needs. These efforts must be encouraged and promoted.

## Some Women Are Overlooked in Prevention Programming

Older women and women with disabilities also need attention in HIV prevention programming but are often neglected. Additional research is necessary to discern the major risks facing these women and to evaluate interventions addressing those risks.

### *Women Over the Age of 50*

Women past the age of childbearing are often ignored in HIV prevention (Conde et al., 2009). HIV prevention and education efforts are needed for people over the age of 50. A WHO review of HIV in developing countries found that “sexual activity of older individuals in the developing world is barely researched. Many older individuals everywhere are sexually active” (Schmid et

---

“Grandmothers are too often and incorrectly assumed to be sexually inactive.”  
(Sepulveda et al., 2007)

---

al., 2009: 162). A study in hospital of 706 cataract surgery patients over age 50 in Ethiopia found an HIV seroprevalence rate of 5% (35 out of 706) (Kassu et al., 2004). A review of medical records at a health center in Kampala, Uganda found 45 clients over the age of fifty who were HIV-positive, over half of whom were women. Condom use was low and many had multiple partners and low levels of treatment literacy (Nabaggala, 2008). In Brazil, 51,255

AIDS cases reported from 1982 to 2006, 2,668 were 50 or older. The proportion of patients age 50 or older has steadily increased from 11% in 2000 to 15% in 2005. Of the 1,686 aged 50 or older from 2000 to 2006, 37% were women (Sanches and Guillen, 2008). “Elderly grandmothers...appear to be forgotten in terms of their need for HIV/AIDS prevention information and education” (Sepulveda et al., 2007). Due to ARV therapy, more HIV-positive women are reaching menopause. Interventions for post-menopausal HIV-negative women, such as evaluation of cardiovascular risk, osteoporosis, etc. are also believed to benefit women living with HIV (Conde et al., 2009).

### *Women With Disabilities*

Women with disabilities are also at risk for HIV but are often overlooked in HIV prevention strategies. A study in South Africa interviewed twenty-five people with disabilities and caregivers, and found that people with disabilities are “abused through sexual purification rituals, sexual exploitation and have less access to prevention and treatment” due to cultural misconceptions surrounding disability (Hanass-Hancock, 2008). Those with disabilities also experience stigma and a lack of recognition of their sexual activity.

Interventions are needed to integrate HIV/AIDS prevention and services with disability and mental health services. The Brazilian National AIDS Program launched a national campaign (year not specified) to integrate STI/AIDS services with disabilities care and found that it was difficult to dispel misconceptions about sexuality and behavior of people with disabilities. The program also found a lack of accessible information for people with disabilities and cultural and sexual practices involving people with disabilities need to be considered in order to improve HIV/AIDS prevention efforts (Drummond Cordeiro et al., 2008).

A program in Uganda (year not specified) integrated women with disabilities into HIV/AIDS services by combining the efforts of AIDS Services Organizations and Disabled Peoples Organizations to remove barriers of physical access and stigma. The program found that Disabled Peoples Organizations and AIDS Services Organizations wanted to integrate services but lacked capacity, funding or acknowledgment. They also discovered that explicit effort to connect women with disabilities to AIDS services resulted in reducing stigma of both groups and increasing the quantity of people accessing AIDS services (Tataryn and Shome, 2008).

Services specifically for disabled populations are more likely to be used than general services. For example, a 2003–2007 study in Kenya that provided deaf mobile VCT services indicated that deaf clients were more likely to access deaf mobile VCT services than regular VCT services. In Kenya, it is estimated that more than 3 million people are deaf, with higher rates of HIV. Deaf mobile VCT services use trained deaf personnel to provide counseling. 2,098 deaf clients accessed deaf mobile VCT services as compared to 1,536 deaf clients accessing regular VCT services (Sati, 2008).

Little evidence is available regarding what works specifically for women over the age of fifty and disabled women and much more research is necessary.

## Critical Prevention Approaches Under Development

A number of biomedical prevention technologies are currently in clinical trials to assess their safety and effectiveness. These include vaccines, microbicides and the use of ART as prophylaxis. Once these are shown in clinical trials to be safe and effective, they can be optimized to impact the epidemic. Vaccines, microbicides and other female-controlled technologies represent a large gap in primary prevention for women. Further progress in these areas is urgently needed. For updates on biomedical HIV prevention research, please refer to: [www.avac.org](http://www.avac.org).

### *Vaccines*

While recent trials have been promising, an HIV vaccine is yet to be developed. A vaccine can have special benefits for women. An effective vaccine would provide women autonomy to protect themselves against HIV acquisition. A recent trial of an HIV vaccine with 16,402 healthy men and women ages 18 to 30 in Thailand found a vaccine efficacy of 31.2 percent, a modest efficacy, with less HIV acquisition among women than men among those on the vaccine as compared to placebo. The vaccine efficacy may have been greater in persons at lower risk of HIV acquisition.” ...After the exclusion of the subjects who were infected with HIV-1 before vaccination, the modified intention-to-treat analysis showed a significant, though modest, reduction in the rate of HIV-1 infection, as compared with placebo” (Rerks-Ngram et al., 2009: 8–9). As some vaccine experts note, however: “It is misleading to say that a vaccine is the solution” as even once a vaccine is invented in five to ten years hence, “the AIDS epidemic will be with us for many years.” It is unlikely that the first generation of vaccines will be 100 percent effective. “We remain cautiously optimistic that a substantial increase in our understanding of HIV infection and disease will lead to creative ideas about how to design an effective vaccine” (Johnston and Fauci, 2008: 890). However, “scientists agree that with no prospect of an effective vaccine to curb the HIV/AIDS pandemic in the foreseeable future, expanding the repertoire of prevention tools is all the more important” (Stephenson, 2008: 1529).

### *Microbicides*

Microbicides, a female-controlled technology, refer to a variety of topically applied products that holds great promise for women to be able to protect themselves from HIV, other STIs (Global Campaign for Microbicides, 2007), and unwanted pregnancy. Where the status of women makes it difficult for women to refuse sex or negotiate condom use, microbicides would greatly improve women’s ability to protect themselves. Microbicides are being designed to be applied by the woman in her vagina so that women could use this future HIV prevention tool more autonomously. “Because the majority of new infections, certainly in Africa, occur in married women who contract the infection from their husbands’ presumed extramarital relationships, methods that allow for discreet use may be especially attractive in marital or long-term partnerships” (Mantell et al., 2008a: 97). However, in most clinical trials of microbicides, male involvement was the desired norm among female participants. Building on the

experience observed in clinical trials, focusing on sexual pleasure may increase future use. Microbicides for anal use are also under development.

The first generation of microbicides is expected to be less than 100 percent effective and will ideally need to be used with a condom. However, even if used alone, a partially effective microbicide could have a significant impact on HIV incidence (assuming risk taking does not increase with the use of this method). However, in 2009, leaders in the field of HIV/AIDS noted, "...we are still many years away from either a vaccine or a microbicide to protect against HIV transmission" (Piot et al., 2009: 1). Women need access to both contraceptive and non-contraceptive microbicides, because some women will want to prevent HIV, STIs, and pregnancy, while other women will want to conceive without the risk of disease transmission.

### *Pre-Exposure ART*

Pre-exposure prophylaxis with antiretroviral drugs is currently being studied as a prevention technique. Delivery of pre-exposure prophylaxis with ART can be by oral ART pills, topical (vaginal or anal) formulations such as gels, films, suppositories, rings or injectable/implantable antiretrovirals. Pre-exposure prophylaxis would be delivered orally and microbicides would be delivery topically. "To date, ...topical products ...have not proven effective" (Mastro et al., 2008: 5). Seven human randomized, placebo controlled clinical trials of the safety and efficacy of oral ART pre-exposure are either ongoing or planning to start in 2009 (Mastro et al., 2008). One study of daily use of pre-exposure ART in HIV-negative women did not find an association with clinical or laboratory adverse events (Peterson et al., 2007). The implications for women of ART for prevention, including through "test and treat," approaches, needs to be considered carefully. For example, an increased push for HIV testing could have negative implications for women. [See Chapter 6. *HIV Testing and Counseling for Women* and Chapter 9. *Safe Motherhood and Prevention of Vertical Transmission*]

## **Prevention for All Women and Girls**

The prevention strategies in this chapter are applicable for all women; however certain groups of women and girls have particular prevention needs. Therefore, while this chapter presents what works for generally for all women, the two following chapters (*Chapter 4. Prevention for Key Affected Populations* and *Chapter 5. Prevention for Young People*) provide additional considerations and strategies for groups such as sex workers, female drug users, women and girls in complex emergencies, young people, etc. The three chapters should be viewed together as a whole to identify what works in prevention for women.

### 3A. *Prevention for Women: Male and Female Condom Use*

The role of condom use in prevention of sexual transmission of HIV is clear. According to the WHO and the U.S. National Institutes of Health, male condoms that are intact are essentially impermeable to even the smallest sexually transmitted virus (UNAIDS, 2004). The effectiveness of male condoms has been shown to be between 80–95 percent, depending on how correctly they are used (Weller and Davis-Beaty, 2007; Holmes, Levine and Weaver, 2004; Hearst and Chen, 2004).

While the efficacy of the female condom in preventing HIV transmission has yet to be studied (IOM, 2001), mathematical modeling indicates that consistent use of female condoms, even at lower rates of efficacy, can play an important role in HIV prevention, especially for women whose partners will not use male condoms (Musaba et al., 1998). The efficacy of the female condom in preventing HIV transmission may never be fully determined. “While all evidence points to the effectiveness of female condoms to prevent HIV transmission and acquisition, it would be ethically impossible to test female condoms for HIV prevention: one cannot conduct a trial and give participants only female condoms and female and male condoms cannot be combined during the same sexual act. There is no possibility of doing a true gold standard randomized controlled clinical trials for female condoms” (Gabelnick, 2007, cited in CHANGE, 2008). Still, with laboratory and modeling studies indicating that the female condom is likely as effective as the male condom, the female-controlled female condom is a critical component to HIV prevention for women.

#### *Consistent Condom Use Is Effective in Reducing HIV Transmission*

Consistency is key. Women’s lifetime risk of infection decreases with the consistent use of condoms. A microsimulation in Malawi found that if men always use male condoms with women who are not their wives, women’s lifetime risk falls to 9 percent and that if both men and women always use condoms with partners other than their spouses, women’s lifetime risk of infection falls to 8 percent (Bracher et al., 2004). Findings from Rakai, Uganda, showed that among 350 women who reported consistent male condom use, none became HIV-positive, but annual HIV incidence was 4.6 percent among women who reported inconsistent condom use (Kiddugavu et al., 2003). Conversely, many studies have shown that inconsistent condom users are at higher risk of HIV transmission than those who never use condoms. This may be because their behavior is riskier in other ways. Mathematical models suggest that a small number of people who use male condoms consistently can have a greater impact on reducing HIV transmission than a larger number who use them inconsistently (Hearst and Chen, 2004). Interventions promoting consistent condom use are therefore paramount in reducing the incidence of HIV.

Variations in condom use across regions, countries and populations indicate that condom promotion should address barriers (socio-cultural, legal and policy, economic and financial and structural barriers) faced by different groups of women such as youth, married women, discordant couples, sex workers, and IDUs, among others (Drezin, Torres and Daly, 2007).

## *Female Condoms Are the Only Female-Initiated HIV Prevention Method*

The female condom is also woefully under-programmed in prevention programs. While attention is drawn to work on AIDS vaccines and microbicides, in fact, the female condom is the first HIV prevention technology developed since the beginning of the AIDS epidemic (Brown et al., 2007). In fact, “twenty years into the HIV epidemic, female condoms are the only currently available female initiated method of HIV...prevention (Napierala et al., 2008: 121).”

Evidence shows that female condom use increases the total number of protected sex acts (Vijayakumar et al., 2006) and reduces sexually transmitted infections (Hoke et al., 2007), reducing the risk of HIV acquisition and transmission. An analysis of five randomized controlled trials on effectiveness of the female condom found that the female condom increased the number of protected sex acts

(Vijayakumar et al., 2006). A systematic review of 237 articles found that ten studies found long-term use of the female condom, suggesting that the female condom reaches women less likely to use other dual protection methods (Vijayakumar et al., 2006).

---

“If you are not equipped,  
I have mine [female condom].”

—Ugandan woman  
(Green et al., 2001: 596)

---

## *Increasing Consistent Condom Use in Regular Partnerships Is Key to Prevention*

Promoting the use of condoms for high-risk sex is an effective approach to reducing HIV transmission, and studies indicate that interventions can achieve high rates of condom use in casual and commercial sex (Bollinger et al., 2004). However, promoting condom use for high-risk sex has contributed to the association of condom use with illicit sex (Feldman and Masopha, 2003), making it more difficult for women to negotiate condom use with regular sexual partners. Condom use among married couples is universally low, and normalizing condom use for all sex acts, including within marriage, is a challenge (Ali and Cleland, 2005; Hearst and Chen, 2004). Despite substantial risk within many primary relationships, condom use is low (Morrison et al., 2009: 265). [See also Chapter 11B. *Strengthening the Enabling Environment: Addressing Violence Against Women*]

Consistent condom use remains largely uncommon among married couples and regular partners. A review of published literature on patterns of incident infection, risk factors for HIV infections, and rates of condom use used in regular partnerships found that a large proportion of incident HIV infection in some settings is in regular partnerships. For example, several epidemiological studies find marriage to be the main risk factor for infections in women. An analysis of 23 Demographic and Health Surveys (DHS) from low- and middle-income countries conducted between 1994 and 2000 found that in eight of the 23 countries, fewer than five percent of women aged 15 to 49 used condoms to prevent STIs (Snelling et al., 2006). Married women particularly find it difficult to discuss condom use with their husbands as doing so touches on sensitive issues including fidelity and trust (Smith, 2007; Maharaj and Cleland, 2004; Nyblade et al., 2003; and Chimbi, 2007).

Condom use can be increased among all groups, including youth, discordant couples and sex workers. Promoting condoms to prevent STIs that may result in infertility may be a promising way to make condom use more socially acceptable within long-term or married

---

“It is always men who dictate when and how to use the condom.

We cannot really decide on our own.”

—HIV-positive woman, Uganda (Kyomuhendo and Kiwanuka, 2007: 6)

---

relationships (Delvaux and Nöstlinger, 2007). In addition, promoting condoms for pregnancy prevention as well as for HIV prevention can increase condom use. “For women who do not currently desire pregnancy, the dual method approach—combining condoms for HIV/sexually transmitted disease (STD) prevention with longer-acting, more effective contraceptives for added protection against pregnancy—simultaneously prevents both heterosexual and perinatal HIV transmission” (Mark et al., 2007:1201). However, increasing condom use among women ultimately requires the cooperation of men (Foss et al., 2007), who

need to be persuaded to use male condoms or to support women’s use of female condoms.

Limited access to condoms and inadequate supplies of condoms are also a challenge to prevention of sexual transmission of HIV (Haddock et al., 2008). In 2004, the Global HIV Prevention Working Group noted that only 42 percent of people who wanted to use a condom during sex could obtain one. Of the estimated 18 billion condoms needed in 2006, donors provided just 2.3 billion (UNFPA, 2008 cited in Haddock et al., 2008). In addition, campaigns which discredit condom use for HIV prevention can have negative impacts. For example, a study in Russia using qualitative, quantitative and epidemiological data found an increase of new HIV cases where a government media campaign stated that condoms were unreliable as compared to other regions where campaigns promoted condom use. In the area that used the slogan, “Condom protects but does not guarantee,” the numbers of new HIV cases was higher (Alekseeva et al., 2008b).

### *Condom Distribution and Programming is Critical to HIV Prevention*

Evidence from South Africa demonstrates that condoms distributed to the public are in fact used in sex and not wasted. Public sector male condom distribution rose from six million in 1994 to 198 million in 1999 as part of the government’s condom promotion efforts for HIV/AIDS prevention. The government is the largest distributor of condoms in South Africa, with social marketing programs and commercial retailers together distributing an additional 10 to 20 million male condoms in 1997. A prospective study was undertaken during 1998–1999 at 12 representative public health facilities where a total of 384 participants and the 5,528 condoms they received were followed successfully. After five weeks, 43.7% of the condoms had been used or broken in sex, 21.8% had been given away, 8.5% had been lost or discarded, and 26% were still available for use. Those who had actively procured condoms (rather than passively receiving them) had increased rates of use. After five weeks, less than 10% had been wasted (Myer et al., 2001).

Expanding access to female condoms allows women greater control over protecting themselves and could even be preferred by some men as well. “Men may prefer using the female

condom if it gives them more pleasure than does use of the male condom and some men may prefer not being responsible for HIV protection” (Agha, 2001: 55). Programs must pay more attention to increasing access to the female condom, along with education about proper use. “As a currently available device that women might use to protect themselves against HIV, the female condom stands alone” (Barbosa et al., 2007: 261).

Condom use is a critical component to HIV prevention (Cohen, 2002 cited in Feldblum et al., 2003) and remains the best method of protection for women. Interventions that increase condom availability and use are urgently needed to prevent HIV among women and girls. Additional condom promotion interventions are needed to address barriers (socio-cultural, legal and policy, economic and financial, and structural) faced by different groups of women such as youth, married women, discordant couples, sex workers, and women drug users, among others.

### **What Works—*Prevention for Women: Male and Female Condom Use***

1. Consistent use of male condoms can reduce the chances of HIV acquisition by more than 95%.
2. The ability of the female condom to prevent HIV transmission is likely similar to that of the male condom.

#### *Promising Strategies:*

3. Expanding distribution of female condoms may increase female condom use, thus increasing the number of protected sex acts and preventing HIV acquisition and transmission.
4. Promoting the dual use of condoms as a contraceptive as well as for HIV prevention may make use more acceptable and easier to negotiate.
5. Providing VCT along with condom negotiation skills may improve condom use by married women.
6. Promoting acceptability of condom use by both women and men as the norm in sexual intercourse, rather than just for use by sex workers and their clients, can decrease national HIV prevalence rates.
7. Increasing couple communication about HIV risk can increase preventive behaviors, including condom use.
8. Peer education for women can increase condom use.
9. Promoting pleasure in male and female condom use can increase the practice of safer sex.

## EVIDENCE

### 1. Consistent use of male condoms can reduce the chances of HIV acquisition by more than 95% (IOM, NAS, 2001).

- ▶ “Male latex condoms, when used consistently and correctly, are highly effective in preventing sexual transmission of HIV” (Cochrane Collaborative Review Group on HIV Infection and AIDS, 2004: 4). Conclusions were based on systematic reviews and meta-analysis of high methodological quality, which met pre-determined criteria of methodological rigor. Cochrane reviews are the “gold standard” of study synthesis. 60 reviews met the criteria (Cochrane Collaborative Review Group on HIV Infection and AIDS, 2004). (Gray I) (*condoms*)
- ▶ Information on condom usage and HIV serology was obtained from 25 published studies of serodiscordant heterosexual couples in the **United States, Europe, Haiti, Brazil, Thailand, Zaire, Rwanda, and Zambia**. Condom efficacy was calculated from the HIV transmission rates for always-users and never-users. For always-users, 12 cohort samples yielded a consistent HIV incidence of .9 per 100 person years. For 11 cohort samples of never-users, incidence was estimated at 6.8 per 100 person years for male-to-female transmission and 5.9 per 100 female-to-male transmissions. The condom’s effectiveness at preventing HIV transmission is estimated to be 87% with consistent use, but it may be as low as 60% or as high as 96%. Condom efficacy for HIV reduction is similar to, although perhaps lower than that for pregnancy, which is 97%. However, the condom may be less efficacious in preventing HIV transmission than in preventing pregnancy for a number of reasons. Pregnancy results only from vaginal sex, but HIV can be transmitted through vaginal, oral, and anal routes. In addition, conception can only take place during a few days of a woman’s menstrual cycle, while HIV may be transmitted at any time. (Davis and Weller, 1999). (Gray I) (*condoms*)
- ▶ Low HIV prevalence in **Brazil** is due in part to the use of condoms in the first sexual encounter among the general population increasing from 4% to 55% between 1986 and 2003, according to Ministry of Health statistics (Gauri et al., 2007). HIV prevalence rates have remained low in Brazil at 0.6% of the population between 2001 and 2007 (UNAIDS, 2008). (Gray V) (*condom use, Brazil*)

### 2. The ability of the female condom to prevent HIV transmission is likely similar to that of the male condom.

- ▶ Laboratory studies have shown that the female condom is impermeable to various STI organisms, including HIV (PATH and UNFPA, 2006; Drew et al., 1990 cited in Hoke et al., 2007). (Gray II) (*female condoms*)
- ▶ Male and female condoms, when used consistently and correctly, are comparable in effectiveness (Feldblum et al., 2001; Fontanet et al., 1998; French et al., 2003 cited in Dias et al., 2006). (Gray II) (*female condoms*)

- ▶ Correct use of the female condom has been estimated to reduce the per-act probability of HIV transmission by 97% (Trussell et al., 1994 cited in Fernandez et al., 2006). (Gray II) (*female condoms*)
- ▶ Modeling exercises have estimated that perfect use of the female condom for one year by a woman having sexual intercourse twice per week with an HIV-positive partner can reduce her risk of acquiring HIV by more than 90% (PATH and UNFPA, 2005). (Gray V) (*female condoms*)
- ▶ “Studies of female condoms show that their...ability to prevent disease transmission are similar to those of male condoms” (Nelson, 2007 in *The Lancet*). (Gray V) (*female condoms*)

### Promising Strategies:

#### 3. Expanding distribution of female condoms may increase female condom use, thus increasing the number of protected sex acts and preventing HIV acquisition and transmission.

- ▶ A study in **Brazil** on the introduction of the female condom also showed that making the female condom available increased the number of protected sex acts (Barbosa et al., 2007). A 1998 to 1999 preparatory study at 20 sites in six cities in Brazil preceded a national effort to introduce the female condom into public health services. The State and Municipal Health Departments in each city signed an agreement to ensure female condom availability at the end of the study. The twenty sites represented a range of different HIV epidemics within Brazil. Professional teams generated educational and training materials to use in the clinics, with availability publicized in the media. The health workers received a standardized 48-hour training program three times at each clinic. Following an educational session, 2,832 women volunteered to use the female condom and report their experiences. Of those seen fifteen days later, 1,782 had used the female condom at least once. Among those seen at the 90-day follow-up, 1,453 women had used female condoms at least once, with 1,296 stating that they liked the female condom and wanted to continue to use it, an acceptability rate of 54% (1,296 out of the original 2,342). Among these 1,296 women, barrier use at last intercourse, either with a male or female condom, increased from 33% at baseline to 70%. “The advent of the female condom substantially raised the proportion of sexual intercourse acts that were protected... The reasons are... not well understood, but may be due to the dialogue between partners stimulated by introduction of the female condom...or couples may prefer to alternate the method of protection ...Access to an alternative to the male condom makes it possible to increase women’s capacity to negotiate their protection from HIV and other STIs” (Barbosa et al., 2007: 265). (Gray III) (*female condoms, Brazil*)
- ▶ A study with sex workers in **Kenya** found that adding female condoms to a male condom promotion and distribution peer education program for 151 sex workers over the course

of a year led to small but significant increases in consistent condom use with all sexual partners (a declining mean number of unprotected coital acts with all partners from 1.7 before female condom introduction to 1.4 after), verified by a biological marker. Sex workers also stated that they could secretly use the female condom (Thomsen et al., 2006). (Gray III) (*female condoms, sexual partners, Kenya*)

- ▶ A cost-effectiveness analysis assessed HIV infections averted annually and incremental cost per HIV infection averted for country-wide distribution of the nitrile female condom (FC2) among sexually active individuals, 15–49 years, with access to publicly distributed condoms in **Brazil and South Africa**. In Brazil, expansion of FC2 distribution to 10% of current male condom use would avert an estimated 604 HIV infections at 20,683 US dollars per infection averted. In South Africa, 9,577 infections could be averted, at 985 US dollars per infection averted. The estimated cost of treating one HIV-infected individual is 21,970 US dollars in Brazil and 1,503 US dollars in South Africa, indicating potential cost savings. The incremental cost of expanded distribution would be reduced to 8,930 US dollars per infection averted in Brazil and 374 US dollars in South Africa by acquiring FC2s through a global purchasing mechanism and increasing distribution threefold. Sensitivity analyses show model estimates to be most sensitive to the estimated prevalence of sexually transmitted infections, total sexual activity, and fraction of FC2s properly used. Expanded distribution of FC2 in Brazil and South Africa could avert substantial numbers of HIV infections at little or no net cost to donor or government agencies. FC2 may be a useful and cost-effective supplement to the male condom for preventing HIV (Dowdy et al., 2006). (Gray III) (*female condoms, Brazil, South Africa*)
- ▶ A 2007 study of 818 female sex workers in **Madagascar** for 18 months found that short and medium term promotion of both male and female condoms increased the total number of protected sex acts and reduced STI prevalence. “This trial provides moderate but promising evidence of public health benefits gained from adding the female condom to male condom distribution” (Hoke et al., 2007: 465). Provision of female condoms allows women to “substantially reduce risk of STI acquisition” (Hoke et al., 2007: 465), as STI rates were significantly lower in periods of both male and female condom availability. Participants were tested for three different STIs (chlamydia, gonorrhea and trichomoniasis) every six months. Participants received condom promotion and risk reduction counseling delivered by peer educators trained by the study. Sex workers were counseled to use female condoms only when the male condom could not be used. Both male and female condoms were available for the same price. Following six months of male condom distribution, participants used protection in 78% of sex acts; with the addition of the female condom, protected sex acts increased to 83% at twelve months and 88% at 18 months. STI prevalence declined from a baseline of 52% to 50% with male condoms only at 6 months. With the female condom added, STI prevalence dropped to 41% at month 12 and 40% at month 18 (Hoke et al., 2007). (Gray III) (*female condoms, sex workers, STIs, Madagascar*)

- ▶ A two month prospective study from 2000 to 2001 of male and female condom use among sexually active women in **Zimbabwe** found that reported use of female condoms increased from 1% to over 70% two months later. Women were given a thirty-minute one-on-one counseling program about HIV and safer sex conducted by a trained counselor, with practice on how to insert the female condom and condom negotiation skills and were given a one month supply of no cost male and female condoms. Women reported more than 28% of sex acts were protected by female condoms. Women reported using female condoms for both HIV prevention and for pregnancy prevention. Over 8% used only the female condom to protect all sex acts, with 67% using the female condom for at least a portion of sex acts. However, most of the women in the study used hormonal contraception so that exclusive female condom use was lower (Napierala et al., 2008). (Gray III) (*female condoms, counseling, Zimbabwe*)

**4. Promoting the dual use of condoms as a contraceptive as well as for HIV prevention may make use more acceptable and easier to negotiate.**

- ▶ A three-armed randomized controlled trial at a VCT clinic in Lusaka, **Zambia** with 251 couples found a threefold higher contraceptive initiation rate where family planning education and offer of contraceptives were available on site rather than by referral to an outside clinic. All couples receive a presentation on family planning methods and the advantages of dual method use, along with a free, unlimited supply of condoms. HIV discordant and concordant couples are advised to use condoms with every act of intercourse, with this information given during initial post-test counseling and repeated at each subsequent visit. Trained nurses help couples overcome barriers to condom use. The control group was referred to the Lusaka Planned Parenthood Association of Zambia for family planning methods, with all fees paid by the research project. Women in the intervention group who desired Norplant or surgical sterilization were referred to University Teaching Hospital, with transport and service fees paid. Self reported condom use was assessed. Approximately half of the couples eventually wanted to have children. Self reported condom use remained consistent at between 58 to 63% (Mark et al., 2007). (Gray II) (*HIV testing, family planning, contraception, condoms, Zambia*)
- ▶ A study of 372 sex workers in **Ethiopia**, of whom 73% were HIV-positive, found more consistent and correct condom use when used primarily for pregnancy prevention rather than for STI prevention. Sex workers who were using condoms for contraception were compared with others, more likely to use condoms consistently (65% compared to 24% and less likely to be HIV-positive (55% compared to 86% (Aklilu et al., 2001). (Gray III) (*condoms, pregnancy, STIs, Ethiopia*)

**5. Providing VCT along with condom negotiation skills may improve condom use by married women.** [See also Chapter 6. *HIV Testing and Counseling for Women*]

- ▶ A 2000–2001 study of 394 married women in Harare, **Zimbabwe** found that condom use increased from 1% prior to the intervention to almost 50% after a half-hour one-on-

one HIV education program by trained counselors that emphasized negotiation skills; practice using male and female condoms; and education about HIV transmission, and safer sex. VCT was offered. The intervention provided a booster session after one month and results were collected after two months. Of the women (aged 17–47, mean age of 28), 60% suspected their husbands of having other sexual partners. Initial condom usage was low: only one woman reported using condoms consistently and only 40 (10%) reported using condoms at last sex. After two months, consistent condom usage had increased to 48.5% while 87% of women had used condoms during their last sexual encounter. Overall, feelings of self-efficacy increased: the proportion of women who felt that they had control over condom usage increased from 47% to 72%, and the proportion who felt that they could refuse sex without a condom increased from 23% to 57% (Callegari et al., 2008). (Gray III) (*condom use, marriage, education, Zimbabwe*)

**6. Promoting acceptability of condom use by both women and men as the norm in sexual intercourse, rather than just for use by sex workers and their clients, can decrease national HIV prevalence rates, including for women.**

- ▶ In association with to a national multi-year campaign, HIV prevalence in **Uganda** fell from 15% in 1991 to 5% in 2001. Among those who had had sex in the past four weeks, the proportion of women using condoms increased from 0% in 1989 to 8% in 1995; among men, it increased from 1% to 11%. Among unmarried women, the proportion using the condom increased from 1% to 14% and among unmarried men, it rose from 2% to 22%. From 1995–2000, condom use increased from 5% to 25% among women aged 15–17 and from 3% to 12% for women ages 18–19. Among sexually active men from 15 to 17, condom use rose from 16% in 1995 to 55% in 2000, and among those aged 18 and 19, it increased from 20% to 33%. Among unmarried sexually active women, condom use increased from almost nothing to 37% by 2000. Condom use rose significantly among unmarried sexually active men from 29% in 1995 to 57% in 2000 (Singh et al., 2003a). (Gray III) (*condoms, Uganda*)
- ▶ A qualitative study conducted from 2001 to 2003 in rural and urban **Ethiopia, Tanzania, and Zambia** with structured text analysis of more than 650 interviews and 80 focus group discussions and quantitative analysis of 400 survey respondents found that preventive methods such as condom use are hampered when condom use was considered an indication of “HIV infection or immoral behaviors and are thus stigmatized” (Nyblade et al., 2003: 2). In all three countries most respondents think that women are to be blamed for acquiring HIV, particularly if this behavior is associated with “immoral sexual behavior. “Gender-based power relationships also play a more direct role in the blame women face,” (p. 26) as women’s transgressions tend to be more severely regarded than men’s (Nyblade et al., 2003) (Gray III) (*condoms, stigma, Ethiopia, Tanzania, Zambia*)
- ▶ A survey of 209 women affected by HIV/AIDS and in-depth interviews with 59 women in **Zimbabwe** found that women perceived condoms for use only with sex workers. “...My husband and I never used condoms. We thought they were only for prostitutes” (Feldman and Masopere, 2003: 165). (Gray III) (*condoms, marriage, sexual partners, Uganda*)

- ▶ A study of trends from Demographic and Health Surveys in 1993 and 2001 in **18 countries in Sub-Saharan Africa** shows condom promotion has increased condom use among for single women: from 5% in 1993 to 19% in 2001. Preventing pregnancy is a major motive for single women, suggesting that marketing campaigns positioning condoms for pregnancy, rather than disease, prevention may be more successful. Condoms are also beginning to permeate into marriage in East and Southern Africa (“occasional use” reported in 10–21% of both husbands and wives in three national settings—Kenya, South Africa and Uganda), suggesting that promoting condom use within marriage can save lives by preventing HIV transmission within serodiscordant married couples (Cleland et al., 2006a). (Gray V) (*condoms, pregnancy, Kenya, South Africa, Uganda, Sub-Saharan Africa*)

7. **Increasing couple communication about HIV risk can increase preventive behaviors, including condom use.**

- ▶ A qualitative and quantitative study in three districts in rural **Malawi** that analyzed data collected in 1998, 1999, and 2001 found that both informal and formal sources of information on HIV/AIDS were important factors influencing AIDS-related communication between spouses. 1,541 ever been married women ages 15–49 and 1,065 husbands were surveyed in 1998, a randomly chosen sub-sample of the original cohort was interviewed in 1999, and a follow-up interview was conducted in 2001 among 80 men and 76 women. Study findings indicated that couples where both the husband and wife had accessed accurate information about AIDS from sources such as health clinics and social networks were significantly more likely to have discussed risk of HIV infection with their spouses. Greater levels of exposure and involvement with social programs were significantly associated with the likelihood of having discussed HIV with partners. The size of the woman’s social network was a significantly determinant in whether or not HIV discussions among couples took place. Discussion between spouses about HIV was more likely to have occurred when both spouses had reported being concerned about infection. Women most often initiated discussion, in response to concern over infidelity. It is important to note that both women and men reported believing that their fates were directly joined with those of their spouses: if one became HIV-positive than the other would as well. Discussions related to HIV were usually initiated with HIV/AIDS-related information discussed over the radio or in a health clinic. When asked, however, if an individual could be satisfied with only one sexual partner, 40% of men and 33% of women did not think it was possible. Lastly, while the importance of fidelity in marriage was discussed between couples, condoms were never presented as an option for HIV prevention within marriage. In the one instance where a wife did report discussing condoms with her husbands, she claimed to have advised him to use condoms with his “other partners” (Zulu and Chepngeno, 2003). (Gray III) (*communication, sexual partners, marriage, Malawi*)

- ▶ A nationally representative survey of young women in **South Africa** found that those who discussed condom use with their partners were more likely to use condoms for dual protection, and to use them consistently (MacPhail et al., 2007). (Gray IV) (*condoms, South Africa*)
- ▶ A qualitative study conducted among 39 married couples in **Uganda** who reported 100 percent condom use in the last three months suggests that stable couples should not be ignored in condom promotion campaigns—particularly those that promote the dual protection nature of condoms. The study found that wives promoted condom use among 22 of the 39 couples, in six cases use was initiated by the husband and among the remaining couples there was disagreement as to which partner initiated discussions. Women were able to convince their partners to agree to consistent condom use by being insistent and persuasive, refusing sex, or proposing condom use for family planning or to safeguard their children from becoming orphans. Men reported agreeing to condom use to please their wives, to protect their wives and children, to protect themselves, and to be able to maintain other partnerships (Williamson et al., 2006). (Gray IV) (*condoms, sexual partners, marriage, Uganda*)
- ▶ A study in three countries assessed the feasibility of a group-based couples intervention to increase condom use in HIV-serodiscordant couples in **India, Thailand and Uganda**. The intervention focused on communication, problem solving, and negotiation skills. Forty-three couples enrolled in the intervention (15 in India, 14 in Thailand, and 14 in Uganda) and 40 couples completed all study activities. Participants were interviewed at baseline and at one- and three-months post- intervention. The intervention consisted of two same sex sessions and two couples sessions with ‘homework’ to practice skills between sessions. The same intervention modules were used at each site, tailored for local appropriateness. Participants at each site were enthusiastic about the intervention, citing information about HIV serodiscordancy and the opportunity to meet couples ‘like us’ as important features. Participants reported increased comfort discussing sex and condoms with their partner, although some participants remain concerned about situations when condoms might not be used (e.g. when drunk). At baseline, the majority of Thai and Ugandan participants and one-third of Indian participants reported having ‘ever’ used a condom with their regular partner. The percent of sexual contacts with condom use reportedly reached 100% at all sites by the first follow up visit. Although social acceptability bias cannot be ruled out, researchers note that participants also reported that a primary benefit of the intervention was condom information, including demonstrations of correct condom use, and increased confidence in their ability to discuss and use condoms with their partner (Mcgrath et al., 2007). (Gray V) (*condoms, communication, India, Thailand, Uganda*)

## 8. Peer education for women can increase condom use.

- ▶ A randomized study in 2007 and 2008 with 737 married women (353 in the peer education HIV intervention group; 384 in the control group) in rural North Anhui, **China** found that peer education programs for married women increased condom use. The percentage of married women who used condoms in the past three months rose from 4.5% to 21.5% in the intervention group, with no significant increase in the control group (Hong et al., 2009). (Gray III) (*condoms, marriage, China*)

## 9. Promoting pleasure in male and female condom use can increase the practice of safer sex.

- ▶ A literature review found that integrating elements of pleasure and the erotic into HIV prevention interventions could increase safer sexual practices and empower women to negotiate safer sex. A meta-analysis (Scott-Sheldon and Johnson, 2006 cited in Knerr et al., 2009) found 21 studies measuring effectiveness of sexual risk reduction interventions that integrated a safer sex eroticization component and found that where eroticization was incorporated, participants showed significant risk reduction behavior in condom use; communication with sexual partners and a decrease in the number of sexual partners. The meta-analysis included studies with randomized control trials or those that had a quasi-experimental design. Of the 21 studies, one took place in **Brazil**, with the rest in **North America** and **New Zealand**. Erotic was defined as tending to arouse sexual desire or excitement. Literature from PubMed, Medline and IAC conferences was used from 2001 to 2007 for the review (Knerr et al., 2009). (Gray IV) (*sex behavior, Brazil, North America, New Zealand*)
- ▶ Public health outcomes may benefit from adopting more positive views of safer sex. Citing grey literature and personal accounts of programs in **Cambodia, Namibia, South Africa, Senegal, Zimbabwe, Sri Lanka, Mongolia, India and the UK**, the Pleasure Project contends that focusing on sexual pleasure—particularly eroticizing male and female condoms to increase use—can play a key role in the prevention of STIs/HIV (Philpott et al., 2006). (Gray V) (*female condoms, sex behavior*)
- ▶ In the **Dominican Republic**, one male client of a sex worker stated: “Campaigns about condoms are really bad because they say condoms are to prevent pregnancy or diseases but that doesn’t motivate you to use condoms. What motivates you is information about what a condom is and why you use it, how you can feel when using it.” (Garcia et al., 2006: 59) (Gray V) (*condoms, Dominican Republic*)

## Gaps in Programming—Male and Female Condom Use

1. Condom promotion aimed at serodiscordant couples, particularly those in long-term, stable relationships is needed.
2. Interventions are needed to increase condom access by women, especially in rural areas.
3. Interventions are urgently needed to provide greater availability and access to female condoms, along with education and training regarding their use as an alternative to male-controlled male condoms.
4. Providers and VCT counselors need training on female condoms to promote use.

1. **Condom promotion aimed at serodiscordant couples, particularly those in long-term, stable relationships is needed.** Studies found that counselors and serodiscordant couples did not understand that the HIV-negative partner could acquire HIV, even after many years and HIV-positive women reported that their husbands refused to use condoms.
  - ▶ Gap noted, for example, in **five African countries** (Desgrées-du-Loû and Orne-Gliemann, 2008); **Uganda** (Bunnell et al., 2005); **Thailand** (Yoddumnern-Attig et al., 2004).
2. **Interventions are needed to increase condom access by women, especially in rural areas.** A study found fewer condom outlets and access in rural areas.
  - ▶ Gap noted, for example, in **Kenya** (Papo et al., 2008).
3. **Interventions that are tailored to specific groups of women are urgently needed to provide greater availability and access to female condoms, along with education and training regarding their use as an additional option to male-controlled male condoms.** Studies found that women felt that they could avoid conflict and enhance their safe sex bargaining power by using a female condom when their sexual partner refused to use a male condom.
  - ▶ Gap noted, for example, in **Kenya** (Brady et al., 2009); **Brazil** (Dias et al., 2006); **South Africa** (Mqhayi et al., 2003 cited in Mantell et al., 2005); **Uganda** (Green et al., 2001); generally (Hoffman et al., 2004; Green et al., 2001; Okunlola et al., 2006; Mathews and Harrison, 2006).
4. **Providers and VCT counselors need training on female condoms to promote use.** Studies found that providers and counselors need training in order to be able to promote female condom use.
  - ▶ Gap noted, for example, in **Kenya**, (Mung'ala et al., 2006); **South Africa, the US, and Nigeria** (Mantell et al., 2001).

## 3B. Prevention for Women: Partner Reduction

Recent evidence links multiple, concurrent partnerships as strongly associated with HIV transmission (Epstein, 2007). “Concurrency can be defined as having sexual relations with more than one person within a specified period i.e., a new sexual relationship is initiated before the preceding one has ended...irrespective of whether those relationships were spousal or non-spousal” (Sandøy et al., 2008: para 2). Focusing on concurrent or simultaneous partnerships in an HIV prevention response is more important than focusing on all multiple partnerships, as concurrency is more efficient at raising HIV prevalence. Viral load and infectivity are higher in the early, acute stage of infection, so recently infected individuals with concurrent partners are more likely to transmit HIV to others than recently infected individuals that have one or no partners (Pilcher et al., 2004; Morris and Kretzchmar, 1997 cited in Carter et al., 2007).

### *Multiple Partnerships Are Common and Place Women at Risk of HIV Acquisition*

Concurrent sexual partners are a common practice in many parts of the world where the epidemic has proliferated: A meta-analysis of 68 epidemiological studies from 1986 to 2006 with 17,000 HIV-positive people and 73,000 HIV-negative people found that women who reported three or more sex partners had three times as much likelihood of HIV acquisition versus women with up to two partners (Chen et al., 2007 cited in Vergidis et al., 2009). Studies showing that concurrent sexual partners are common were also found for Zimbabwe (Kasprzyk et al., 2008); Cameroon and Zimbabwe (Mishra and Assche, 2008); Botswana, with one of the highest prevalence rates in the world Carter et al., 2007; UNAIDS, 2008); Mali (Levandowski et al., 2008b); and South Africa (Mah, 2008).

When designing prevention interventions it is important to understand women’s various partnership patterns. A woman may be married with only one sexual partner. Or a young woman may be in a cross-generational sexual relationship, with an older male partner upon whom she relies for school fees. [See Chapter 5. *Prevention for Young People*] A woman may also have multiple partners to enable her to survive financially. Women may work as sex workers, an occupation that requires multiple sexual partners. [See Chapter 4. *Prevention for Key Affected Populations*] Men may also have multiple partnerships, which may place women at risk for HIV acquisition. In some societies, polygamy, where a man has multiple spouses, may place women at risk of HIV acquisition. Other factors, such as gender norms, violence, and income, may result in men having numerous sexual partners. [See Chapter 11. *Strengthening the Enabling Environment*]

### *Married Women Are Still at Risk for HIV Acquisition*

Marriage is often portrayed to women and girls as a haven from the risk of HIV infection. In fact, the risk of HIV transmission between sexual partners is nonexistent when both partners are uninfected at the time of marriage and subsequently engage in sexual activity exclusively with each other. However, these conditions are often not met. In some countries, married

women are at high risk of acquiring HIV (UNAIDS, 2006: 22; Hirsch et al., 2007; Hageman et al., 2009; Ugonnet et al., 2002 cited in Matovu et al., 2007), particularly in generalized epidemics. An estimated 55% to 92% of new heterosexually acquired HIV infections among sexually active adults in urban Zambia and Rwanda occur within serodiscordant marital/cohabitating relationships. Couples interventions to reduce transmission in serodiscordant relationships could have a large impact on the epidemic (Dunkle et al., 2008).

---

“Two kinds of women run the greatest risk: the one who stays home and trusts her husband and the one who turns tricks.”  
—Brazilian woman (*Hebling and Guimaraes, 2004: 1213*)

---

It is critical that partners know their serostatus and practice safe sex. Both married and unmarried women need basic knowledge of HIV and how to prevent transmission. However, married women are often not reached by prevention messages because married women “were not considered part of the so-called risk groups. Prevention efforts

have been focused on pregnant women, sex workers, and IDUs. Therefore, the majority of women received a message of false security that women who are married and monogamous have no risk for acquiring HIV” (Ross Quiroga, 2006:1–2). Despite the fact that HIV transmission occurs within stable partnerships or marriage, a review of the literature on couples’ HIV prevention found that “couples-focused approaches to HIV prevention are still in an early phase of development” (Burton et al., 2008: para 8).

### *Changing Gender Norms in Multiple Partnerships is Critical*

Multiple partnerships is closely tied to gender norms of masculinity, where men are required to have multiple sexual partnerships simultaneously, be unfaithful to their regular sexual partner and buy sex as proof of their masculinity (Peacock et al., 2008). Many women are unaware that their husbands or sexual partners may have other sexual partners. Married adolescent girls are particularly vulnerable and are often more at risk of HIV infection than unmarried sexually active girls. For example, a study analyzing Kenyan and Zambian data from 1997 and 1998 found that married adolescent girls living in urban areas had higher incidences of HIV infection than unmarried sexually active girls in the same age group. “Although married girls are less likely than single girls to have multiple partners, this protective behavior may be outweighed by their greater exposure via unprotected sex with partners who have higher rates of infection” (Clark, 2004: 149). In sub-Saharan Africa, both women and men may be the HIV-positive partner. Additional risks are posed by polygyny, i.e. legal or customary marriage with multiple wives, with low rates of condom use and unequal power relations (Bove and Valeggia, 2009).

### *Reducing Concurrent Partnerships Can Reduce HIV Transmission*

Reduction of concurrent partnerships has been shown to effectively reduce HIV transmission; “there are, however, few demonstrated replicable approaches to reducing multiple sexual partnerships on a large scale” (Potts et al., 2008: 750). There is currently program-

matic focus on partner reduction, yet this review identified few evaluations of interventions intended to promote fidelity, “be faithful,” or partner reduction, particularly among adult men. Furthermore, “The needs of the married and cohabitating population have been neglected... despite the fact that more than half of HIV infections in the severe epidemics of Southern and East Africa are occurring in this group” (Delvaux and Nöstlinger, 2007: 56).

Interventions to reduce concurrent partnerships that are gender transformative are urgently needed. Programs need to work with communities to address gender norms that put women at risk through expectations of fidelity, while encouraging multiple partnerships among men. Programs that do not incorporate a gender perspective are precisely what have placed women with only one sexual partner at risk for HIV acquisition. Increasing couple communication is a promising strategy to begin addressing these risks and raise awareness that married women are indeed at risk for acquiring HIV. A few areas regarding partner reduction still have major gaps that need to be filled, including interventions that address the risks of polygamous marriage (Sandøy et al., 2008), and the role of homophobia in leading men who have sex with men to feel they must hide their sexuality through concurrent partnerships with women, thus putting many at risk.

### **What Works—*Prevention for Women: Partner Reduction***

#### *Promising Strategies:*

1. Partner reduction, particularly concurrent partnerships, can be effective in reducing transmission of HIV.

## **EVIDENCE**

### **Promising Strategies:**

1. **Partner reduction, particularly concurrent partnerships, can be effective in reducing transmission of HIV.**
  - ▶ Reduction in concurrent sexual partnerships may have contributed to the recently observed decline in HIV prevalence in **Zambia**. While the proportion of women engaging in concurrent partnerships was less than 2%, there was a significant decline in concurrent partnerships for young urban men and older rural men. Men were 7 times more likely than women to report several ongoing relationships in both 1998 and 2003 in the young age group and 6 to 17 times more likely in the age group 25 to 49. Polygamy was common among older rural men (12%). The percent of rural men aged 15 to 24 who reported concurrent sexual partners declined from 58% in 1998 to 3.5% in 2003;

among urban male youth aged 15 to 24 from 7.1% in 1998 to 1.9% in 2003 and among rural men aged 25 to 49 from 17.8% in 1998 to 11.9% in 2003. In addition, reported condom use increased during the most recent sexual intercourse both with the spouse and with the latest non-cohabitating partner increased from 1998 to 2003. An important predictor of concurrency was early sexual debut and early entry into marriage, as well as absence from home. (Sandøy et al., 2008). (Gray III) (*sexual partners, condom use, Zambia*)

- ▶ A study from 2003 to 2007 of women and men presenting for VCT at a community-based AIDS service organization in Moshi, **Tanzania** found that the number of partners was strongly associated with rates of HIV seropositivity for both men and women. However, even women reporting lifetime monogamy had a high risk for HIV infection. Of 6,549 clients, 3,067 were female, with 25% of the women and 10% of the men HIV-positive. Among 1,244 monogamous females, 34% were HIV-positive. Among 423 monogamous males, 4% were HIV-positive. A monogamous female with a partner who had other partners (as is the case for polygamy) or who did not know if the partner had other partners was 36% more likely to be HIV-positive than an otherwise identical female who reported no partners with other partners. The risk increased up to 45% for women with five or more partners and 15% for men with five or more partners. In a multivariate analysis, HIV seropositivity among monogamous women was associated with reporting a partner with other partners; among monogamous men, with age. Women having more than one lifetime sexual partner reported fewer total partners, with a median of three, as compared to a median of four among men (Landman et al., 2008). (Gray III) (*counseling, HIV testing, sexual partners, Tanzania*)

### Gaps in Programming—Partner Reduction

1. Interventions are urgently needed to reduce concurrent partnerships among all—and particularly for both husbands and wives where perceived HIV risk is low and the woman is subjected to gender norms of faithfulness while the man is subjected to gender norms of having multiple sexual partners.
2. Interventions are needed to reduce homophobia, which may fuel MSM having multiple partnerships that include women.

1. **Interventions are urgently needed to reduce concurrent partnerships among all—and particularly for both men and women where perceived HIV risk is low and the woman is subjected to gender norms of faithfulness while the man is subjected to gender norms of having multiple sexual partners.** [See also Chapter 11A. *Strengthening the Enabling Environment: Transforming Gender Norms*] Studies found that married women were at risk

of HIV acquisition, but were either unaware of the risk or did not believe they were at risk. Studies found that extra-relational sex on the part of the husband was common.

- ▶ Gap noted, for example, in **Ethiopia** (Molla et al., 2008); **India** (Kumar, 2008; Chatterjee and Hosain, 2006). **Zimbabwe** (Callegari et al., 2008; Feldman and Masopha, 2003); **Mexico** (Hirsch et al., 2007; Pulerwitz et al., 2001); Kenya and Zambia (Glynn et al., 2001; Glynn et al., 2003); **Kenya and Zambia** (Clark, 2004).

2. **Interventions are needed to reduce homophobia, which may lead MSM to have partnerships with women.** Studies found that homosexuality was heavily stigmatized and that gender norms pressured MSM to marry and have families.

- ▶ Gap noted, for example, in **China** (Zhou, 2006): and **India** (Hernandez et al., 2006).

### 3C. *Prevention for Women: Male Circumcision*

Male circumcision has now been shown in three randomized clinical trials to reduce the risk of HIV acquisition for men by 50–60% (Auvert et al., 2005; Bailey et al., 2007; and Gray et al., 2007). Male circumcision at birth as part of postnatal care could result, upon sexual initiation and for his lifetime, in a reduction in the risk of HIV acquisition and transmission. The evidence for rolling out male circumcision is incontrovertible. However, given evidence that male circumcision could potentially put women at an *increased* risk for HIV under certain circumstances in the short term, how best to roll out programming through gender-equitable approaches that do not increase short term HIV risks for women remains to be evaluated. “The roll out of male circumcision presents [an ideal opportunity] to ...provide interventions to transform harmful gender attitudes and behavior as part of programming of the roll out of male circumcision... (Greig et al., 2008: S37–8). “Outside the clinical trial setting, the effect that the decreased perceived risk of HIV infection will have for circumcised men’s willingness (and women’s ability to negotiate) condoms requires close monitoring’ (Gruskin and Ferguson, 2008a). Women will benefit in the long run from male circumcision, as fewer of their male sexual partners will be HIV-positive. Clear and consistent messages must emphasize that male circumcision is an additional prevention method for men, but that it does not replace measures such as delay in the onset of sexual relations, avoidance of penetrative sex, reduction in the number of sexual partners, and correct and consistent use of male or female condoms.

With roll out of male circumcision, it is critical for men to wait until they are fully healed to engage in sex since sex for an HIV-positive man prior to the wound fully healing increases the risk of transmission to his female partner (Wawer et al., 2009). If a man refuses an HIV test, is circumcised and thinks he is protected, then “his partner is in a worse position than before” (Berer, 2008a: 172). “As sexual partners, women should not abandon negotiation of condom use with circumcised men, and this will be greatly facilitated if everyone understands that with

circumcision alone, men are not fully protected and their partners are not directly protected from HIV infection” (Hankins, 2007: 65).

How can male circumcision be effectively introduced so that it complements and does not detract from other prevention strategies? Will male circumcision affect women’s ability to negotiate condom use? Will male circumcision confer any protection during anal sex? (AVAC, 2007) These questions will need to be addressed as male circumcision is rolled out. It is clear that male circumcision is an important component for HIV prevention strategies, but the extent to which it protects women is, while promising for the long term, unclear about women’s risk in the short term. “From the standpoint of public health, the risks of circumcision, such as procedure-related infection, must be weighed against the relative protection it offers against HIV infection. As with any HIV prophylaxis strategy, it is also important to consider that false security arising from use of a partially effective risk reduction strategy may, because of an increase in the frequency of unsafe sexual practices, result in a paradoxical increase in HIV transmission” (Cohen, 2007: S290).

### **What Works—Prevention for Women: Male Circumcision**

#### *Promising Strategies:*

1. Male circumcision reduces HIV acquisition for men and may reduce transmission for women.
2. Male circumcision at birth can reduce HIV incidence for both men and women when circumcised boys become sexually active.

## **EVIDENCE**

### **Promising Strategies:**

1. **Male circumcision reduces HIV acquisition for men and may reduce transmission for women.**
  - ▶ A randomized controlled study from 2002 to 2004 of 3,274 young, sexually active, heterosexual men in **South Africa** found that with 18 months of follow-up, 60% fewer men who had been circumcised acquired HIV as compared to men who had not been circumcised. There were 20 men who acquired HIV among those who had been circumcised, an incidence rate of 0.85 per 100 person years and 49 men who acquired HIV among men who had not been circumcised, an incidence rate of 2.1 per 100 person years. Male circumcision was offered to the control group at the end of trial. At each of

four visits, each participant was invited to a counseling session of 15 to 20 minutes delivered by a certified counselor about HIV. Condoms were provided. STIs were screened and treatment. No deaths occurred due to circumcision. Circumcision was conducted by general practitioners and resulted in a limited and reasonable number of adverse events (Auvert et al., 2005). (Gray II) (*male circumcision, condoms, South Africa*)

- ▶ A randomized controlled trial of 2,784 men aged 18 to 24 years in Kisumu, **Kenya**, with a follow up of 24 months found that 22 men who were circumcised acquired HIV compared to 47 men who had not been circumcised. The two-year HIV incidence was 2.1% in the circumcision group and 4.2% in the group of men who had not been circumcised. Circumcised men had a reduction in the risk of acquiring HIV of 53%. Adjusting for non-adherence to treatment and excluding four men who tested HIV-positive prior at enrollment in the study, the protective effect of circumcision was 60%. “Circumcision will be most effective if it is not perceived as a stand-alone procedure, but as one component of a full suite of HIV prevention and reproductive health services, including HIV testing and counseling, diagnosis and treatment of sexually transmitted infections, condom promotion, [and] behavioral change counseling and promotion....” (Bailey et al., 2007: 655). (Gray II) (*male circumcision, Kenya*)
- ▶ A randomized trial in Rakai, **Uganda** with 4,996 uncircumcised HIV-negative men aged 15 to 49 years of age found that HIV incidence over 24 months was .66 cases per 100 person years among men who were circumcised and 1.33 cases per 100 person years among men who delayed circumcision for 24 months, with an estimated efficacy of 51%. (Gray et al., 2007). (Gray II) (*male circumcision, Uganda*)

2. **Male circumcision at birth can reduce HIV incidence for both men and women when circumcised boys become sexually active.** [See Chapter 9C-1. *Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*]

### Gaps in Programming—Male Circumcision

1. Programs must continue to promote protective behavior such as condom use in addition to male circumcision.

1. **Programs must continue to promote protective behavior such as condom use in addition to male circumcision.** Studies found that male circumcision is only partially effective, making protective behavior such as partner reduction and condom use, in addition to circumcision, essential. Men who have been circumcised can still transmit HIV to women if they are HIV-positive. Until healing is complete following circumcision, men are more likely to

transmit HIV. Providing male circumcision only to HIV-negative men may discourage all men from accessing male circumcision and women may falsely conclude that if a man is circumcised, there is no risk of HIV acquisition.

- ▶ Gap noted, for example, in **Uganda** (Wawer et al., 2009); **Southern Africa** (Andersson et al., 2009); **sub-Saharan Africa** (Hallett et al., 2008a); **Kenya** (Agot et al., 2007); **South Africa** (Taljaard et al., 2008); **Uganda and Zimbabwe** (Matovu et al., 2007).

### 3D. Prevention for Women: Treating Sexually Transmitted Infections (STIs)

Worldwide, the burden of sexually transmitted infections in women is more than five times that in men (Sciarrà, 2009). The prevention and treatment of the other sexually transmitted infections may also play a role in HIV prevention for women.

Multiple observational studies have found an association between STIs and HIV (Cohen, 2009). Modeling exercises suggest that increases in the HIV viral burden in the genital tract can increase the efficiency of HIV transmission. STIs generally increase the concentration of HIV-1 in the genital tract. Thus, treating STIs in HIV-infected men was suggested as a way to reduce transmission to women. In addition, treating STIs in HIV-uninfected women was hoped to decrease their susceptibility to acquiring HIV.

However, the evidence that treating STIs can reduce the spread of HIV to women has been generally disappointing (Padian, 2010; Celum et al., 2010). A Cochrane review from 2004 noted: “There is limited evidence from randomized controlled trials for STI control as an effective HIV prevention strategy” (Sangani et al., 2004). The only study to have shown an impact on HIV incidence from STI treatment has been the Mwanza trial in Tanzania. A combination of improved STI treatment services was shown to reduce HIV incidence in an environment characterized by an emerging HIV epidemic (low and slowly rising prevalence), where STI treatment services are poor, and where STIs are highly prevalent (Grosskurth et al., 1995). The other eight trials of STI treatment have shown no effect on HIV acquisition (Padian, 2010).

However, using STI services as a point of access to reach women at high risk of acquiring HIV is important. These services “contribute to the achievement of universal access to HIV prevention by promoting condom use, behavioral change and the empowerment of vulnerable populations” (Chersich and Rees, 2008: S35). “Even if in the end it is found that STDs have only a limited impact on HIV transmission, we cannot afford to miss the potentially cost-effective chance of controlling HIV through their treatment. Additionally, STDs are important diseases, which by themselves cause major morbidity and reduced fertility, demanding control” (Rottingen et al., 2001: 594).

*[See also Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV for additional sexual and reproductive health interventions]*

## What Works—*Prevention for Women: Treating Sexually Transmitted Infections*

1. STI counseling, diagnosis and treatment represent an important access point for women at high risk of HIV, particularly in the earlier stages of the epidemic.

### *Promising Strategies:*

2. Screening for and treating STIs on a continuous, accessible basis improves overall health systems, and has been associated with reducing the risks of HIV acquisition in a setting with high STI prevalence.
3. Providing VCT together with STI services can reach women at high risk for HIV.

## EVIDENCE

### 1. **STI counseling, diagnosis and treatment represent an important access point for women at high risk of HIV.** [See also Chapter 9C-1. *Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*]

- ▶ A systematic review and meta-analysis of 1,064 reports between 1998 and 2000 found that genital ulcerative disease appears to have a greater impact than nonulcerative disease on the susceptibility to HIV. Men were more affected than women by the effects of STIs. Untreated concurrent STIs in an HIV-positive individual increases the rate of progression towards AIDS. “A better and more quantitative understanding of the interactions between HIV infection and classic STDs is needed ...Sexual behavior is the common risk factor for contracting both HIV and STDs” (Rottingen et al., 2001: 592). (Gray I) (*STIs, genital ulcers*)
- ▶ A review of 2,101 articles in Medline and International Conferences on AIDS found that both ulcerative and non-ulcerative STIs promote HIV transmission. Risk estimates found in prospective studies from four continents ranged from two to over 23. “Owing to the greater frequency of non-ulcerative STIs in many populations, these infections may be more responsible for more HIV transmission than genital ulcers” (Fleming and Wasserheit, 1999: 3). (Gray I) (*STIs, genital ulcers*)
- ▶ A 2004 to 2006 cross-sectional survey study of female sex workers in **India** found that of the 976 women who had symptoms of an STI, more than 78% sought medical treatment; behavior that was protective for both HIV and STIs. HIV infection was strongly associated with lifetime and active syphilis (Mishra et al., 2009). (Gray III) (*STIs, syphilis, India*)
- ▶ In a study where 109,500 samples were tested during a nine-month period from patients in STI clinics in the **US, Malawi and South Africa**, 1 to 2 percent had acute HIV

infection, which greatly increases the risk for transmission of HIV (Cohen, 2006b). (Gray III) (*STIs, Malawi, South Africa, United States*)

- ▶ A retrospective study of 174 monogamous couples in **Uganda** in which one partner was HIV-positive, found that higher viral load and genital ulceration are the main determinants of HIV transmission per coital act. Transmission probabilities increased from .001 per act at viral loads of less than 1,700 copies/mL to .0023 per act at 38,500 copies/mL or more and were .0041 with genital ulceration versus .0011 without (Gray et al., 2001). (Gray III) (*STIs, sexual partners, Uganda*)
- ▶ Ulcerative STIs, particularly chancroid, herpes simplex virus type 2 and syphilis are the most important STI cofactors for HIV transmission. Control of curative genital ulcers—chancroid and syphilis—is highly feasible and correlates well with stabilization of HIV epidemics. Effective antibiotic treatment of gonorrheal or chlamydial infection reduces HIV viral load to normal levels. “Evidence supporting the role of STIs as HIV cofactors is extensive and indisputable” (Steen et al., 2009: 862). (Gray V) (*STIs, genital ulcers*)
- ▶ A study of 495 people living with HIV in **South Africa**, of whom more than 70% were women, found that 59% had a validated STI symptom assessed by STI symptom algorithm (Maarschalk et al., 2008). (Gray V) (*STIs, South Africa*)
- ▶ A retrospective medical review of 1,457 deliveries and 1,071 aborted pregnancies among HIV-positive women in **Russia** from 2003 to 2005 found that 37% of postpartum and 21% of abortion clients had STIs. Approximately 20% of those with STIs did not receive treatment for their STIs (Karpushkinal et al., 2008). (Gray V) (*abortion, STIs, Russia*)
- ▶ The prevalence of genital shedding of herpes simplex virus (HSV)-2 and related risk factors was evaluated in a prospective population of 355 women attending the Maternity Joséphine Bongo, in Libreville, **Gabon**. Researchers found a high prevalence (66%) of HSV-2 seropositivity, with a high proportion, 14%, of women harboring HSV-2 DNA shedding in their genital secretions. HSV-2 genital shedding was positively associated with previous episodes of genital blisters, current genital ulcer, current genital blister, HIV seropositivity and HSV-2 seropositivity (Ozouaki et al., 2006). (Gray V) (*herpes simplex, Gabon*)

### Promising Strategies:

2. **Screening for and treating STIs on a continuous, accessible basis improves overall health systems, and has been associated with reducing the risks of HIV acquisition in a setting with high STI prevalence.**
  - ▶ A randomized trial was conducted over two years in rural **Tanzania**. STI treatment was provided in the intervention communities to assess the impact on HIV transmission. Strong evidence indicates that the STI intervention program had a substantial effect on HIV incidence in this rural African population. Six communities received the inter-

vention immediately following the baseline survey, while six comparison communities received the intervention after the follow-up survey two years later. HIV incidence was consistently lower in the intervention community than the comparison community in all six matched pairs. After two years of the intervention, there were 48 seroconversions (1.2%) in the intervention group and 82 (1.9%) in the comparison group. HIV incidence was approximately 42% lower in the intervention group. Prevalence and incidence of STIs was measured in a random cohort consisting of 1,000 adults in each community. STI services were based on syndromic algorithms recommended by WHO (WHO, 1991). The intervention program had five components: 1) Establishment of an STI reference clinic and laboratory to monitor the effectiveness of treatment algorithms; 2) Existing staff from health centers received one week of classroom training and two weeks of practical training at the STI clinic. Staff also were trained to provide patients with health education and to offer free condoms; 3) A special delivery system of drugs was established to supplement the national essential drugs program supplies; 4) Regular supervisory visits by a program officer were conducted to provide in-service training and to check drug supplies and patient records; 5) Periodic visits by health educators to villagers were conducted to provide information on STIs, inform villagers of available treatment, and encourage prompt attendance for treatment of symptomatic STIs. Men with a positive LED test and those reporting or found to have urethral discharge were asked to provide a urethral swab. Urethral swabs were tested for *Neisseria gonorrhoea* by gram stain and for *Chlamydia trachomatis* by antigen capture immunoassay. HIV was tested by ELISA assay. Positive samples received a second ELISA assay, and in case of discrepant or indeterminate ELISA results, a western blot test. Serological tests for syphilis were conducted using RPR and TPHA. Evaluation of the impact of the intervention on the prevalence of STIs was based on the seroprevalence of active syphilis and on the prevalence of confirmed urethritis, *N gonorrhoea* and *C trachomatis* infection in men. Surveys indicated that condom use did not increase nor did sexual behavior change during the course of the intervention (Grosskurth et al., 1995). (Gray III) (*STIs, health facilities, treatment, Tanzania*)

3. **Providing VCT together with STI services can reach women at high risk for HIV.** [See Chapter 6. *HIV Testing and Counseling for Women*]

### **Gaps in Programming—Treating Sexually Transmitted Infections**

1. Interventions are needed to screen and treat both male and female sexual partners for STIs.
2. While treatment of all STIs can improve everyone's health and well-being, ulcerative STIs have the most impact on HIV susceptibility and transmission. However, to date, regimens to suppress genital herpes have not been effective in reducing HSV transmission.

1. **Interventions are needed to screen and treat both male and female sexual partners for STIs.** Studies found that efforts are needed to reach both men and women: if both partners were not treated, women can get recurrent infections.
  - ▶ Gap noted, for example, in Uganda (Kacwamu, 2008); South Africa (Fox et al., 2007).
  
2. **While treatment of all STIs can improve everyone's health and well-being, further interventions are needed to screen and treat ulcerative STIs, which have the most impact on HIV susceptibility and transmission.** Studies have found however, that, to date, regimens to suppress genital herpes and other STIs have not been effective in reducing HSV transmission.
  - ▶ Gap noted, for example, in Uganda and Zimbabwe (Van der Pol et al., 2008); Tanzania (Watson-Jones et al., 2008, Riedner et al., 2006); India (Reynolds et al., 2006b); generally (Klausner, 2009).

# Prevention for Key Affected Populations

- A. Female Sex Workers
- B. Women Drug Users and Female Partners of Male IDUs
- C. Women Prisoners and Female Partners of Male Prisoners
- D. Women and Girls in Complex Emergencies
- E. Migrant Women and Female Partners of Male Migrants
- F. Transgender Women and Men
- G. Women Who Have Sex with Women (WSW)

Some women are particularly at risk of HIV acquisition due to their occupational exposures, their behavior or that of their sexual partner(s), their sexual identity and/or their sexual orientation. These women live in particularly challenging situations. These groups of women—sex workers, injecting drug users (IDUs) or female partners of IDUs, transgender people, migrant women and female partners of male migrants, women prisoners and female partners of male prisoners, women and girls in complex emergencies and women who have sex with women—have specific needs in prevention and are often marginalized within their societies. It is key to addressing the needs of women and girls to acknowledge the specific needs of these marginalized groups of women.

While public health epidemiology can clarify which groups in which countries are the most at risk of HIV acquisition, an understanding is needed of the fluidity between some groups. For example, sex workers are rarely considered as the focus of PMTCT programs, despite abundant evidence that sex workers get pregnant and have children. In some parts of the world, substantial overlap occurs between sex work and drug use: an estimated 20–50% of

female injecting drug users in Eastern Europe and 10–25% of female IDUs in Central Asia are involved in sex work (Rhodes et al., 2002 cited in Pinkham et al., 2008). In many places, HIV prevalence among IDU sex workers is higher than it is among either non-sex worker IDUs or non-IDU sex workers (Pinkham and Malinowska-Sempruch, 2008). Further, in many countries, prison is a common experience for IDUs (Du Cros and Kamarulzaman, 2006). While the numbers of women who have sex with women (WSW), particularly those who are at risk of HIV acquisition, are small, WSW have been ignored and are therefore included here.

The prevention needs of the groups of women listed below and the overlap between them must be considered for HIV prevention planning to be maximally effective. These groups are discussed in more depth in sections A through G of this chapter.

## 4A. *Prevention for Key Affected Populations:* **Female Sex Workers**

Sex workers, whose work involves sex with multiple partners, are a key group of women who need access to HIV prevention and services, most notably programs that enhance sex workers' ability to use condoms. Pisani (2008) makes the case that sex workers should be receiving much more attention in programming to promote condom use. Among sex workers,

---

*“The strategy to end demand for sex work has not worked anywhere so far.”*  
(Sengupta and Tandon, 2008).

---

the median reported rate of condom use with their most recent client in 2008 was 86% in 56 low- and middle-income countries (UNAIDS, 2009e). While some progress has been made in providing HIV services for sex workers, much more remains to be done. Astoundingly, in 40% of countries with a generalized epidemic, no services for sex workers were available in 2007 and worldwide less than 50% of sex workers have access to VCT and to condoms

that could save them from acquiring HIV in the course of their occupation (UNGASS, 2008 cited in Bertozzi et al., 2008).

### *Sex Workers Are a Diverse Population*

Unprotected sex with multiple partners ultimately puts sex workers at risk of HIV, and human rights violations and lack of safe and supportive working conditions renders sex workers particularly vulnerable to HIV infection. The diversity of sex work means that interventions need to be adapted to meet the needs of women in different settings. The sex work industry includes a broad range of workers operating in various locations including those who are street-based, brothel-based, those who work as escorts and those who work from their own homes. Some women exchange sex for cash or goods but do not see themselves as sex workers (Hawken et al., 2002). Women are sometimes trafficked into sex work. There is currently debate about how to assess whether a woman is trafficked or whether she is a sex worker (Vance, 2010; Bien-Aime,

2010). Transgender men and women also work as sex workers and are at particularly high risk for HIV acquisition. Fifty-five independent studies from 19 countries (countries not specified) of 2,233 transgender women sex workers found a 33% HIV prevalence rate (Friedman et al., 2008). [See also 4F. *Transgender Women and Men*]

### *Criminalization of Sex Work Hinders HIV Prevention*

“Sex work is currently a criminal offense in most southern African countries, as indeed it is in most of the world...and much of the vulnerability of sex workers to HIV in southern Africa stem directly from the criminalization of their work” (Richter et al., 2010: 1 and 2). Simply decriminalizing sex work would not eliminate HIV; however, when “sensibly applied, legislative processes can be a most powerful public health ally. Equally, harmful law may obstruct and hinder public health” (Richter et al., 2010: 1 and 2). For example, criminalization of sex work as practiced in many parts of the world makes access to health services difficult. Sex workers in some studies state that the reason they do not access services is fear of arrest. Criminalization means that sex workers are less able to negotiate condom use and are more subject to violence from clients. They also may have difficulty accessing both legal remedies and PEP in cases of rape. [See Chapter 11B. *Strengthening the Enabling Environment: Addressing Violence Against Women*]

“The illegal status of sex work creates conditions in which exploitation and abuse can thrive” (Gould and Fick, 2008: 55). As one South African sex worker stated, “There is nothing you can do if someone is violent with you. ...you can’t go to the police...” (Gould and Fick, 2008: 49). A survey of 118 sex workers in South Africa found that 12% had been raped by police officers and 28% reported that policemen asked them for sex in exchange for release from custody (Gould and Fick, 2008). Participatory action research with sex workers and outreach workers from 13 sex worker projects in Central and Eastern Europe and Central Asia found that of 238 male, female and transgender sex workers from 12 countries more than 45% reported physical abuse by police and more than 41% reported sexual abuse, in addition to reports of forced HIV testing. Police increase risks by confiscating condoms as evidence of sex work (Crago et al., 2008). A study conducted by sex workers and academics interviewing 164 sex workers in Cape Town, South Africa found that “sex workers would rather have their work treated as a legitimate job with the legal protection that comes with that” (Gould and Fick, 2008: 7).

In New Zealand, which has explicitly decriminalized sex work and adopted a human rights and public health framework, sex workers report being able to negotiate safe sex and report abuse to the police (New Zealand Government, 2008 cited in Richter et al., 2010).

### *Condom Use in Sex Work is Critical to Prevent Infection but Implementation of 100% Condom Use Policies Can Violate Human Rights*

While Thailand is renowned for its 100% condom use policy that had a large impact on the HIV epidemic in that country (Hananberg et al., 1994), subsequent evidence, for example from Cambodia (Lowe, 2002), suggest that policies and programs that denigrate the rights of sex workers tend not to be successful. While 100% condom use policies may have increased condom use, they have also been shown to be coercive to female sex workers, rather than

protective. In an analysis of 100% condom use policies (CUP), CASAM found that “while not all aspects of 100% CUP are negative, there exists a need to re-center HIV programming targeting sex workers within the framework of a rights-based and justice-based sex worker empowerment model” (CASAM, 2008: 2). A sex worker women’s group in Mongolia reported that violence by both clients and intimate partners were significant barriers to condom use when a 100% CUP was implemented (Jamts, 2008). Also, because 100% CUP programs tend to target sex workers rather than their male clients, these programs have not necessarily affected condom use in regular (non-transactional) partnerships.

Yet, programs that facilitate increased condom use among sex workers during commercial sex, as well as during sex with regular partners are critical—from both public health and human rights perspectives. Condom negotiation skills are essential skills for sex workers. A study in South Africa found that “sex workers identify demands for unprotected sex as one of their most significant problems” (Gould and Fick, 2008: 52). Sex workers reported a high proportion of clients seek unprotected sex. As one sex worker put it: “We haven’t really got problems

---

“The problem is not sex  
—it is lack of condoms.”  
(Reynaga, 2008)

---

with the clients here, except with the ones we call ‘condom missions’, because it’s a real mission to get them to use the condoms. You would be surprised how ignorant they are. You actually have to educate them about condoms... you say to them you have a wife and family to worry about” (Gould and Fick, 2008: 74). Most cases of violence were triggered by the refusal of the sex worker to comply with a demand

for unprotected sex, with a third of street-based sex workers reporting being raped by a client. They did not expect any help from the police (Gould and Fick, 2008).

Female sex workers do adopt safer sex behavior after educational interventions, and many programs have succeeded in encouraging sex workers to negotiate condom use with clients. A systematic review of published evidence from 1998 to 2006 on condom use found that fifteen of the 19 studies of condom use in commercial sex reported significantly increased levels of condom use (Foss et al., 2007). However, programs need to support sex workers to use condoms with regular clients as well as in their personal relationships as they are less likely to use condoms with their husbands, boyfriends and partners. Sex workers need access to condoms and appropriate water-based lubricants (Arnott and Crago, 2009).

### *Protecting Human Rights and Empowering Sex Workers are Vital*

Programs that take a human rights and empowerment approach, such as the Sonagachi Project and Sagram in India, have been shown to create better working conditions and be the most effective to reduce HIV acquisition among sex workers and (Pillai et al., 2008; Gooptu and Bandyopadhyay, 2007). Sex workers themselves have led some of the most effective, evidence-based responses (Reynaga, 2008). Evidence suggests that empowering sex workers with agency is important both for the health of the sex worker herself and for effective HIV prevention programs. In contrast, punitive and mandatory measures—such as when governments have imposed compulsory HIV testing of sex workers, a measure that does not respect their

confidentiality—violate human rights standards. “The strategy to end demand for sex work has not worked anywhere so far,” pushing sex workers “...beyond the reach of HIV prevention, health and treatment programs” (Sengupta and Tandon, 2008). A review of sex worker incarceration in China found that HIV prevention and treatment programs are “scarce” for detained sex workers (Tucker and Ren, 2008: 34). In the Sonagachi sex worker collective, sex workers have determined the priorities, and designed and implemented the programs. Condom use between 1999 and 2007 has increased from 2% to 85% and HIV prevalence has stabilized at around 5% (Ray, 2008), while other sex workers in India have much higher rates of HIV prevalence.

Interventions that improve HIV knowledge and protective behaviors, particularly condom use, as well as those that respect human rights are the key to successfully preventing HIV among sex workers. A review of the evidence highlights several strategies that have proven effective in doing this.

### **What Works—*Prevention for Key Affected Populations: Female Sex Workers***

1. Comprehensive prevention programs that include components such as peer education, medical services, and support groups, can be effective in enabling sex workers to adopt safer sex practices.
2. Clinic-based interventions with outreach workers can be effective in increasing condom use among sex workers.
3. Policies that involve sex workers, brothel owners and clients in development and implementation of condom use can increase condom use.
4. Providing accessible, routine, high quality, voluntary and confidential STI clinical services that include condom promotion can be successful in reducing HIV risk among sex workers.
5. Peer education can increase protective behaviors.
6. Interventions targeting male clients can increase condom use and thus reduce HIV risk for sex workers.

#### *Promising Strategies:*

7. Creating a sense of community and empowerment among sex workers can help support effective HIV prevention.

## EVIDENCE

### 1. Comprehensive prevention programs that include components such as peer education, medical services, and support groups, can be effective in enabling sex workers to adopt safer sex practices.

- ▶ A 2002 cross-sectional study randomly selected 1,512 female sex workers from two regions in southern and northern Karnataka, **India** and evaluated the impact of sex worker collectives on condom use and HIV/STI knowledge. NGO-operated female sex worker collective programs are often managed by older sex workers and not only provide members with condoms and STIs/HIV education, but also offer literacy training, medical care, and legal support for sex workers. The study found that the collectivization of female sex workers was correlated with better HIV knowledge and increased condom use. Female sex workers who were either members of collectives or had been in touch with peer educators “have knowledge that condom use can prevent [infections] and HIV,” (Halli et al., 2006: 742). Multiple logistic regression analysis found that collectivized sex workers had almost 16 times the odds of regularly using condoms with clients, reporting using condoms with clients 97% of the time. The study also found that condom usage and HIV/STI increased incrementally, in proportion to greater involvement with collectives, suggesting “in the southern Indian context, collectivization does add incrementally to the effect of peer education in reducing STI/HIV/AIDS-related risk behavior” (Halli et al., 2006: 747). (Gray II) (*sex workers, peer education, condom use, India*)
- ▶ A study of sex workers in **Côte d’Ivoire** found that increased national HIV/AIDS prevention campaigns have yielded significant increases in condom use and declines in prevalence of HIV and other STIs. Outcomes showed consistent condom use increased among sex workers from baseline measurements of 20% to 78% between 1992 and 1998, while reported condom use with most recent clients also increased from 63% to 91%. HIV infection rates decreased among female sex workers from 89% to 32%; for gonorrhea from 33% to 11%; for genital ulcers from 21% to 4%; for trichomoniasis from 26% to 11%; and for syphilis from 21% to 2%. However, infection from chlamydia increased from 5% to 7%. Due to sharp increases in demand, the clinic doubled its size by the end of the study in 1998. In response to intensified media and social marketing programs initiated by the Ministry of Health, Clinique de Confiance, a confidential STD/HIV clinic, began inviting sex workers and their stable partners to attend peer education programs for instruction on disease transmission and prevention in 1992. Sex workers were also encouraged to access a wide range of free services including the distribution of condoms (both male and female) and lubricating gels, gynecological examinations, general physicals and STD/HIV diagnosis, counseling, and treatment. The study reviewed multi-year cross-sectional studies conducted among users of the clinic and biannual community-based surveys between 1991 and 1997 in order to determine HIV/STD prevalence and socio-demographic trends among sex workers. Although

there were major socio-demographic changes observed in this population that may have contributed to the decline of the diseases being monitored, “the increase in condom use and the decline in prevalence of HIV infection and other STDs may well have resulted from the prevention campaign for female sex workers, and such campaigns should therefore be continued, strengthened, and expanded” (Ghys et al., 2002: 251). (Gray III) (*sex workers, condoms, STIs, peer educators, social marketing, sexual partners, Côte d’Ivoire*)

- ▶ The Sonagachi project in **India** which provided free access to STI treatment, condoms and peer education was successfully replicated, including community organizing and advocacy; peer education; condom social marketing and establishment of a small clinic. Sex workers were randomly selected in 2 small urban communities in northeastern India. One hundred sex workers participated in each community, with an 85% retention rate. Overall condom use increased significantly in the intervention community to 39% as compared to 11% in the control community. The proportion of consistent condom users increased 25% in the intervention community compared with a 16% decrease in the control community (Basu et al., 2004). (Gray III) Providers initiated awareness and an offer of services at sex work sites through sex worker peer education, mobile VCT camps and community level task forces. Services include VCT; initiating antiretroviral therapy with escorting to follow-up at government clinics; treatment for opportunistic infections and TB; nutritional support; and support for a network of positive women. VCT rates between 2004 and 2005 increased almost nine times to a total of 2,578 with all who received counseling taking the HIV test. Barriers to HIV prevention and treatment were a belief that testing positive was a death sentence; lack of treatment literacy; and stigma by health provider (Saha, 2006). (Gray III) The community empowerment model implemented in Sonagachi since 1992 has increased consistent condom use to 85% and HIV prevalence among sex workers has remained stable below 10%. Sonagachi has established high rates of partner notification through cohabitating partners acting as male peers for mobilizing clients for STI screening and promotion of safe sex; evening clinic hours for clients;. Partner treatment has increased from 40% in 2002 to 46% in 2007 at 13 STI clinics (Jana et al., 2008). (Abstract) Starting in 1992 and with sex workers in control of the project since 1999, the project has grown from 12 peer educator sex workers reaching 3,500 sex workers to 450 peer educators reaching 45,000 sex workers. Condom use between 1999 and 2007 has increased from 2% to 85% and HIV prevalence has stabilized at around 5% (Ray, 2008). (Abstract) (Gray III based on Basu et al., 2004 and Saha, 2006) (*sex workers, community organizing, condom use, peer education, India*)
- ▶ A study of two communities in **China** using data from behavioral surveillance in 2003, 2004 and 2005 found that while baseline data in 2003 of the two communities was not significantly different, the county which had comprehensive HIV prevention interventions for female sex workers had significantly higher prevalence of condom use with clients and regular sex partners, higher HIV related knowledge and increased uptake of VCT and HIV services by 2005. The HIV prevention intervention consisted of a preven-

tion committee with high government support, an outreach team, VCT sites, a needle exchange center, a methadone maintenance clinic, STI clinics, support groups, trained peer educators and social marketing of condoms. More than 150 sex workers were interviewed in each community in 2003, 2004, and 2005. By 2005, sex workers in the intervention community were seven times more likely to have appropriate responses for questions on HIV, more sex workers in the intervention community perceived themselves at risk for acquiring HIV and at least twice as likely to report condom use with clients and sex worker partners. HIV knowledge was significantly associated with condom use. While over 75% sex workers in the intervention community reported accessing VCT, less than 10% of sex workers from the community with no intervention reported accessing VCT (Lau et al., 2007a). (Gray III) (*sex workers, condom use, HIV testing, China*)

- ▶ An HIV prevention program developed a training program to enhance self-esteem, communication and leadership among sex workers in Karnakata, south **India**. Following the intervention, STI service utilization increased from 75 clinic visits per month in 2005 to over 900 clinic visits in 2007 (Lakkappa et al., 2008). (Abstract) (*sex workers, STIs, India*)
- ▶ A project with 700 female sex workers and MSM in **India** where beneficiaries such as sex workers manage all HIV program interventions—outreach, condom promotion and linkages with government health services resulted in 20% increase in condom use (Varada and Selva, 2008). (Abstract) (*sex workers, MSM, condom use, India*)

## 2. Clinic-based interventions with outreach workers can be effective in increasing condom use among sex workers.

- ▶ A study of 924 female sex workers from 2004 to 2008 in **Mexico**'s border cities found that one 30-minute intervention based on principles of behavior change led to an increase in protected sex acts and a 40% decrease in STIs over a six month period when compared to a group that received standard presentation of prevention messages for VCT. Local health workers in the intervention group discussed with women how to negotiate safer sex, barriers to using protection, negotiation of condom use and ways to improve social support (Patterson et al., 2008). (Gray III) (*sex workers, community outreach, sex behavior, condom use, HIV testing, STIs, Mexico*)
- ▶ A prospective, community-based, pre/post, intervention trial set in entertainment establishments (karaoke bars, massage parlors, dance halls, beauty parlors) where sex workers operate at sites in five provinces of **China** (Anhui, Beijing, Fujian, Guangxi and Xinjiang) showed increased condom use and decreased STI prevalence after setting up a Women's Health Clinic near participants' places of work at each site. The participants were all sex workers working in targeted entertainment establishments. Clinic-based outreach activities, including awareness-raising, condom promotion, and sexual health care, were developed and delivered to sex workers. Cross-sectional surveys at baseline

and post-intervention were used to evaluate changes in condom use with the last three clients, and the prevalence of chlamydia and gonorrhoea. In total, 907 sex workers were surveyed at baseline and 782 at 12 months post-intervention. Outreach teams made 2552 visits to the target entertainment establishments, approached 13,785 female sex workers, and distributed 33,575 copies of education material and 5102 packets of condoms. The rate of condom use with the most recent three clients increased from 55.2% at baseline to 67.5% at 12 months evaluation. The prevalence of gonorrhoea fell from 26% at baseline to 4% after intervention, and that of chlamydia fell from about 41 to 26% (Rou et al., 2007). (Gray III) (*sex workers, community outreach, condom use, STIs, China*)

- ▶ In a prospective, community-based, pre/post-intervention trial of thirty establishments in Chengjiang, thirty-four in Ruili and twenty-three in Longchuan, **China**, outreach workers visited the establishments to conduct intervention activities over six weeks. The study participants were female sex workers. Intervention activities included lectures, discussion, video and audiocassettes, and distribution of educational folders and condoms. Pre- and post-intervention cross-sectional surveys assessed changes in STI/AIDS knowledge and condom use. After the intervention, knowledge of the three HIV transmission routes increased from 25 to 88%, knowledge that condoms can reduce the risk of STI/HIV infection increased from 56 to 94%. Condom use at last sex and in the last three sexual encounters increased from 61 to 85% and from 41 to 70%, respectively. Multivariate analyses indicated that the intervention was an independent factor for these changes. The intervention program was effective at increasing HIV/AIDS knowledge and condom use rates among sex workers in the community (Wu et al., 2007b). (Gray III) (*sex workers, community outreach, condoms, risk reduction, STIs, China*)

### 3. Policies that involve sex workers, brothel owners and clients in development and implementation of condom use can increase reported condom use.<sup>1</sup>

- ▶ A pre- and post-test study that compared condom use and policies in 68 sex establishments in two cities in the **Dominican Republic** from 1999 to 2000 with 200 female sex workers age 18 or older found that interventions that combined community solidarity with government policy were the most effective in increasing condom use rates. The study was approved by and involved the sex worker union of the Dominican Republic, MODEMU. The two environmental-structural interventions compared in the study included a community-based approach implemented in sex establishments in one city, and a combined community-based approach with government policy and regulations in another. Three interventions were implemented in both cities. First, a solidarity and

---

<sup>1</sup> Implementation of policies varies in practice. Recent documentation with 100% condom use policies, for example in Cambodia (Lowe, 2002), suggest that some aspects of 100% condom use policies, such as mandatory STI and HIV testing, can be disempowering to sex workers and violate human rights. Some have suggested that the Kerrigan 2004 and 2006 studies, along with the Pisey, 2008 study should not be instituted for this reason.

collective commitment approach that involved sex workers, managers, owners, deejays, and other establishment employees in workshops and meetings in order to strengthen relationships and collective commitment for condom use. Second, environmental cues, such as 100% condom posters and stickers and glass bowls with condoms, as well as other awareness-raising activities. Third, confidential clinical services for sex workers (who were required by law at the time of the study to attend monthly STI checks), that included training for health workers and Ministry of Health inspectors on ethical procedures and HIV, among other things, and the establishment of sex worker peer educator pre- and post-test counseling. Use of condoms and adherence to the program was measured against five study elements: visibility of condoms in the establishment, stocks of at least 100 condoms, attendance of sex workers at monthly STI checks, and lack of positive STI diagnoses among sex workers (no individual STI results were shared with establishment owners. In Puerto Plata only, a regional government policy was established that required condom use between sex workers and their clients that was communicated to all participating sex establishment owners in the city. It was also communicated to owners in both cities that they had the ultimate responsibility for condom use, not the sex workers that worked for them. NGO staff and regional public health officials met with establishment owners on a quarterly basis in both cities to assess adherence. In both cities, intensified education was provided by the NGO to establishments that were lagging and award certificates were given to those that showed adherence with the strategy. In Puerto Plata, establishment owners were subject to graduated sanctions, such as notifications, fines, and closing, for lack of adherence. (Kerrigan et al., 2004: 2). Data collected showed that consistent condom use with new clients significantly increased in Santo Domingo, from 75% to 94%. In Puerto Plata, the rate increased from 96% to 98%. Significant overall declines in the STI rates of both approach sites were observed. Furthermore, an association was found between higher rates of consistent condom use and higher levels of exposure to the workshops. Lastly, levels of compliance with the policies was found to be significantly higher in the Puerto Plata site which implemented government sanctions for non-compliance in addition to the community approach. In Puerto Plata, the rate of consistent condom use by regular and nonpaying partners rose significantly, from 13% to over 28%. Sex workers in Puerto Plata reported a significantly increased ability to reject unsafe sex, from 50% to 79%. In Puerto Plata, there was a significant decrease from over 28% to less than 17% of one or more STIs (Kerrigan et al., 2006; Kerrigan et al., 2004). (Gray III) (*condom use, sex workers, Dominican Republic*) [See footnote]

- ▶ A study of 310 sex workers in **China** found that among sex workers who perceived support for condom use from “my boss” was correlated with higher rates of condom use. Sex workers with access to condoms and who agreed with the statement, “If I refuse to serve a customer who does not want to use a condom, my boss will support me” and whose manager encourages health check-ups reported more condom use. Sex workers who reported this support were 1.7 times more likely to report overall consis-

tent condom use and 1.5 times more likely to report consistent condom use in the last three sexual acts (Hong et al., 2008). (Gray IV) (*sex workers, condom use, China*)

- ▶ A 100% condom use program implemented in Banteay Meanchey Province, **Cambodia** where authorities met weekly with brothel owners concerning noncompliance decreased HIV seroprevalence among sex workers from 51% in 1999 to 16% in 2007. Among sex workers STI prevalence based on laboratory diagnosis declined from 90% in 2001 to 7% in 2008. Peer educators counseled sex workers on negotiating condom use. Authorities also met with brothel owners to discuss ways to support sex workers when clients refused condom use (Pisey, 2008). (Abstract) (*sex workers, STIs, peer education, condom use, Cambodia*) [See footnote]

#### 4. Providing routine, high quality, voluntary and confidential STI clinical services that include condom promotion can be successful in reducing HIV risk among sex workers.

- ▶ A study in Guangxi, **China** evaluated the efficacy of cultural adaptation of a voluntary counseling and testing (VCT) intervention, in increasing condom use and decreasing rates of sexually transmitted infections (STIs) among a group of female sex workers. This intervention is modeled after the “state-of-the-science” VCT program that was developed and evaluated by the Center for Disease Control and Prevention’s Project RESPECT. The Project RESPECT two-session VCT program was adapted with five major modifications by the investigation team in response to the social and cultural context of female sex workers in China. Four hundred female sex workers were assigned to either an intervention group receiving the VCT intervention or a control group receiving standard of care STI testing and treatment. Data were collected at baseline and 6 months post intervention. Outcome measures included HIV/STI related knowledge and perceptions, condom use, and history of STIs. Five common STIs were screened and tested through clinical examination and laboratory testing to serve as biomarkers. After controlling for potential confounders and baseline differences, the VCT intervention group was significantly higher than the control group in HIV/STI related knowledge and consistent condom use with clients at 6 months follow-up. In addition, the intervention group had a significantly lower infection rate of STIs than the control group at follow-up. This quasi-experimental trial provides evidence that the brief VCT intervention, through appropriate cultural adaptation, can be efficacious in increasing condom use and reducing STI infection rate among female sex workers in China (Li et al., 2006). (Gray III) (*sex workers, counseling, HIV testing, condom use, STIs, China*)
- ▶ A resurvey of 172 HIV-negative female sex workers one year after 2002 in **Kenya** found that condom use had increased and STI prevalence had decreased. From 1998 to 2002 monthly antibiotics to prevent STI and HIV transmission were provided along with regular counseling, condoms, screening and treatment. Quarterly community meetings for sex workers in the individual villages, as well as a larger meeting including all villages in the area to address sex worker risk reduction issues as a community were

ongoing after the study (Ngugi et al., 2007). (Gray V) (*sex workers, condom use, counseling, community outreach, STIs, HIV testing, Kenya*)

- ▶ An onsite clinic to provide sex workers with quality of care at a brothel in Johannesburg, **South Africa** found that condom use may have increased. Qualitative interviews showed that information sessions by nurses positively affected condom use. Through nurse counseling, sex workers understood: “Even if he promises you more money [this] cannot buy your life” (p. 461). Data were drawn from 12 focus groups and ten in-depth interviews with sex workers. Prior to the establishment of the on-site clinic, most sex workers reported not using public health services due to abusive provider attitudes to sex workers, lack of appropriate drugs and long lines. The onsite clinic provided treatment for STIs, education and condoms. Over a 15-month period, 1,243 women were screened and treated at least once for STIs. Sex workers incurred no travel costs to access the clinic. Sex workers reported that the clinic staff created an atmosphere of honesty and respectful treatment: “Everything is done through agreement...everything is explained” (p. 460). (Stadler and Delany, 2006). (Gray V) (*condom use, sex workers, STIs, South Africa*)

#### 5. Peer education can increase condom use and HIV testing.

- ▶ A meta-analysis of 34 articles, **16 from Sub-Saharan Africa, 16 from East and Central Asia and 2 from Latin America**, of which 12 studies focused on sex workers, found that peer education was significantly associated with increased condom use (Medley et al., 2008b; Medley et al., 2009). (Gray I) (*sex workers, peer education, condom use, Africa, East Asia, Central Asia, Latin America*)
- ▶ Peer education in **Nigeria** by sex workers resulted in increased condom use from 76.6% at baseline to 87.6% in 2004. Follow-up two years later in 2006 found condom use still at 86.4% (Ankomah et al., 2008). (Abstract) (*peer education, sex workers, condom use, Nigeria*)
- ▶ A peer outreach program for sex workers in **Myanmar**, along with drop-in centers and clinics, resulted in 4,000 sex workers accessing VCT (Win and Rahman, 2008). (Abstract) (*peer education, sex workers, counseling, HIV testing, Myanmar*)

#### 6. Interventions targeting male clients can increase condom use and thus reduce HIV risk for sex workers.

- ▶ A study in **Senegal** found that a peer-mediated education and condom distribution program targeting male clients of sex workers was successful in increasing AIDS-related knowledge and consistent condom use. Twenty transport workers were elected by co-workers to attend a two-day training seminar to acquire general information on HIV/AIDS/STIs that included topics of transmission, symptoms, and preventative measures as well as condom negotiation and peer communication techniques. At the end of training peer educators were expected to provide basic HIV/AIDS information

to their peers, distribute condoms and printed materials, and serve as a link to STD clinic staff. Weekly discussion groups for the educators were also held to review the training material. Baseline and follow-up surveys and interviews were conducted over a two-year period among 260 matched pairs of transport workers to determine the impact of the intervention. Forty-five sex workers were also administered pre- and post-intervention surveys concerning client behavior. Although AIDS-related knowledge was determined to be high at baseline, with 95% of the transport workers reporting at least some awareness concerning HIV/AIDS transmission and other related issues, a significant increase to 100% was observed in the follow-up interviews. Consistent condom use with regular, nonmarital partners increased from 49.4% to 90.4% and men reporting having ever used a condom increased from 30.4% to 53.5%. Sex worker survey results showed that the number of clients “always” agreeing to use a condom increased significantly from 2.2% to 42.2% and the proportion of clients offering more money for sex without a condom decreased significantly from 82.2% to 46.7%. Lastly, although the majority of sex workers reported being the supplier of condoms during sexual encounters, 29.6% of the men who had received a condom from a peer educator were carrying a condom at the time of the follow-up interview. Commercial sex work has been legal in Senegal since 1970 (Leonard et al., 2000). (Gray III) (*sex workers, peer education, condoms, Senegal*)

- ▶ An intervention in **India** that reached one million male clients of sex workers a month increased consistent condom use from 62% in May 2006 to 81% in May 2007. The intervention involved pre-tested single message focus by PSI integrated into street theater and interpersonal communications every three months, based on bi-annual quantitative studies. Recall of PSI’s activities was correlated with increased consistent condom use (Hess and Vachani, 2008). (Abstract) (*mass media, sex workers, condom use, India*)
- ▶ A program by PSI in **India** targeting four million clients of sex workers in 100 high prevalence towns that increased access and demand to condoms resulted in consistent male condom use increasing from 63% in 2006 to 81% one year later. Areas meeting condom access standards increased from 40% in 2005 to 73% two years later (Vachani and Krishnan, 2008). (Abstract) (*sex workers, condom use, India*)

### Promising Strategies:

7. **Creating a sense of community, empowerment and leadership among sex workers can help support effective HIV prevention.**
  - ▶ Empowerment for sex workers in **India** through Sonagachi has evolved from 1992 when staff of an NGO approached sex workers to currently, where sex workers have formed their own autonomous organization, Durbar, with 65,000 sex workers in the

state of West Bengal. Review of Durbar's work as based on 22 focus group discussions with sex workers, with 5 to 25 sex workers in each focus group. In depth interviews were conducted with 10 key sex worker leaders and eight non sex worker staff of Durbar. Feedback was provided by Durbar following a dissemination workshop. A focus group discussion was held with brothel keepers and police and government officials were interviewed as well. Interviews were also held with non-Durbar sex workers. Sex workers and non-sex workers staff were given an equal status within the organization, with each having different expertise, with sex workers assuming key responsibilities within Durbar and in representing Durbar. Literacy classes which questioned social norms and used critical thinking were added to health projects, providing skills in discussion and debate. Durbar has assumed direct responsibility for running the health projects for sex workers as of 1999. Durbar was formed in 1993 by a group of sex workers who came together as peer educators through the NGO. Members of Durbar have successfully organized against maltreatment from brothels and pimps, against violence by the police and others, against forcible AIDS surveillance and against eviction of sex workers from brothels and red light areas, achieving greater power for sex workers in the sex trade. Durbar has a savings and credit cooperative. Prior to the formation of Durbar, sex workers reported a lack of control over their own lives and a sense of powerlessness. Durbar claimed prostitution as legitimate work, viewing it as "a legitimate and necessary occupation within the context of a wider economy, which offers the poor very few viable livelihood options," (p. 256) harming no one. Now that Durbar is a collective, police, government official and politicians "behave civilly with them now and meet with them...to discuss and solve problems...." (p. 257). Durbar has given sex workers a sense of their rights, so that Durbar now claims legal recognition and enforcement of their rights by the Indian government. In addition to establishing health services to meet sex worker needs for HIV/AIDS prevention, treatment and care, Durbar has set up services for counseling and treatment for the general population, particularly the poor. Durbar has also intervened on behalf of underage girls and those brought forcibly to the sex trade. Durbar has raised funds for flood victims, presenting themselves as "socially responsible citizens with a conscience and a sense of duty toward the vulnerable" rather than "weak needing rescue" (p. 265). (Gooptu and Banyopadhyay, 2007). (Gray V) (*sex workers, community organizing, violence, peer education, India*)

- ▶ SANGRAM in **India** began in 1992 with peer education and condom distribution, but evolved to create a sense of collective solidarity. SANGRAM has been incorporated into the policy process of the state of Maharashtra. Through SANGRAM, a collective of women sex workers was formed—VAMP. VAMP has grown from 150 women in 1995 to 5,000 members as of 2008. VAMP by exercising civil rights, ended police raids and has also gained the right of no cost condoms from the state government. Condom distribution by peer sex workers has increased from 6,000 to 8,000. VAMP member support members who are HIV-positive (Pillai et al., 2008). (Gray V) (*sex workers, condoms, peer education, India*)

## Gaps in Programming—Female Sex Workers

1. Health care provider training is needed to increase confidentiality and decrease discrimination against sex workers seeking health services.
2. Interventions are needed to provide sex workers with greater control and access over money and resources, which can have a positive impact on HIV-related risk reduction.
3. Changing laws and policies, ending police violence, workshops and other mechanisms are needed to protect sex workers from violence and rape.
4. HIV and AIDS programmes are disrupted during raids and other policing measures.

1. **Health care provider training is needed to increase confidentiality and decrease discrimination against sex workers seeking health services.** Studies found that significant proportions of female and transgender sex workers did not visit health facilities because of lack of confidentiality, discrimination, and lack of counseling when accessing HIV testing.
  - ▶ Gap noted, for example, in **Nepal** (Ghimire, 2008); **India** (Saha et al., 2008a); **Vietnam** (Ngo et al., 2007) and **Botswana, Namibia and South Africa** (Arnott and Crago, 2009).
2. **Interventions are needed to provide sex workers with greater control and access over money and resources, which can have a positive impact on HIV-related risk reduction.** Studies found that if sex workers had access to resources under their control, women were more likely to negotiate condom use.
  - ▶ Gap noted, for example, in **Dominican Republic** (Ashburn et al., 2007); **Nigeria** (Oyefara, 2007); **South Africa, Namibia and Botswana** (Arnott and Crago, 2009).
3. **Changing laws and policies, ending police violence, workshops and other mechanisms are needed to protect sex workers from violence and rape.** Studies found sex workers experienced high rates of violence and rape from clients and police, and that fear of arrest was a barrier to accessing health services.
  - ▶ Gap noted, for example, in **Botswana, Namibia and South Africa** (Arnott and Crago, 2009); **South Africa** (Gould and Fick, 2008); **Serbia** (Simic and Rhodes, 2009); **Thailand** (Ratinthorn et al., 2009); **India** (Gurnani et al., 2008); **Nigeria** (Ezire et al., 2008); **Central and Eastern Europe and Central Asia** (Crago et al., 2008); **Kenya** (Okal et al., 2008, Federation of Women Lawyers FIDA Kenya, 2008); **China** (Choi et al., 2008); and in **Russia** (Aral et al., 2003 cited in Stachowiak and Peryshkina, 2007).

4. **HIV and AIDS programmes are disrupted during raids and other policing mechanisms.** Studies found that HIV prevention efforts are disrupted during raids and that carrying condoms is used to prosecute sex workers.
  - ▶ Gap noted in a meta-analysis of articles and reports of sex workers from 10 countries on four continents (Ditmore, 2008); and China (Lau et al., 2007a).

## 4B. *Prevention for Key Affected Populations: Women Drug Users and Female Partners of Male IDUs*

---

“It has been known since the early 1990s that HIV among IDU can be effectively [and] safely...controlled by the early and vigorous implementation of a comprehensive package of strategies known as ‘harm reduction.’ This package consists of education, needle syringe programmes, drug treatment and the community development of drug users...No country that has started harm reduction has ever regretted doing so and then terminated their programmes” (Wodak and McLeod, 2008: S81; S83; S88).

---

Approximately 16 million people in 148 countries are injecting drug users (IDUs). The largest numbers are in China, the United States and Russia, with HIV prevalence among IDUs at 12% in China, 16% in the United States and 37% in Russia. Worldwide, about three million people who are IDUs are also HIV-positive (Mathers et al., 2008).

Though precise data on women who are injecting drug users are rarely available, women are estimated to represent about 20% of drug users in Eastern Europe, Central Asia and Latin America, 17–40% in various provinces of China and 10% in some Asian countries (UNODC, 2004; UNODC, 2005 cited in Pinkham and Malinowska-Sempruch, 2008; Ralon et al., 2008).

### *Female IDUs Risk Acquiring HIV from Needle Sharing and Unsafe Sex*

There are two major sets of HIV-related risk behavior associated with IDUs: needle sharing, especially borrowing used and contaminated needles from someone else (one of the most direct transmission pathways of HIV transmission), and unsafe sex (Choi et al., 2006). Yet country progress reports for UNGASS found that only 30 out of 145 low- and middle-income countries reported on HIV knowledge and behavior, condom use, HIV testing, safe injecting practices or access to prevention services for IDUs. Median coverage of IDUs with any type of prevention and care services was only 24% and three quarters of countries had prevention services for less than half of the IDUs (Degenhardt et al., 2008).

Despite the limited research on female IDUs and HIV-related behavior, there is evidence that the high HIV risk in female IDUs is associated both with injecting and sexual risk taking (Burrows, 2004). A study of 2,512 male and 672 female IDUs surveyed in 10 sites in developing countries found that females were more likely to engage in risk behaviors in the context

of a sexual relationship with a primary partner (Cleland et al., 2007) and that women are more likely than men to borrow or share injection equipment, particularly with their sexual partners. Women are also more likely to be injected by a friend or partner, which increases risk (Pinkham et al., 2008). There is also greater HIV risk in the overlap between injecting drug use and sex work. Studies in South America, Tanzania, China and Vietnam have found that sex workers who are injecting drug users are at higher risk of acquiring HIV than sex workers who are not injecting drug users (Bautista et al., 2006; Nguyen et al., 2008a; Azim et al., 2006; Ross et al., 2008; Galvez-Buccollini et al., 2009; Lau et al., 2007b).

### *Women Face Greater Stigma and Lesser Access to Harm Reduction Programs Than Men*

Although they are at high risk of HIV acquisition, female IDUs in every country have lesser access to services than male IDUs. “Harm reduction seeks to reduce the spread of HIV associated with injection drug use through outreach, education in safer practices, needle and syringe exchange programs, access to counseling and drug treatment, and non-judgmental approaches...Harm reduction programs are supported by an extensive body of evidence to show that they are cost-effective, can reduce HIV and other blood-borne pathogen transmission and can serve as effective bridges to drug treatment and health care” (Des Jarlais and Friedman, 1998 cited in Gauri et al., 2007: 314). Women lack access to harm reduction and other health services because of even greater stigmatization than male injecting drug users as well as women IDUs’ fear of losing custody of their children (Malinowska-Sempruch, 2002).

Increasing women drug users’ access to needed services, including drug treatment, harm reduction programs, and sexual and reproductive health care services, is crucial. Women IDUs also need legal services to reduce police and health service abuse, to access services and to gain custody of children (OSI, 2008). Achieving this goal requires policies that encourage women to seek drug treatment and harm reduction rather than punishing or stigmatizing them for drug use during pregnancy or motherhood; increasing availability of opioid substitution therapy; incorporation of sexual and reproductive health and other women’s services into harm re-education programs; flexible, low-threshold services that are more convenient for women with children; and links between harm re-education, drug treatment, women’s shelters, and violence prevention services” (Pinkham and Malinowska-Sempruch, 2007: 3).

### *Harm Reduction Programs Can be Scaled Up*

It is critical to ensure that governments, donors, and service providers are aware of the HIV risk for female IDUs; that HIV prevention, treatment, and care interventions take account of the needs of female drug users; and that female IDUs participate in policy and program development. There are effective evidenced-based interventions that reduce HIV risk for female IDUs and some of them are being brought to scale (see example on China, Sullivan and Wu, 2007 in this section). However, many harm reduction programs remain at a pilot stage for years, due to a lack of political will to bring them to scale (IHRD, OSI, 2008). It is time for successful programs to be scaled up in order to more effectively reduce HIV prevalence, particularly among IDUs.

### **What Works—*Prevention for Key Affected Populations: Women Drug Users and Female Partners of Male IDUs***

1. Opioid substitution therapy, particularly maintenance programs with methadone and buprenorphine, leads to reduction in HIV risk behavior among male and female IDUs, and is safe and effective for use by pregnant women.
2. Comprehensive harm reduction programs, including needle exchange programs, condom distribution, substitution therapy and outreach, can reduce HIV risk behaviors and prevalence among male and female IDUs.
3. Peer education can increase protective behaviors among IDUs.
4. Instituting harm reduction programs for IDUs in prisons can reduce HIV prevalence in female prison populations.

#### *Promising Strategies:*

5. Sex-segregated group sessions for IDUs can result in increased condom use and safe injection behaviors.
6. Women’s clubs along with peer education and condom distribution can reduce HIV prevalence among women who are sexual partners of male IDUs.
7. Nonjudgmental targeted counseling for IDUs can reduce HIV risk behaviors.
8. Increased access to voluntary HIV counseling and testing to learn one’s serostatus may reduce needle sharing and other HIV risk behaviors.
9. Programming to prevent initiation of injecting drug use shows promise in reducing the number of IDUs and associated HIV risk behaviors.

## **EVIDENCE**

1. **Opioid substitution therapy, particularly maintenance programs with methadone and buprenorphine, leads to reduction in HIV risk behavior among male and female IDUs, and is safe and effective for use by pregnant women** (Metzger and Navaline, 2003; Demaan et al., 2002; Metzger et al., 2003; Ball et al., 1988 cited in Strathdee et al., 2006).
  - ▶ A double-blind, double-dummy placebo-controlled randomized controlled trial in **Malaysia** of 126 detoxified heroin-dependent patients were randomly assigned to 24 weeks of manual-guided drug counseling and maintenance either with naltrexone (43 IDUs); buprenorphine (44 IDUs); or placebo. Buprenorphine was significantly associated with greater time to first heroin use and maximum consecutive abstinent days

than were naltrexone or placebo. HIV risk behaviors were significantly reduced from baseline across all three treatments due to counseling. No sex disaggregated data was provided. Prior to randomization, all patients completed a 14-day detoxification protocol in a residential setting, during which they were given buprenorphine and naltrexone, along with medication as needed for withdrawal symptoms. Nurses received four days of training and provided individual counseling sessions of 45 minutes (Schoettenfeld et al., 2008). (Gray I) (*drug use, drug treatment, IDU, Malaysia*)

- ▶ A **Cochrane review** with 33 studies involving 10,400 participants found that “studies consistently show that oral substitution treatment for opioid-dependent injecting drug users with methadone or buprenorphine is associated with statistically significant reductions in illicit opioid use, injecting drug use and sharing of injecting equipment. It is also associated with reductions in the proportion of injecting drug users reporting multiple sex partners or exchanges of sex for drugs or money” (Gowing et al., 2008: 2). These reductions in risk behaviors related to drug use result in lower rates of HIV (Gowan et al., 2008). (Gray III). A sufficiently high dose of methadone (more than 60 mg per day is required and programs need to allow for sufficiently long treatment duration i.e. at least more than six months if concomitant drug use is to be reduced (Jurgens et al., 2009b). (Gray III) (*drug use, drug treatment, opioids, sexual partners, IDU*)
- ▶ A 2009 review of **international** implementation of opioid substitution found that opioid substitution treatment is the most effective treatment available for heroin dependence, resulting in reduced heroin use, HIV transmission and mortality (Larney and Dolan, 2009). (Gray III) (*opoids, drug treatment*)
- ▶ A retrospective review in the **United States** of 81 mothers who received methadone and their 81 offspring found that a higher dose (mean of 132 mg compared to the lower mean of 62 mg) had a positive effect on maternal drug use with no increased risk of neonatal abstinence symptoms (McCarthy et al., 2005). (Gray III) (*drug treatment, pregnancy, United States*)
- ▶ A review of literature on methadone use for pregnant addicts in the **United States, Europe, and Australia** from 1995 to 2000 found that it is key to provide a sufficient methadone dose to pregnant women so as to reduce illicit drug supplementation (Beusekom and Iguchi, 2006). (Gray IV) (*drug treatment, pregnancy, United States, Europe, Australia*)
- ▶ A methadone maintenance therapy resulted in decreased HIV prevalence in an IDU population in **Iran** from March 2003 to March 2007 from 3.39% to 2.99%, based on annual sero-surveillance data from 400 sentinel surveillance sites, using samples collected from about 100 sites each year, with 25% of samples collected from IDU criminals. Methadone maintenance coverage increased from 300 to 8,048 prisoners during this time (Yasaghi et al., 2008). No sex disaggregated data was given, but according to the UK Prison Center, 3.7% of Iranian prisoners are women. According to UNDOC, 9.4% of the more than 1,200,000 IDUs in Iran are women. (Gray III) (*drug use, drug treatment, prisoners, IDU, Iran*)

- ▶ Evidence from prospective cohort and case control studies show that continuous maintenance treatment, such as methadone, is associated with protection against HIV seroconversion (Moses et al., 1994; Serpellini and Carrieri, 1994 cited in IOM, 2007). (Gray III) (*drug treatment*)
2. **Comprehensive harm reduction programs, including needle exchange programs, condom distribution, substitution therapy and outreach, can reduce HIV risk behaviors and prevalence among male and female IDUs.**
- ▶ A review of the international evidence on needle exchange programs found that needle exchange programs reduce HIV infection among IDUs. Studies were mostly based in the **US, Canada and Europe, but included studies from Nepal and Russia**. A review of ten studies that evaluated HIV seroconversion or seropositivity as outcomes found the needle exchange programs were protective in six studies; had no effect in two studies and were negatively associated in two studies. “There is compelling evidence that increasing the availability, accessibility, and both the awareness of the imperative to avoid HIV and utilization of sterile injecting equipment by IDUs reduces HIV infection substantially... There is no convincing evidence of any major unintended negative consequences” (Wodak and Cooney, 2006: 802). (Gray I). (*drug use, needle exchange, IDUs, United States, Canada, Europe, Nepal, Russia*)
  - ▶ A two-armed, prospective, community-randomized trial in **China** that provided access to clean needles over a nine-month period resulted in needle sharing dropping significantly in the intervention community. Four counties and townships in Gungxi and Guandong provinces were randomized to intervention and control in each province. The intervention effect was assessed on 443 IDUs in the intervention area and 382 in the area of no intervention at the start of the project and 415 IDUs in the intervention area and 407 in the area of no intervention at the end of the project. Of these, only 47 women received the intervention and only 32 women were in the control group that received the intervention at the end of the project. The intervention consisted of health education sessions between health workers and IDUs, peer education and dispensing and recall of needles, with increased access to safe needles. While needle sharing behaviors among IDUs were similar in the intervention and nonintervention areas (68.4% compared to 67.8%), needle sharing dropped significantly to 35.3% after a year of the intervention in the intervention area. Lab testing was conducted for both HIV and Hepatitis C (Wu et al., 2007a). (Gray II) (*harm reduction, drug use, needle exchange, health education, IDUs, China*)
  - ▶ Rates of sharing equipment at last injection declined from 55% in 2001 to 26% in 2006 in north-east **India**, with HIV prevalence declining from 52% in 2002 to 13% in 2007 (Sharma et al., 2009). (Gray III) (*needle exchange, India*)
  - ▶ **Australia and New Zealand** have maintained very low levels of HIV infection, despite a higher prevalence of injecting than in some other countries; this difference has been

attributed to ...swift introduction of needles and syringe programmes when HIV infection was first noted in the 1980s (Mathers et al., 2008: 1743). (Gray III) (*needle exchange, drug use, Australia, New Zealand*)

- ▶ A harm reduction program by CARE SHAKTI in **Bangladesh** which instituted a harm reduction program for IDUs found that early intervention is more cost-effective than delaying activities, although this should not preclude later interventions. Economic cost data were collected and combined with impact estimates from a model the project was established in 1995. Data were collected between 1997 and 2002. In 2001, 66% of the IDUs were married. Interventions consisted of increasing the number of IDUs contacted through clinics or outreach workers; needle exchanges. Needles sharing dropped from 62% in 1997 to 18% in 2001. Condoms, STI services, and needle exchange were also part of the program. The cost per HIV infection averaged among IDUs and their partners was US\$110.40. Cost-effectiveness increased based on increasing number of years of the program (Guinness et al., 2009). (Gray III) (*harm reduction, IDU, needles, Bangladesh*)
- ▶ In 2006, **Taiwan** instituted a harm reduction program for IDUs, including methadone treatment, syringe exchange, and VCT, along with educational campaigns. By 2007, 3,299 IDUs (no sex given) were enrolled in methadone programs and 109 stations provided no cost needle exchange and counseling. In 2006, the number of new HIV infections decreased by 43% in comparison with that in 2005; and decreased 44% in 2007 compared to 2006. In addition, crime events related to drug use dropped significantly from 2005 to 2007 (Sheue-Rong et al, 2008). (Gray III) (*IDU, needles, HIV testing, harm reduction, Taiwan*)
- ▶ A 2008 study of IDUs (no sex disaggregated data provided) in **Taiwan** compared a region that instituted harm reduction with a region that did not institute harm reduction and found a statistically significant reduction in HIV prevalence in the region that instituted harm reduction. In the region with no harm reduction measures, HIV prevalence increased from under 2% to over 3%; in the region with harm reduction, HIV prevalence was reduced from over 37% to fewer than 19%. In-depth interviews and questionnaires were collected from 3,740 IDUs attending detention centers (Lan and Chen, 2008). (Gray III) (*IDU, harm reduction, Taiwan*)
- ▶ A harm reduction program in Salvador, **Brazil** that focused on sexual and drug risk reduction among females for 12,198 IDUs in 2002 or 70% of the IDUs in the city resulted in a decrease of contaminated injection equipment from 60% to 18% during the 1990s. Condom use by IDUs increased from 3% to 30%. HIV prevalence among IDUs fell from 50% in 1996 to 7% in 2001. IDUs receiving health services increased from 28% to 68%. The program provided outpatient drug treatment, prevention education and care provided by community outreach workers, needle syringe programs, drug prevention programs in schools and mobile vans (PHR, 2007b). (Gray III) (*IDU, harm reduction, condom use, drug treatment, Brazil*)

- ▶ In **China**, methadone maintenance treatment programs, needle-syringe programs, outreach and access to HIV testing has been scaled up. The introduction of harm reduction “has been a massive turn-around in thinking by the government, particularly law enforcement agencies, and “achieving this has required considerable cooperation and understanding between the Ministries of Health, Public Security, and Justice, and the Food and Drug Administration” (Sullivan and Wu, 2007: 118). China’s most recent policy, “Five-year action plan to control HIV/AIDS, 2006–2010” officially endorses a harm reduction policy, with the Chinese central government openly supporting harm reduction. An initial trial of methadone maintenance treatment took place in eight clinics in 2004 with data indicating reductions in heroin use, and “importantly, of the 177 clients who were able to be followed for HIV status, none became infected” (Sullivan and Wu, 2007: 122). 320 clinics provided methadone maintenance with additional scale up planned and these have benefited 27,000 heroin users. Needle exchange programs are being scaled up from 93 locations, with plans to increase to 1,400 to serve 70,000 IDUs. Needle exchange programs also provide harm reduction services, such as condoms, HIV testing, antiretroviral treatment, etc. “China has made significant progress towards implementing and enhancing harm reduction programs...” (Sullivan and Wu, 2007: 126). (Gray III) (*However, in 2007 and 2008 in China, arbitrary arrest of suspected IDUs, mandatory HIV testing without disclosure while detained in detoxification centers and withholding HIV and drug dependency treatment to detainees was reported* (HRW, 2008). (Gray V).) (*harm reduction, drug treatment, needles, IDU, China*)

### 3. Peer education can increase protective behaviors among IDUs.

- ▶ A meta-analysis of 34 articles from 1990 to 2006, 16 from **Sub-Saharan Africa**, 16 from **East and Central Asia** and 2 from **Latin America**, of which four articles were on IDUs, found that peer education was significantly associated with increased condom use (Medley et al., 2008b; Medley et al., 2009). (Gray I) (*IDU, peer education, condom use, Africa, East Asia, Central Asia, Latin America*)
- ▶ A study in **Vietnam** with trained peer outreach workers, along with referral data systems increased the numbers of IDUs and sex workers who accessed VCT, from 1,230 (23%) prior to the project between October 2004 and March 2006 to 5,585 (44%) between April 2006 and November 2007 (Nguyen et al., 2008d). (Gray III) (*IDU, sex workers, peer education, counseling, HIV testing, Vietnam*)
- ▶ A pilot project in **Vietnam** that used peer educators to provide HIV care and support found that conducted focus groups discussions with 38 people living with HIV, including IDUs, found that peer support was critical. IDUs avoided health providers who they felt stigmatized them both for being IDU and HIV-positive (Maher et al., 2007). (Gray V) (*IDU, peer education, Vietnam*)

### 4. Instituting harm reduction programs for IDUs in prisons can reduce HIV prevalence in female prison populations. [See 4C. Women Prisoners and Female Partners of Male Prisoners]

## Promising Strategies:

### 5. Sex-segregated group sessions for IDUs can result in increased condom use and safe injection practices.

- ▶ A study from 2005 to 2006 at Shu Polyclinic Needle Exchange Program in a city along a major drug trafficking route in **Kazakhstan** found a comparison between 40 couples who had single gender group sessions with female and male partner IDUs results in increased condom use and safe injection practices compared with 40 couples who did not have single gender group sessions. None were HIV-positive. Adapted from an HIV prevention intervention with heterosexual couples in the US, in-depth interviews were conducted with IDUs in Kazakhstan to adapt the intervention to Kazakhstan. After consent was obtained with one partner, this partner was asked to invite his or her main partner to participate. If both partners agreed to participate, they were included unless one reported violence. All couples received training consisting of practicing couples communication, problem solving and assertiveness skills. At each session, participants set a risk reduction goal for the week and this is reviewed at the following session. However, the intervention group had two sessions designed to help women anticipate and manage partner negative reactions in response to requests to use condoms or not to share needles. Current and past drug and alcohol use was assessed using the US National Institute of Drug Abuse's Risk Behavioral Assessment, validated internationally (NIDA, 1991 cited in Gilbert et al., 2010) and condom negotiation self-efficacy was assessment with a five-item scale (Wingood and DiClemente, 1998 cited in Gilbert et al., 2010). All partners reported living together and 41 of 80 reported having children. At baseline, participants reported using condoms only 2% of the time they had vaginal sex (an average of 20 sexual acts) with their study partner in the last 30 days. All reported injecting drugs and participants reported sharing needles with an average of 3.7 different people in the past 30 days and indicated using unclean needles 63% of the times they injected in the past 30 days. Those participants who had single gender group sessions were significantly more likely to report a higher proportion of condom use during vaginal sex with their study partners and a lower number and proportion of injection acts in which syringes were shared at three month follow-up, after adjusting for age, education and sex. In addition, those couples who had single gender group sessions were significantly more likely to increase condom use self-efficacy and couple communication skills. Future research with large randomized trials using biological markers is warranted. "Although no participants tested positive for HIV, if HIV enters the risk networks of IDUs, the pervasive patterns of drug-related and sexual HIV risk behaviors suggest that HIV will spread rapidly" (Gilbert et al., 2010: 175). (Gray III) (sexual partners, IDU, needles, Kazakhstan)

**6. Women’s clubs along with peer education and condom distribution can reduce HIV prevalence among women who are sexual partners of male IDUs.**

- ▶ In Vietnam, cross sectional surveys of 33 sexual partners of IDUs at baseline and 24 months later found that women’s clubs, peer education and condom distribution increased condom use and no surveyed female sexual partner of a male IDU became HIV-positive. Condom use increased among seven female partners from 28% at baseline to 100% after 34 months, and among 26 sexual partners in a different district from 29% at baseline to 46% after 24 months (Hammett et al., 2008). (Gray IV) (*sexual partners, IDU, condom use, Vietnam*)

**7. Nonjudgmental targeted counseling for IDUs can reduce HIV risk behaviors.**

- ▶ A 2004 quantitative and qualitative study of NGO services by the Women Federation for 226 male and female IDUs in China resulted in safer drug and sex practices. VCT services that respected confidentiality were implemented by three male and three female counselors experienced in delivering health education to IDUs. Ten focus group discussions were held with seven males and three females in each. Exit surveys found that 63% of IDUs were ‘highly satisfied’ with VCT services and the remainder were ‘satisfied.’ One IDU noted: “I was impressed that the Women Federation counselor did not discriminate against me and talked to me politely” (Chen et al., 2007c: 784). Sharing needles was reduced from 45% to 33%; those who always used condoms with non-main partners increased from 7% to 24%. While at the start of the project, 82% never used condoms, this decreased to 35% (Chen et al., 2007). (Gray III) (*counseling, IDU, condom use, HIV testing, needles, China*)

**8. Increased access to voluntary HIV counseling and testing to learn one’s serostatus may reduce needle sharing and other HIV risk behaviors.**

- ▶ A study from 2002–2004 evaluated the needle use and sexual practices of 266 injecting drug users in Tallinn, Estonia found that those who knew they were HIV-positive engaged in some protective behaviors. The participants had an average age of 25, were 88% male, and had HIV tests. The study found that although 93% of participants knew that HIV could be passed through shared needles and 98% knew that it could be spread through unprotected sex, half of the participants had shared a needle in the last ninety days and 26% had engaged in unprotected sex. However, those who knew that they were HIV-positive were found to be significantly less likely to have given their needles to others: 9% of HIV-positive participants who knew their status lent their needles after use, as compared to 25% of participants who were HIV-positive but did not know their status. Knowledge of one’s HIV serostatus did not impact the likelihood of having unprotected sex (Wilson et al., 2007). (Gray V) (*IDU, sex behavior, needles, Estonia*)

9. **Programming to prevent initiation of injecting drug use shows promise in reducing the number of IDUs and associated HIV risk behaviors.**

- ▶ In Central Asia, 62 percent of new HIV cases were caused by injecting drug use. An intervention in **Uzbekistan and Kyrgyzstan**, “Break the Cycle,” educated youth (no sex disaggregated data) about the risks of injecting drug use and also reached out to current IDUs to prevent drug initiation. The program encouraged current IDUs to refuse to help others inject drugs for the first time, to develop skills for refusing such requests, not to inject in the presence of non-users, and not to talk about the perceived benefits of injecting drugs. The intervention asked current IDUs to participate in the program’s design and implementation and built on existing harm reductions services by reaching out to current IDUs through rehab and clean needle syringe programs. Results indicate that estimated new IDUs dropped by 55% between 2006 and 2008. Additionally, “from 2006 to 2008, the percent of IDUs assisting with first injection dropped 14% in Uzbekistan and 9% in Kyrgyzstan.” The study also noted that “drug users appreciated being supported to deal with pressure from drug-curious youth,” (Prohow, 2009). (Gray IV) (*drug use, peer education, Uzbekistan, Kyrgyzstan*)

**Gaps in Programming—Women Drug Users and Female Partners of Male IDUs**

1. Interventions are needed to provide individuals and couples with a better understanding of the risk of acquiring HIV through sexual practices as well as through injecting drug use.
  2. HIV prevention information and services are needed for IDUs receiving treatment for substance abuse.
  3. Interventions are needed to increase access to methadone and buprenorphine—effective substitution therapy for the treatment of drug dependence.
  4. HIV prevention for IDUs must go beyond detoxification programs alone.
  5. Interventions are needed to inform women IDUs of harm reduction early in pregnancy.
1. **Interventions are needed to provide individuals and couples with a better understanding of the risk of acquiring HIV through sexual practices as well as through injecting drug use.** (IOM, 2007). Studies found low rates of condom use despite sexual relationships with IDUs, lack of knowledge by IDUs on sexual and reproductive health and lack of access to clean needles.
- ▶ Gap noted, for example, in **Russia** (Toussova et al., 2009); **Taiwan** (Chang, 2008); **Vietnam** (Nguyen and Scannapieco, 2008, Go et al., 2006); **India** (Haobam, 2008); **Brazil** (Oliveira, 2007); and generally (IOM, 2007).

2. **HIV prevention information and services are needed for IDUs receiving treatment for substance use.** Studies found few IDUs are given condom negotiation skills or results of their HIV tests.
  - ▶ Gap noted, for example, in **Vietnam** (Pham et al., 2008); and **China** (Cohen and Amon, 2008).
3. **Interventions are needed to increase access to methadone and buprenorphine—effective substitution therapy for the treatment of drug dependence.** Studies found only tiny fractions of those who need maintenance medication had access.
  - ▶ Gap noted, for example, in **Thailand, Indonesia, Bangladesh, Myanmar, India and Nepal** (Sharma et al., 2009); in **Eastern Europe and Central Asia** (Stuikyte et al., 2008); and generally (Piot et al., 2008, Mattick et al., 2003; Gowing et al., 2005 cited in IOM, 2007).
4. **HIV prevention for IDUs must go beyond detoxification programs alone.** Studies found that women IDUs were not given reproductive health services, including PMTCT services, and had low levels of condom use. Detoxification programs were substandard and ineffective.
  - ▶ Gap noted, for example, **Azerbaijan, Georgia, Kyrgyzstan, Russia and the Ukraine** (OSI, 2009); **China** (Sullivan and Wu, 2007: 121, Lui et al., 2006: 119); and generally (Gowan et al., 2008).
5. **Interventions are needed to inform women IDUs of harm reduction early in pregnancy.** *[See Chapter 9C-2. Safe Motherhood and Prevention of Vertical Transmission: Treatment]*

## 4C. Prevention for Key Affected Populations: Women Prisoners and Female Partners of Male Prisoners

---

“I do this because it is a good thing to do. It helps prevent infections and saves lives.”

—Prisoner/volunteer peer distributor of clean needles in Moldova (Hoover and Jurgens, 2009: 19)

---

In many countries, women in prison, detention and rehabilitation centers lack access to basic health and HIV/AIDS information and services, including treatment and care for women living with HIV. Interventions are clearly needed for this population. A study in Sao Paulo, Brazil, found high pregnancy rates among the female sexual partners of young offenders in the prison system; demonstrating the need for condom distribution and sexuality education within prison systems (Yankah et al., 2006). A study found

high rates of HIV among prison inmates in low- and middle-income countries. HIV prevalence was greater than 10% in prisons in 20 countries: Brazil, Burkina Faso, Cameroon, Côte

D'Ivoire, Cuba, Estonia, Indonesia, Lithuania, Malawi, Malaysia, Romania, Rwanda, Slovakia, South Africa, Ukraine, Vietnam, Yemen and Zambia. Injecting drug use is common in prison populations and eight countries reported greater than 10% prevalence of IDUs in prison. HIV prevalence among IDU prisoners was found reported in eight countries and was greater than 10% in seven countries: China, India, Indonesia, Iran, Libya, Russian, and Serbia and Montenegro (Dolan et al., 2007). Interventions that address drug use and provide prevention education and condom use are urgently needed to reduce HIV risk among women prisoners and female partners of male prisoners.

### **What Works—*Prevention for Key Affected Populations: Women Prisoners and Female Partners of Male Prisoners***

1. Harm reduction strategies such as education, peer distribution of clean needles and condom provision within prisons can reduce the risk of HIV infection and IDU use in female prison populations.
2. Making opioid substitution treatment available in prisons can be effective in reducing HIV transmission.

## **EVIDENCE**

### **1. Harm reduction strategies such as education, distribution of clean needles and condom provision within prisons can reduce the risk of HIV infection and IDU use in female prison populations (Farabee and Leukefield, 1999; Dolan et al., 1998, cited in Farmer, 1999).**

- ▶ A study of harm reduction programs in prisons in **Moldova** from 2007 to 2008 with seven site visits to prisons, including one women's prison, and one site visit to a pretrial detention facility, along with interviews with prisoners, pretrial detainees, staff of an NGO that provides harm reduction services in prisons and penitentiary staff officials and employees at national and local levels found that comprehensive harm reduction services in prisons has suggested a reduction in the prevalence of HIV and Hepatitis C and reduction in HIV-related stigma and discrimination. Prior to the project, both guards and prisoners isolated and avoided prisoners who were thought to be HIV-positive. In 1999, legal changes made safe distribution of clean needles within prisons allowable and harm reduction is now part of the national HIV/AIDS plan from 2006 to 2010. In 1999, prison authorities allowed distribution of clean needles within prisons only because they were legally required to do so; but by 2007, prison officials realized that distribution of needles resulted in a decline in HIV cases and increased safety for staff and prisoners. Starting in 1999, peer educators within prisons distributed safe

needles and razors, with almost 100% of needles distributed returned. Shared razors can transmit Hepatitis C and distribution of razors gives an incentive for all prisoners to visit peer distributors. All prison staff are trained to act as though all prisoners are HIV-positive and therefore to use rubber gloves when handling blood or other bodily fluids, thus reducing HIV stigma. Estimates are that the number of HIV-positive prisoners has decreased from 200 in 2002 to 145 in 2008, with more prisoners requesting HIV tests. Prisoners report never sharing injecting drug equipment. Used syringes are incinerated on prison grounds. Prison officials would like to conduct a scientifically rigorous evaluation to show that the reduction in HIV cases is due to the program; however, a randomized controlled trial would be unethical. (Hoover and Jurgens, 2009). (Gray III) (*harm reduction, prisoners, needles, razors, Moldova*)

- ▶ Needle exchange programs have been introduced to 12 countries in Western and Eastern Europe and Central Asia. A comprehensive review of the published literature on harm reduction programs in prisons found that “there is evidence that needle and syringe programmes are feasible in a wide range of prison settings, including in men’s and women’s prisons....There is evidence that providing clean needles [is] effective in reducing ....HIV infections. At the same time, there is no evidence to suggest that prison-based needle exchange programs have serious, unintended negative consequences. In particular, they do not appear to lead to increased drug use or injecting, nor are they used as weapons” (Jurgens, 2007b: 5; Jurgens et al., 2009b). In addition, “since most prisoners leave prison at some point to return to their community, implementing needle and syringe programs in prisons benefits not only prisoners and prison staff, but also the people in the sexual and drug injecting networks in which prisoners participate after their release” (Jurgens et al., 2009b: 61). (Gray V) (*harm reduction, needles, prisoners, Western Europe, Eastern Europe, Central Asia*)

## 2. Making opioid substitution treatment available in prisons can be effective in reducing HIV transmission.

- ▶ “Given that many prisoners have severe problems with illegal drugs, it would be unethical not to use the opportunity that imprisonment provides for treatment” (Jurgens et al., 2009: 62). A 2009 review of international implementation of opioid substitution, along with a 2004 **Cochrane review**, found that opioid substitution treatment is the most effective treatment available for heroin dependence, resulting in reduced heroin use, HIV transmission and mortality. Opioid substitution treatment is currently available in community and prison settings in: **Albania, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, China, Croatia, Czech Republic, Estonia, Georgia, Hong Kong, Hungary, India, Iran, Kyrgyzstan, Latvia, Lebanon, Lithuania, Macedonia, Malaysia, Mauritius, Mexico, Moldova, Myanmar, Nepal, Poland, Romania, Serbia, Slovakia, Slovenia, South Africa, Taiwan, Thailand, Ukraine, Uzbekistan and Vietnam.** However, China and Russia, countries with large prison populations, do not provide any of these services in prison (Larney and Dolan, 2009). (Gray III) (*opioids, prisoners*)

### Gaps in Programming—Women Prisoners and Female Partners of Male Prisoners

1. Interventions are needed to provide prisoners with prevention information and condoms for at least conjugal visits.
2. Stemming the rate of incarceration may reduce HIV transmission.

1. **Interventions are needed to provide prisoners with prevention information and condoms for at least conjugal visits.** A study found that prisoners did not have basic information on how condom use reduces likelihood of HIV transmission.
  - ▶ Gap noted, for example, in **Nicaragua** (Montero, 2008).
2. **Stemming the rate of incarceration may reduce HIV transmission.** A study found that promoting alternatives to incarceration for nonviolent offenders might reduce HIV transmission.
  - ▶ Gap noted globally (Maru et al., 2007).

## 4D. *Prevention for Key Affected Populations:* **Women and Girls in Complex Emergencies**

Special consideration must be given to HIV prevention strategies in conflict situations. In northern Uganda, for example, “physical and structural violence (political repression, economic inequality, and gender-based discrimination) increase vulnerability to HIV infection. In settings of war, traditional HIV prevention that solely promotes risk avoidance and risk reduction and assumes the existence of personal choice inadequately addresses the realities of HIV transmission. The design of HIV prevention strategies...must recognize how HIV transmission occurs and the factors that put people at risk for infection. A human rights approach provides a viable model for achieving this aim” (Westerhaus et al., 2007).

The actual prevalence of HIV in areas of conflict is difficult to assess. Reliable information is likely to be unavailable during times of civil conflict and under repressive and hostile governments (Beyrer et al., 2007). There are insufficient data to make any conclusions about prevalence in people who are internally displaced and a review of survey data from seven countries affected by conflict—Democratic Republic

---

“As of 2008, approximately 1.8 million people living with HIV were also affected by conflict, disaster or displacement, representing 5.4% of the global number of people living with HIV” (Lowicki-Zucca et al., 2008).

---

of Congo, southern Sudan, Rwanda, Uganda, Sierra Leone, Somalia and Burundi—found insufficient data to support assertions that conflict, forced displacement and wide-scale rape increased HIV prevalence. Of the 12 sets of refugee camps, nine had a lower prevalence of HIV infection, two a similar prevalence and one a higher prevalence than the host communities (Spiegel et al., 2007: 2193–94).

There is, however, significant evidence that women and girls in complex emergencies often experience rape and other sexual violence that puts them at high risk for HIV (Shannon et al., 2008). For example, a population-based, random sample survey of 991 households of internally displaced families (with a total representation of 9,166 individuals) living in three camps in Sierra Leone found that 9% of female respondents reported having been victims of sexual violence related to the war and 13% of all households reported some member (male and/or female) having experienced sexual violence. Thirty-three percent of those abused reported being gang raped. Respondents who reported having “face to face” contact with the Revolutionary United Front (RUF) also reported higher incidences of sexual violence than did those who came into contact with other combatant groups, 53% compared to 6%. Twenty-three percent of the women who reported sexual abuse also reported being pregnant at the time of assault (PHR and UNAMSIL, 2002).

The post-conflict period may also be a very vulnerable time for HIV transmission, perhaps more so than during conflict (Spiegel et al., 2007: 2193–94). A survey conducted by IRC in 1997 found that since becoming refugees, 27% of 12–49 year old female refugees living in camps in Tanzania had been victims of sexual violence (RHR Consortium, ND). Refugees are especially at risk for missed services because, as non-nationals, they are not always covered by national health and HIV/AIDS programs (RHR Consortium, ND).

Donors and governments must be aware that “countries in the throes of complex emergencies are unlikely to prepare successful funding proposals to bilateral, multilateral, private sector donors or the...Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM)” (Hankins et al., 2002: 2248). Yet the needs in these countries, especially among refugee groups, are as great, if not more so, than many others.

### **What Works—*Prevention for Key Affected Populations: Women and Girls in Complex Emergencies***

#### *Promising Strategies:*

1. Voluntary counseling and testing can be successfully provided to internally displaced people.
2. Public support campaigns for rape survivors may be effective in encouraging survivors to test for HIV and access services.

## EVIDENCE

### Promising Strategies:

1. **Voluntary counseling and testing can be successfully provided to internally displaced people.**
  - ▶ In Northern **Uganda**, a collaboration of an NGO, district government and the National Guidance and Empowerment Network of People Living with HIV, provided outreach counseling and testing in IDP camps. A total of 1,182 people, of which 62.8% were females, were counseled, tested and received results in nine IDP camps. Individuals who tested positive were linked to hospitals for HIV/AIDS care while those who were HIV-negative were educated on HIV prevention and linked to post-test clubs (Kanslime et al., 2008). (Gray V) (*counseling, HIV testing, IDP, Uganda*)
  
2. **Public support campaigns for rape survivors may be effective in encouraging survivors to test for HIV and access services.**
  - ▶ Data collected between 2005 and 2007 from Malteser International, which has run a medico-social support program for rape survivors in South Kivu, **Democratic Republic of Congo**, registered 20,157 female rape survivors, but only a few sought medical care and psychological help, with less than 1% presenting for services before the 72 hour window when post-exposure prophylaxis can be safely used and effective. “Possible reasons include insecurity in the area, fear of stigmatization and lacking awareness about the importance of receiving timely medical treatment” (p. 6). More than one third of patients had been sexually violated one year or longer ago. The percentage of women expelled from their homes after experiencing sexual violence fell from more than 12% in 2005 to 6% in 2007. This may be due to the success of awareness-raising campaigns, which aimed to lower public stigmatization and discrimination against rape survivors. With four of ten rejected rape survivors, re-integration into the family failed despite family mediation. However, between 2005 and 2007, those who had an HIV test increased from less than 2% to 57% (Steiner et al., 2008). (Gray V) (*rape, violence, post-exposure prophylaxis, Democratic Republic of Congo*)

### Gaps in Programming—Women and Girls in Complex Emergencies

1. Prevention, treatment and services are needed for refugees—including young people, particularly at the end of an armed conflict.
2. Interventions are needed to increase the income-generating capacity of female refugees in order to counteract the need for survival and/or transactional sex.
3. Interventions combating rape and sexual violence are urgently needed in refugee, IDP and conflict settings.

1. **Prevention, treatment and services are needed for refugees—including young people, particularly at the end of an armed conflict.** Studies found low levels of HIV knowledge and condom use among IDPs. End of war may increase HIV transmission.
  - ▶ Gap noted, for example, in **Ecuador** and **Colombia** (Guayasamin and Quizhpe, 2008); **Sri Lanka** (Mohamed, 2008); **Angola** (Strand et al., 2007).
  
2. **Interventions are needed to increase the income-generating capacity of female refugees in order to counteract the need for survival and/or transactional sex.** Studies found that women would exchange sex for food and fuel.
  - ▶ Gap noted, for example, generally (Hankins et al., 2002, Women’s Commission for Refugee Women and Children, 2002: 21) and in **Liberia** (Abdullahi et al., 2002 cited in Lawday, 2002: 10) and **Sudan** (WHO, 1999 cited in Lawday, 2002: 11).
  
3. **Interventions combating rape and sexual violence are urgently needed in refugee, IDP and conflict settings.** Studies found that women in IDPs suffer from high rates of violence and are at high risk of acquiring HIV.
  - ▶ Gap noted, for example, **Democratic Republic of Congo** (Kim et al., 2009b, United States Institute for Peace, 2001 cited in Lawday, 2002: 11); **Uganda** (Anderson et al., 2004); **Rwanda** (Mujawayo and Blewitt, 1999 cited in Lawday, 2002: 5, RHR Consortium, ND); **Tanzania** (RHR Consortium, ND).

## 4E. *Prevention for Key Affected Populations: Migrant Women and Female Partners of Male Migrants*

Women and men migrate for any number of reasons: lack of food or employment opportunities, war, etc. “In much of South Asia and sub-Saharan Africa, millions of people living in poverty have no viable employment opportunities close to home, forcing individuals to migrate from their communities in search of...a means to provide economic resources for their families. Because of changing market demands and socioeconomic norms, women have become an increasingly larger proportion of the migrant population” (Wardlow, 2007; Krishnan et al., 2008:104; Pirkle et al., 2007).

Migrants from a number of countries and regions may be at increased risk for HIV. A review of women migrants from Asia who go to Arab States, with 307 interviews in Bangladesh, Philippines, Sri Lanka, and Pakistan; 95 interviews of female migrants in United Arab Emirates; 103 interviews in Bahrain; and 66 interviews in Lebanon with returnees of women who are HIV-positive found that migrant women have poor access to even basic information about HIV; poor wages often lead to sexual exploitation; mandatory HIV testing occurs without counseling or informed consent; and deportation of HIV-positive women to their country of origin (UNDP, 2008, Quesada, 2008).

In fact, as of September 2008, 66 of 186 countries for which data were available placed special entry, stay or residence restrictions on people living with HIV, adding to stigma and discrimination (HRW, 2009). These restrictions on the mobility of people living with HIV can increase stigma. Migrants with HIV may have additional barriers to accessing services.

Migrant labor systems have aggravated women's economic dependence on their male partners to a much greater extent in Southern Africa than in other parts of the continent where women are more prominent in market trading and other forms of commercial activity. There are few income-earning activities for women with low educational attainment, heightening women's vulnerability for HIV (Hunter, 2002 cited in Hankins et al., 2006). Male migrant workers, such as miners and truck drivers, are at higher risk of acquiring HIV/AIDS than nonmigrant workers (Mbizvo et al., 1996, cited in Corbett et al., 2000), increasing the risk for their other sexual partners. Migrant women often have reduced access to services and may need to engage in transactional sex for survival.

Although this is a group with several high risk factors for HIV acquisition and transmission, little evidence is available on interventions that work for migrant women and female partners of male migrants. Further evaluation of effective strategies is needed to identify the best way to prevent HIV among women and girls affected by migration and to treat and care for migrants living with HIV.

### **Gaps in Programming—Migrant Women and Female Partners of Male Migrants**

1. Interventions are needed for migrant women and female partners of male migrants who are at high risk of HIV acquisition.

**1. Interventions are needed for migrant women and female partners of male migrants who are at high risk of HIV acquisition.** Studies found that migrants, and female partners of male migrants, are often at high risk of HIV acquisition yet do not use condoms.

- ▶ Gap noted, for example, in **China** (Qin et al., 2009, Wang et al., 2007a, Choi et al., 2006); **Vietnam** (Nguyen et al., 2008c); **Tajikistan** (Bahromov et al., 2008); **Burkina Faso** (Khan et al., 2008); **Bangladesh** (Mercer et al., 2007); **Tanzania** (Kishamawe et al., 2006).

## 4F. *Prevention for Key Affected Populations:* Transgender Women and Men

Transgender women and men are at significant risk for HIV. Many transgender women and men engage in paid sex, have low condom use rates, experience high rates of violence and suffer discrimination when accessing health services (Mahendra et al., 2008; Cascante, 2008; Riono and Praptoraharjo, 2008; Sanchez et al., 2008; Ospina and Letouze, 2008). No evaluated interventions were found that provided services for transgender women and transgender men. Very little information has been published on HIV and transgender women and men in developing countries, with only recent 2008 International AIDS Conference abstracts and websites providing information on this topic. Most of the literature does not specify whether those included in the study are transgender men or transgender women, despite the differing needs of each group. Transgender men, who are biologically women, need sexual and reproductive health services such as screening for cervical cancer. Yet accessing needed health and HIV services, which usually operate on strict male/female gender identities, may be extremely difficult.

Transgender women and men in many societies face marginalization. A survey of 50 transgender people (gender identity not specified) from Chennai, India found that more than half are discriminated against by their own families, 70% were denied jobs, and 64% faced violence (Prabakaran, 2008). Participatory action research with sex workers and outreach workers from 13 sex worker projects in Central and Eastern Europe and Central Asia found that of 238 male, female and transgender sex workers from 12 countries, more than 45% reported physical abuse by police and more than 41% reported sexual abuse (Crago et al., 2008). Fifty-five independent studies from 19 countries (countries not specified) of 2,233 transgender women sex workers found a 33% HIV prevalence rate (Friedman et al., 2008). Some organizations, such as Genderdynamix ([www.genderdynamix.org.za](http://www.genderdynamix.org.za)) and the Triangle Project ([www.triangle.org.za](http://www.triangle.org.za)) in South Africa, advocate and provide services for transgender people.

While not enough studies were found to include as “what works,” some studies were found showing programs with positive impacts for transgender women and men. Non-formal education and livelihood programs for transgender people may improve safer sex practices. SAATHI, a capacity-building NGO in India, provided non-formal education and livelihood programs together with existing HIV prevention interventions to members of Santi Seva, a community based organization of transgender people. While at the start of the project, 80% had unprotected sex, safer sex practices improved so that fewer than 35% had unprotected sex (Sakar et al., 2008). Another intervention with a positive impact was training police about the rights of transgender women, resulting in decreased violence. In Mexico, training for 905 police by transgender women on how violence affected transgender women and their rights led to agreements with police authorities to promote the human rights of transgender women and with the Human Rights Commission to follow-up on complaints of violence (Blass et al., 2008).

Transgender women and men are often overlooked in HIV prevention planning and treatment programs and little evidence is therefore available on what works for transgender women and men, though there are some promising strategies.

### What Works—*Prevention for Key Affected Populations: Transgender Women and Men*

#### *Promising Strategies:*

1. Peer educators can encourage transgender women to increase condom use and testing.

## EVIDENCE

### Promising Strategies:

1. **Peer educators can encourage transgender women to increase condom use and HIV testing.**
  - ▶ In **India**, where transgender women have an HIV prevalence of 20%, paid peer educators provide condoms to other transgender women, resulting in an uptake of condoms (no data given). Peer educators encourage “No condoms, no sex;” teach condom negotiation skills and advise to avoid police where forced sex may occur (Chakrapani et al., 2008). (Abstract) (*transgender, peer education, condom use, India*)
  - ▶ Trained transgender peer educators (no gender identity specified) reached out to transgender sex workers (no gender identity specified) in **Mexico**, of the 100 reached, 15% then accessed VCT (Flores et al., 2008). (Abstract) (*transgender, sex workers, peer education, Mexico*)

### Gaps in Programming—Transgender Women and Men

1. HIV prevention interventions and treatment programs are needed for transgender people.
2. Health care settings must address the needs of transgender people and reduce barriers to services.
3. Efforts are needed to mobilize transgender women and men at a community level to support prevention and safety.

1. **HIV prevention interventions and treatment programs are needed for transgender people.** Studies found that despite high rates of HIV, few prevention interventions are for transgender people.
  - ▶ Gap noted, for example, in **Indonesia** (Riono and Praptoraharjo, 2008); **India** (Mahendra et al., 2008); **Dominican Republic** (Cascante, 2008); **Colombia** (Sanchez et al., 2008); **Mexico** (Ospina and Letouze, 2008).
2. **Health care settings must address the needs of transgender people and reduce barriers to services.** One study found that transgender women reported stigma, discrimination and violations of confidentiality by providers.
  - ▶ Gap noted, for example, in **India** (Saravanamurthy et al., 2008).
3. **Efforts are needed to mobilize transgender women and men at a community level to support prevention and safety.** One study found that in order to assure prevention and safety, community mobilization of transgender people is needed.
  - ▶ Gap noted, for example, in **Botswana, Namibia and South Africa** (Arnott and Crago, 2009).

## 4G. *Prevention for Key Affected Populations:* **Women Who Have Sex with Women (WSW)**

According to a report by the International Gay and Lesbian Human Rights Commission, African lesbians have lower HIV prevalence rates than heterosexual women: same-sex practicing South African women self-report HIV prevalence between nine and fifteen percent, with no targeted HIV prevention, treatment or care services (IGLHRC, 2007). Lesbian, bisexual and women who have sex with women have rarely been the focus of programs or research efforts with an understanding of the complexities of lesbian sex and sexuality. In India, decriminalization of same sex activity due to a recent court ruling makes it more likely that HIV services reach those at risk (Misra, 2009).

While the risk of HIV transmission is low in sex between females and HIV risk from shared sex toys is minimal (Helena et al., 2003 cited in IGLHRC, 2007), providers and programmers should not make assumptions about women's vulnerability based on sexual orientation. In Kyrgyzstan, for example, 20% of WSW reported having sex with a man during the previous six months with only half using condoms (Alisheva et al., 2007). WSW may be at risk of HIV acquisition through rape, even if they have no male partners or injecting drug use. WSW want and do have children and have needs for sexual and reproductive health services.

Additional consideration should be given to the effects of homophobia. Recent reports document violence and rape against WSW in South Africa for being lesbian (Martin et al.,

2009). “The invisibility and marginalization of WSW is leading to the sexual and reproductive health needs not being adequately met” (Tallis, 2008). Almost no data from developing countries exist to identify what works to prevent HIV in women who have sex with women. Some organizations, such as the Triangle Project ([www.triangle.org.za](http://www.triangle.org.za)) in South Africa, advocate and provide services for lesbian, bisexual and women who have sex with women. Further efforts are needed to identify what works to prevent HIV in women who have sex with women.

### **Gaps in Programming—Women Who Have Sex with Women**

1. HIV prevention programs are needed for WSW.
2. Health care settings need to offer appropriate, non-discriminatory services—and be attentive to HIV risk behaviors—to meet the sexual and reproductive health needs of WSW.

1. **HIV prevention programs are needed for WSW.** Studies found that no training programs addressed the HIV-related needs of WSW, health providers discriminated against WSW and were refused treatment. WSW did not tell providers their sexual orientation and/or their relationships with men due to a need for non-judgmental services.
  - ▶ Gap noted, for example, in **Chile, Mexico, Argentina and Peru** (Guerrero-Lilo et al., 2008) and **South Africa** (Van Dyk et al., 2008).
2. **Health care settings need to offer appropriate, non-discriminatory services—and be attentive to HIV risk behaviors—to meet the sexual and reproductive health needs of WSW.** Studies found that a number of WSW also have sexual relationships with men yet did not get tested for HIV.
  - ▶ Gap noted, for example, in **Chile** (Vidal et al., 2008); **South Africa** (Wells et al., N.D.); **South Africa and Botswana** (IGLHRC, 2007); and **Brazil** (Pinto et al., 2005).



## Prevention for Young People

- A. Encouraging Behavior Change
- B. Increasing Access to Services

Young people ages 15 to 24 account for an estimated 45% of new HIV infections (UNAIDS, 2008), yet “few young people receive adequate preparation for their sexual lives....’ Being sexual is an important part of many people’s lives: it can be a source of pleasure and comfort and a way of expressing affection and love or starting a family” (UNESCO, 2009: 1 and 4).

### Prevention Efforts for Young Women Are Critically Needed

Young women are especially at risk in some regions of the world. In many sub-Saharan African countries, young women ages 15–24 “are between two and six times more likely to be HIV-positive than men of a similar age” (UNAIDS, 2006: 88). In Cambodia, three times as many young women ages 15–24 are living with HIV compared to young men the same age (UNICEF, 2008 cited in IWHC, 2008). Women account for approximately half of all infections in the Caribbean (UNAIDS, 2009d: 54). However, among 15 to 25 year olds in Latin America, 0.3 percent of women and 0.5 percent of men are living with HIV (PAHO and NORAD, 2007).

Globally, the median age of sexual debut is below the age of 20 for young women and men in numerous developing countries (DHS, 2009). Many young people,

---

“In countries in southern Africa, where HIV prevalence is extremely high, the probability that one’s sexual partner is HIV-positive is around one in four to six, making it risky to have unprotected sex with anyone whose HIV status is unknown” (UNAIDS, 2008).

---

especially young women, have their first sexual experience before the age of 15. DHS data from 60 developing countries show that 25% of girls and boys had sexual intercourse before age 15 (DHS 2007 cited in IWHC, 2007). Data collected in 2006 from 26 countries in all regions of the world found that individuals who had not planned their first sexual experience were 75% less likely than those who had planned it to use condoms at first sex (Roach and Fontes, 2008). Ensuring that young people have the appropriate information to plan to protect themselves—before their first sexual experience—is therefore vitally important.

Young women have limited power in sexual relations and many young women experience sexual coercion, often from older partners. For example, a 2008 study interviewed pregnant and never-pregnant women under the age of 17—twenty-four in rural Rakai District, Uganda and thirty-two in urban Jamaica—about their sexual experiences and found that many young women were pressured to have sex at an early age, did not make a conscious decision to do so, and later regretted it. In Jamaica, all of the interviewed young women indicated that they “should have been older the first time they had sex” (Geary et al., 2008: 18). In Uganda, where 9 of the 24 interviewees first had sex at age 14 or younger, half described coercion during first sex. Many Ugandan girls believed that men are entitled to demand sex, especially in marriage. As a married 17-year-old Ugandan indicated, “sex is ‘an obligation because you are married.’” (Geary et al., 2008: 22). Delayed sexual debut is associated with girls’ education, which may play a crucial role in improving their self-esteem and options, enabling them to say no to unwanted sex. [See also Chapter 11E. *Strengthening the Enabling Environment: Advancing Education*]

In addition to those in Chapter 3. *Prevention for Women*, interventions that work specifically for adolescents can be broken down into two main categories:

## 5A. *Prevention for Young People: Encouraging Behavior Change*

---

“Adolescents’ high risk for HIV infection [is] due to high frequency of sex and rate of partner change, short duration of sexual relationships, risk-taking behavior, low perceptions of HIV/STI risk and limited access to contraception.”  
(Mantell et al., 2005: 324).

---

Ideally, young women should be able to decide when they are ready to have sex and have the information they need to make informed decisions about protecting themselves when they do decide to become sexually active. A number of interventions have been successful in encouraging young people to do just that, but many interventions have not changed behavior and many challenges and gaps remain.

## *Improving Condom Use Among Young People Is Essential*

Promisingly, an analysis of survey data in countries worldwide shows that condom use at last sex among young people is increasing (Wellings et al., 2006). However, young people's use of condoms is generally inconsistent (Minkin and Wright, 2005), and the proportion of sexually active adolescents who report condom use remains too low to control the transmission of STIs (Dehne and Riedner, 2005). Improving condom use among young people is critical—data show that if condom use is established during adolescence, it is more likely to be sustained in the long-term (Schutt-Aine and Maddaleno, 2003). A study of 802 sexually active youth in Ethiopia, of whom more than 74% were women, found that once youth had started to use condoms, they were more likely to continue to use condoms in the future (Molla et al., 2007). At the same time, condom use within established relationships, and particularly marriage, remains low (Ali and Cleland, 2005). *[See also Chapter 3. Prevention for Women]*

Young people need information to know how to protect themselves. Key findings from nationally representative surveys of nearly 20,000 young people ages 12–19 conducted in 2004 (5,950 in Burkina Faso; 4,252 in Ghana; 4,012 in Malawi and 5,065 in Uganda) showed that young people want information especially from trusted sources such as health care providers or teachers (Biddlecom et al., 2007). Young people, as well as adults, also need to have a realistic understanding of the risks of differing sexual practices, for example, so they may avoid those behaviors that perhaps put them at increased risk for HIV. A study of girls in Senegal found that they engaged in anal, oral and manual sex to remain technically virgins for their wedding night, yet provide pleasure both for themselves and their boyfriends (van Eerdewijk, 2009). Anal sex may increase the risk of HIV transmission to one transmission for every three episodes of heterosexual anal sex (Powers et al., 2008a). “Yet anal sex continues not to be targeted—nor even specifically mentioned—in most prevention campaigns...” (Halperin et al., 2009: S57). On the other hand, transmission via oral–genital contact is extremely low, with a study of 135 HIV-negative people (110 women and 25 men in Spain) whose only risk to exposure was unprotected orogenital sex with their infected partner, with 210 person-years of follow-up and 19,000 unprotected orogenital exposures with the infected partner and no single HIV seroconversion (del Romero et al., 2002).

## *Comprehensive Sex Education Programs Can Be Effective*

School sex education programs are effective ways to reach a large number of (but not all) young people. Despite the fears of some community leaders and parents that sex education will encourage young people to engage in sex, available evidence indicates that sex education can delay sexual debut, and can increase condom or contraceptive use by sexually active adolescents (Kirby, 2001; Coyle et al., 1999; Hubbard et al., 1998, cited in Satcher, 2001; Grunseit, 1997). Achieving behavior change is difficult and many interventions achieve only moderate, if statistically significant, results that include behavior change. In reviewing evidence related to sex education and HIV education, it is important to remember that most studies do not have sufficient information on the details of the intervention, the strength with which the intervention was implemented or even more importantly, how awareness of gender norms, condom

negotiation skills and other critical elements were included. The evidence on sex education seems to suggest, however, that such education, given to young people before they initiate sex, and that focuses on a number of key elements, can have positive outcomes.

A recent review from UNESCO of studies of sex education in 29 developing countries found a number of positive outcomes: delayed initiation of sexual intercourse, decreased number of sexual partners, increased use of condoms and decreased sexual risk taking. Not every intervention resulted in a decreased risk of HIV acquisition. However, no studies showed hastened initiation of sex, no studies showed an increased number of sexual partners, and no studies showed decreased use of condoms. Only one study of the 29 showed increased sexual risk taking, with the remainder of studies showing no harmful effects of sex education (UNESCO, 2009). However, one community randomized trial in rural Tanzania found a significant impact on knowledge and reported attitudes and behavioral outcomes but had no consistent biological outcome as measured by seroconversion to HIV-positive over the three year period (Ross et al., 2007) and again for a longer period of time between 1999 and 2008 (MEMA Kwa Vijana, 2008a and b). A review of studies that included comprehensive sex and HIV education programs in developing and developed countries found that two-thirds of the studies reported that adolescents who received sex education were significantly more likely than those who did not receive the intervention to have better knowledge and to engage in protective behaviors (Kirby et al., 2007).

Views on appropriate programs for adolescents vary. However, strong evidence supports comprehensive sex education that includes promotion of delayed sexual initiation, and also information on contraception including condoms so that when they do start having sex, young people will be protected from unwanted outcomes. Yet according to the 2007 UNGASS reports, only 40% of young men and 35% of young women had accurate knowledge of HIV/AIDS; less than 70% of countries with generalized epidemics have implemented school-based HIV/AIDS education and 61% have put in place HIV prevention for out of school youth (Bertozzi et al., 2008).

Until recently, “programs promoting abstinence were found to be ineffective at increasing abstinent behavior and were possibly harmful,” according to the Cochrane Collaborative Review Group on HIV Infection and AIDS (2004: 4). These conclusions were based on systematic reviews and a meta-analysis of high methodological quality, which met pre-determined criteria of methodological rigor. Sixty reviews met the criteria (Cochrane Collaborative Review Group on HIV Infection and AIDS, 2004) (Gray I). Cochrane reviews are the “gold standard” of study syntheses. Further, a review of 86 sexuality education programs found no strong evidence that abstinence-only programs delay sexual initiation, hasten a return to abstinence, or reduce the number of sexual partners among adolescents (Kirby, 2007). However, a study conducted from 2001 to 2004 in the U.S. found that an abstinence-only curriculum (as opposed to an abstinence-only until marriage curriculum) which did not portray sex in a negative light, did not use a moralistic tone and did not disparage the efficacy of condoms did result in a significant delay of sexual debut among adolescents between the ages 12 and 14. Among the group that received abstinence-only education, 20.6% of the participants reported coitus in the previous three months, compared to 29% in the control group. The abstinence-only intervention did not affect condom use (Jemmott III et al., 2010).

Some countries have scaled up sexuality education. In Brazil, more than 60% of schools provide HIV/AIDS prevention activities, with 43% of these schools having trained teachers and 18% of the high schools with HIV/AIDS prevention activities also distributing condoms. Brazil's goal is to reach more than 40 million children and adolescents in public schools (Donini et al., 2008) and has had success in increasing condom use, with a 2008 study showing 81% of adolescents in some schools using condoms during sexual intercourse (Bretas et al., 2008).

Clearly, young people need access to correct information on sex and its consequences and means of protection so that they can make responsible decisions when they do start having sex.

### *Effective Sex and HIV Education Programs Have Key Characteristics*

The evidence shows that key characteristics of effective sex education programs involve experts in research on human sexuality; assess the reproductive health needs and behaviors of those young people who get the education programs; specify health goals, types of behavior affecting these goals, the risk and protective factors affecting the types of behavior, and activities that change the risk and protective factors; design activities that are sensitive to community values and consistent with available resources; pilot test the program and obtain on-going feedback; focus on clear goals of prevention HIV; address situations that might lead to unwanted or unprotected intercourse and how to avoid these and how to get out of them; focus on knowledge, values, norms, attitudes and skills; employ participatory teaching methods; provide scientifically accurate information about the risk of unprotected sexual intercourse and the effectiveness of different methods of protection; address perceptions of risk; address personal values and norms; address peer norms; and address skills and self-efficacy (UNESCO, 2009). In addition, discussion of gender norms that can put both male and female adolescents at risk is also critical to successful efforts (Pulerwitz et al., 2006; Barker, 2009; Peacock, 2009).

If school-based sexuality education is to have maximum impact, however, it must be taught by trained teachers (UNESCO, 2009). Young people also want sexuality education programs to address issues of importance to them. A review of research conducted in 13 African countries presenting child and adolescent (ages 7 to 19 years) perspectives on HIV prevention, together with programmatic work by Save the Children Sweden and the Swedish Association for Sexuality Education, found that sexuality education as taught in schools fails to address issues of concern, such as love, relationships, and how to negotiate safe sex, as well as the need for easier access to confidential health services. Some young people prefer to get information about sexuality from “younger people and those who discuss sexuality in a positive, non-judgmental way... They found the sexuality education provided in schools and communities to be too technical, negative and moralistic” (Thompson and Nordfjell, 2008).

### *Effective Sex and HIV Education Programs Should Be Scaled Up*

Young people who do not have access to accurate sexuality information and education are at increased risk of HIV acquisition (Toole et al., 2008). Gender norms dictate that boys are expected to be sexually aware. In many settings, girls equate sex with love and lack of condom use a sign of love and trust in a relationship (Machel, 2001; Vuttanont et al., 2006). Youth need

to be reached with sex and HIV education in a variety of venues—in school, out of school, at work—in both rural and urban areas. Continued efforts are needed to improve quality of the content, teaching and facilitation methods of sex and HIV/AIDS education and information, along with policies that support access to effective sex and HIV/AIDS education programs for young people. Cell phone text messaging, computer programs, and the internet may be a useful way to provide sexuality education and HIV/AIDS information to young people (Kasi, 2008). In addition, programs are needed which address the structural factors that affect young people’s vulnerability and risks, such as gender norms and violence against women. [See also Chapter 11. *Strengthening the Enabling Environment*]

Peer education by youth living with HIV can reinforce messages about protective behavior and can be part of a larger intervention. There are no studies, however, demonstrating that presentations by HIV-positive speakers alone can change sexual risk behavior (Paxton, 2002). Programs also need to help parents talk to children about sex. There is some evidence that good communication with parents is associated with delayed sexual debut. Studies in Mexico, South Africa, and Uganda found that parents can be an important source of information about sex (Givudian et al., 1996 cited in Weiss et al., 1996; Abdool Karim et al., 1991 cited in Wojcicki and Malala, 2001; Damalie, 2001).

### *Traditional Gender Norms, Early Marriage Put Young Women at Risk*

A recent review of the global literature on adolescents found that “there is a significant unmet need for information, education, and services for sexual and reproductive health for married and unmarried young people” (Shaw, 2009: 135). “Even if sexuality education programmes improve knowledge, skills and intentions to avoid sexual risk or to use clinical services, reducing their risk may be challenging to young people if social norms do not support risk reduction and/or clinical services are not available” (UNESCO, 2009: 10). Programs are needed to challenge gender norms as well as harmful practices, sexual relationships including early and forced marriage between young girls and older men, and sexual coercion, which increase HIV risk for adolescent girls and women. [See Chapter 11A. *Strengthening the Enabling Environment: Transforming Gender Norms*]

Early marriage is still common and each year 82 million girls marry before the age of 18 (WHO, 2002a, cited in UNAIDS et al., 2004b). Research in 16 countries in sub-Saharan Africa (year(s) not specified) showed that on average, husbands of young girls ages 15 to 19 were, at a minimum, 10 years older than their young wives (UNICEF, 2001 cited in Mathur et al., 2003). Girls in child marriages are financially dependant on their husbands and cannot leave because they cannot repay their dowry, thus they have extremely limited power to refuse sex, negotiate condom use or access HIV testing and services (Nour, 2006). Increased sexual experience is often associated with increased age and therefore young girls married to older men are at an increased risk of HIV transmission. Data collected in Zambia and Kenya (year(s) not specified) showed that “young married girls are more likely to be HIV-positive than their unmarried peers because they have sex more often, use condoms less often, are unable to refuse sex, and have partners who are more likely to be HIV-positive” (Clark, 2003; Luke and Kurz, 2002

cited in Mathur et al., 2003: 9). Girls and their families and communities need to know that early marriage does not necessarily offer protection against HIV transmission. A recent study in Ethiopia demonstrated that facilitated community conversations and mentors can reduce the number of child marriages that put girls at risk for HIV (Erulkar and Muthengi, 2009). Further efforts to reduce child marriage are needed.

Interventions that encourage adolescents to adopt protective behavior and those that address the power disparities between young girls and older male partners are of the utmost importance in further efforts to protect adolescents from acquiring HIV. The tendency for unmarried sexually active adolescent girls to have much older sexual partners puts them at risk of HIV (Luke and Kurz, 2002). Anecdotal evidence suggests that men who are aware of AIDS are targeting younger girls and, assuming they are ‘risk free,’ are less likely to use condoms with young partners. Studies in South Africa and Zimbabwe have found high levels of rape and sexual abuse. [*See also Chapter 11B: Strengthening the Enabling Environment: Addressing Violence Against Women*] In many countries, few men who have sex with young girls, with or without coercion, are prosecuted.

Ultimately, enabling young people to delay their first sexual experience, to negotiate condom use when they do have sex, to be able to say no when sex is unwanted, and to reduce the number of concurrent sexual partners are critically important in protecting young women from acquiring HIV. Finding new and promising ways to get accurate information to more adolescents—particularly adolescents who are not in school—is also important and youth-friendly technologies such as text messaging should be further explored.

### **What Works—*Prevention for Young People: Encouraging Behavior Change***

1. Sex and HIV education with certain characteristics (see introduction to 5A) prior to the onset of sexual activity may be effective in preventing transmission of HIV by increasing age at first sex and, for those who are sexually active, increasing condom use and reducing the number of sexual partners.
2. Training for teachers to conduct age-appropriate participatory sexuality and AIDS education can improve students' knowledge and skills.
3. Mass media and social marketing campaigns are modestly effective in persuading both female and male adolescents to change risky behaviors.
4. Communication between adults and young people about reproductive health information can increase protective behaviors.

#### *Promising Strategies:*

5. National efforts to decrease or delay sexual activity, increase condom use and reduce the number of sexual partners can be effective in preventing HIV nationwide.
6. Promoting condoms for pregnancy prevention may increase condom use for safe sex.
7. Providing HIV prevention education by people living with HIV (who wish to serodisclose) to youth can reinforce messages about protective behavior.
8. Comprehensive programs for youth can improve HIV knowledge and encourage protective behavior.
9. Increased employment opportunities, microfinance, or small-scale income generating activities can reduce risky behavior—particularly among young women.

## **EVIDENCE**

- I. **Sex and HIV education with certain characteristics (see introduction to 5A) prior to the onset of sexual activity may be effective in preventing transmission of HIV by increasing age at first sex and, for those who are sexually active, increasing condom use and reducing the number of sexual partners.**
  - ▶ A review by UNESCO of 87 sex and HIV education programs in developing and developed countries found that 23 studies showed a delayed initiation of sex (40 had no significant impact); 16 decreased the number of sexual partners (20 had no significant impact); 23 increased condom use (35 had no significant impact) and 16 studies reduced sexual risk taking, one increased sexual risk taking and 13 had no significant impact.

Evaluated programs were curriculum and group-based; focused on sexual behavior; focused on young people; had an experimental or quasi-experimental design; a sample size of at least 100; measured impact on sexual behaviors for at least three to six months and were published after 1990 (UNESCO, 2009). (Gray I) (*sex education, sexual partners, condom use, sex behavior*)

- ▶ A review evaluating 83 sex and HIV education programs in developing and developed countries that were based on a written curriculum and were implemented among groups of youth in schools, clinics or other community settings found that two-thirds of the studies found a significant positive impact on one or more sexual behaviors or outcomes, while only seven percent found a significant negative impact. One-third of the programs had a positive impact on two or more behaviors or outcomes. The 83 studies generally reported on one or more of six aspects of sexual behavior: initiation of sex, frequency of sex, number of sexual partners, condom use, contraceptive use in general, and composite measures of sexual risk-taking (e.g., frequency of sex without condoms). A few studies reported on pregnancy and STI rates. *Initiation of Sex.* Of the 52 studies that measured impact on this behavior, 22 (42 percent) found that the programs significantly delayed the initiation of sex among one or more groups for at least six months, 29 (55 percent) found no significant impact, and one (in the United States) found the program hastened the initiation of sex. *Frequency of Sex.* Of the 31 studies that measured impact on frequency, nine (29 percent) reduced the frequency, 19 (61 percent) found no significant change in frequency, and three (all in developed countries) found increased frequency among any major groups at any point in time. *Number of Sexual Partners.* Of 34 studies measuring this factor, 12 (35 percent) found a decrease in the number of sexual partners, while 21 (62 percent) found no significant impact. *Condom Use.* Of the 54 studies measuring program impact on condom use, almost half (48 percent) showed increased condom use; none found decreased condom use. *Contraceptive Use in General.* Of the 15 studies measuring impact, six showed increased contraceptive use, eight showed no impact, and one (in the United States) showed decreased contraceptive use. *Sexual Risk Taking.* Some studies (28) developed composite measures of sexual activity and condom use (e.g., frequency of sex without condoms). Half of them found significantly reduced sexual risk-taking. None of them found increased sexual risk-taking. *Pregnancy Rates.* Of the 13 studies that measured pregnancy rates, three found significant positive effects, nine found insignificant effects, and one (in the United States) found significant negative effects. *STI Rates.* Of the 10 studies that measured impact on STI rates, two found a positive impact, six found no significant impact, and two found a negative impact. For example, in Tanzania, a sexuality education intervention reduced the number of sexual partners among boys and increased condom use among both boys and girls. This evaluation used an experimental design and found positive behavioral impacts over a three-year period (Ross et al., 2003 cited in Kirby et al., 2007). Skills based programs were more effective at changing behavior than were the knowledge-based programs. In the programs reviewed, female adolescents constituted between

44% and 100% of participants (Kirby et al, 2007a; Kirby et al., 2007b; Kirby et al., 2006; Kirby, 2009). (Gray I) (*sex education, sexual partners, condom use, contraception, sex behavior*)

- ▶ A community-randomized trial with a cohort of 9,645 adolescents in 20 communities in Mwanza Region, **Tanzania** that included multiple components to improve the sexual health of adolescents, resulted in statistically significant improvements in knowledge, reported attitudes, reported STI symptoms, and some behavior change but no change in HIV seroconversion rates. The intervention included comprehensive sex education, youth-friendly services, community-based condom promotion and distribution by youth, and a range of community-wide, youth-focused activities. All students age 14 or older in grades 4–6 in 1998 were eligible for enrollment and the final follow-up took place three years after recruitment, in 2001–2002. There were statistically significant differences among young men—but not young women—in the intervention group compared to the control group in sexual debut and having more than one sex partner in the past year. Initiation of condom use was higher for both young men and women in the intervention groups although condom use at last sex remained low, at below 30%. “Reported behavioral effects were stronger in male than female participants, possibly because young women were exposed to older male participants who had not benefited from the programme” (Ross et al., 2007: 1951). Furthermore, “the interventions that were tested within the trial were all directly targeted to adolescents themselves. Cultural norms, however, such as gendered and age-related power relationships and marriage and fertility norms within marriage and fertility norms within the wider community, compromise the ability of adolescents to change their sexual behavior. Community-wide interventions aimed at changing societal norms may be particularly important” (Ross et al., 2007: 1952) (Gray II) (*sex education, behavior change, HIV seroconversion, Tanzania*)
- ▶ A quasi-experimental study using 4,795 questionnaires from adolescents who participated in a school-based sex education program in public schools in four municipalities in the state of Minas Gerais, **Brazil** found that the program succeeded in more than doubling consistent condom use with casual partners from 58.3% prior to the program to more than 71% following the program, with no effect on age at first intercourse or on adolescents engagement in sexual activities (Andrade et al., 2009). (Gray III) (*sex education, condom use, Brazil*)
- ▶ A quasi-experimental research study in **South Africa** in 2001 found that of the 646 students included, exposure to HIV/AIDS curriculum increased levels of knowledge related to HIV transmission, knowledge of risky behaviors, levels of approval of abstinence, intention to abstain or use a condom, and reported partner reduction among males. The intervention did not increase rates of sexual activity. Of the 22 schools included in the study, Life Orientation HIV/AIDS curriculum was taught in 11 schools, while the remaining 11 did not receive the class and served as controls. Two classrooms from each of the 11 intervention schools were selected to receive Life Orientation

classes, a total of 16 hours, and measurements were taken from both students and teachers at baseline, immediately upon completion of the course, and four months post-intervention. Eleven teachers were also selected from the intervention schools to undergo five days of training. Although baseline measurements showed that students in both groups had a high level of prior existing knowledge related to HIV transmission and risk behaviors, post-intervention assessments showed that students in the intervention group had a significantly increased knowledge when compared to students in the control group. Approval of abstinence increased among males in the intervention group, from 54% at baseline, to 81% at the end of the intervention, and finally 73%, at four months post-intervention. Furthermore, for both males and females a significant increase was observed in the number of students who reported to believe that abstinence was a good idea/choice for teenagers. No similar trends were observed in the control group. Intention to abstain, however, was similar in both groups and was maintained throughout the study period. Intention to use a condom increased in the intervention group from 25% at baseline, to 33%, and finally to 30% post-intervention, while rates for students in the control group declined from 25% to a final 23%. In addition, both intervention students and control students consistently agreed that forced or coerced sex was not acceptable. Finally, intervention students expressed the wish that the course would better address practical communication skills and peer pressure, while many teachers reported a preference of focusing on the more factual aspects of the curriculum rather than on life skills that included decision-making, communication, and assertiveness (Reddy and James, 2003). (Gray III) (*adolescents, sex education, abstinence, South Africa*)

- ▶ A school health education program in primary school in **Uganda** sponsored by the Ugandan AIDS Commission emphasized improved access to information for health, sexual behavior decision-making and improved peer interaction regarding decision-making related to HIV/AIDS and sexuality. Students with an average age of 14 years were surveyed with a cross-sectional sample and after two years of interventions. The percentage of students who stated they had been sexually active fell from 42.9% (123 out of 287) to 11.1% (30 out of 280) in the intervention group, while no significant change was recorded in a control group (Aggleton et al., 2000). (Gray III) (*adolescents, sexuality, sex education, Uganda*)
- ▶ A survey in 2001 by the Ministry of Health in **Brazil** found that 70% of schools carried out prevention activities with students; 97% of students had correct information on how AIDS was transmitted; and 90% of students who were sexually active changed their behaviors regarding AIDS after exposure to school prevention activities. Brazil has a low HIV prevalence, with HIV infections well under a third of expected cumulative totals due to early prevention efforts, early universal treatment and nondiscrimination (Gauri et al., 2007). (Gray IV) (*adolescents, sex education, Brazil*)
- ▶ A study of 1,581 low-income fourth-graders in **Mexico's** marginalized Hidalgo and Campeche States found that a communications-centered life skills program taught by comprehensively trained teachers in elementary schools improved communication atti-

tudes, self-efficacy, intentions, and perceived socio-cultural norms about communications. The 30-hour “I Want to, I Can... Prevent HIV/AIDS” program used gender-sensitive, participatory methods to teach fourth-graders a range of life skills. The program introduced games to teach children about human physiology, anatomy, sexuality, and HIV/AIDS. The program had a significant impact on communication about sexuality, and it changed the perception in the community that parents should not talk to their children about sex (Pick et al., 2007). (Gray IV) (*adolescents, sex education, Mexico*)

- ▶ A study of 31,000 primary and middle school students in **China** who received life planning skills training in 2005 and 2006 promoting gender equity led to significant improvements in sexual and reproductive health knowledge. A quasi-experimental design with cluster sampling with matched controls for the intervention county found that young girls’ self-confidence and self-esteem also increased. An impact evaluation among grade 4 and 7 students from 9 schools was conducted in 2006. Compared to the control groups, grade 4 girls from the intervention significantly changed their attitudes regarding stereotypes of potential occupations. Willingness to use condoms also increased among intervention students. Participants gained skills to handle choices around dating and drug use (Yang et al., 2008). (Abstract) (*adolescents, sex education, China*)
- ▶ Life skill-based HIV/AIDS education conducted in **China** between 2004 and 2007 in 2,490 middle schools with 1,938,285 students increased significantly the percentage of middle school students—from below 14% to more than 62%—who both correctly identified ways of preventing sexual transmission of HIV and rejected major misconceptions (Han et al., 2008). (Abstract) (*adolescents, sex education, China*)

## 2. Training for teachers to conduct age-appropriate participatory sexuality education can improve students’ knowledge and skills.

- ▶ A review by UNESCO of 87 sex and HIV education programs in developing and developed countries found that to have maximum impact, school-based sexuality education must be taught by trained teachers (UNESCO, 2009). (Gray I) (*adolescents, sex education, teachers, training programs*)
- ▶ A project in **Uganda** with students ages 13–14 that included teacher training found that students whose teachers who had received training reported a significant decline both in having sexual intercourse in the past month and in the average number of sexual partners. Among students in the sample from the intervention schools, those who had been sexually active fell from 43% in 1994 (123 of 287) to 11% in 1996 (31 of 280). Teachers were the main source of information for adolescents (Shuey et al., 1999 cited in James-Traore et al., 2004). (Gray III) (*adolescents, teachers, training programs, Uganda*)
- ▶ An intervention from 2006 to 2008 in **Thailand** trained 103 lecturers from 10 universities to promote comprehensive sexuality education. A new course, *Comprehensive Sexuality Education Learning Design*, was taught to 910 students in pre-service teacher

training programs. The lecturers were trained in sexuality, Positive Youth Development, and Learning Design. The *Comprehensive Sexuality Education Learning Design* course taught about human development, relationships, sexual health and behaviors, personal skills, society, and cultures. It also required a one-semester internship in a school teaching sexuality education, which brought the *Comprehensive Sexuality Education* program to 253 primary and secondary schools. An evaluation found that most primary and secondary school students exposed to the *Comprehensive Sexuality Education* class found it to be useful, practical, applicable to real life, and would suggest that all students obtain sexuality education. Teachers reported, “to teach sexuality education well, teachers have to understand young people and be open-minded as sometimes students know more than we expected,” and “teachers have to always be updated on all issues as students always have questions about sex” (Vechmee, 2008). (Abstract) (*adolescents, sex education, training programs, Thailand*)

### 3. Mass media and social marketing campaigns are modestly effective in persuading both female and male adolescents to change risky behaviors.

- ▶ A systematic review of the effectiveness of **24 mass media interventions** on HIV-related knowledge, attitudes and behaviors was undertaken in 2006. The intervention studies were published from 1990 through 2004 and reported data from developing countries comparing outcomes using (i) pre- and post-intervention data, (ii) treatment versus control (comparison) groups or (iii) post-intervention data across levels of exposure. The most frequently reported outcomes were condom use (17 studies) and knowledge of modes of HIV transmission (15), followed by reduction in high-risk sexual behavior (eight), perceived risk of contracting HIV/AIDS (six), interpersonal communication about AIDS or condom use (six), self-efficacy to negotiate condom use (four) and abstaining from sexual relations (three). The review yielded mixed results, and where statistically significant, the effect size was small to moderate (in some cases as low as 1–2% point increase). On two of the seven outcomes, at least half of the studies did show a positive impact of the mass media: knowledge of HIV transmission and reduction in high-risk sexual behavior. Further rigorous evaluation on comprehensive programs is required to provide a more definitive answer to the question of media effects on HIV/AIDS-related behavior in developing countries (Bertrand et al., 2006). (Gray I) (*mass media, condom use, transmission, sex behavior*)
- ▶ A case control survey study conducted in **Rwanda** between 2000 and 2002 evaluated the effectiveness of a social marketing campaign targeting nearly 150,000 youth with messages promoting the use of a multipurpose, youth-friendly center that provides VCT, STI diagnosis, and reproductive health services. The study found that youth exposed to the program were more likely to use VCT services, and more likely to have had an HIV test in the past year, increasing from 2% in both sexes to 7% in males and 9% in females. Peer educators, radio shows, print materials, and mobile video-unit shows were used to motivate youth to practice safe behaviors and visit the youth-friendly health center,

as young people in this area had little access to television. Results of such approaches showed a significant change among youth who were highly exposed to the program regarding their attitudes and behavior toward VCT and condom use. The percentage of young men who reported believing that condoms are effective for preventing HIV/AIDS was 92%, as compared to 73% in the low-exposure group; confidence in correct condom use was 30%, as compared to 17%; 29% of young men reported having discussed STIs/AIDS with someone in the past year, as compared to 9% of the low-exposed young men; and the percentage of those men with high exposure who had an HIV test in the past year was 9%, as compared to 2%. Among females in particular, exposure to the program was associated with decreased shyness when buying condoms, with 21% reporting not being shy, versus 44% in the unexposed group, and an increased perception of personal reproductive health risks, 61% compared to 32%. Eighty-one percent of young females in the exposed group reported believing condoms are effective for HIV/AIDS prevention, as compared to 64% of the low-exposed group; 27% of the exposed group reported discussing STIs/AIDS with someone in the past year, as compared to 10%; and 7% had an HIV test in the past year, as compared to 2% of the unexposed group (Neukom and Ashford, 2003). (Gray III) (*adolescents, HIV testing, social marketing, mass media, condoms, Rwanda*)

- ▶ A social marketing campaign conducted in 2000 in **Cameroon** targeting nearly 600,000 youth with messages promoting the consistent use of condoms among sexually-active youth found that both young men and women exposed to the campaign were more likely to know how to use condoms correctly and were less shy about purchasing condoms. After an 18-month campaign involving television and radio advertisements, radio shows, radio dramas, a youth newspaper, youth-friendly condom sellers, and a peer education program, 69% of young men with high levels of exposure to the program reported having used a condom the last time they had sex, as compared to just 56% of those with low exposure. Confidence in knowing how to use condoms correctly was reported by 79% of young men and 64% of young women exposed to the campaign, as compared to 68% and 38% of those with low exposure, respectively. Both young men and young women exposed to the marketing campaign reported being less shy when purchasing condoms than those with low exposure to the campaign. Among sexually active young women, program exposure was associated with an increase in condom purchasing, a significant increased perception of personal risk, and greater perceived support from peers for using condoms (Neukom and Ashford, 2003). (Gray III) (*youth, social marketing, mass media, condoms, self-perception, sex behavior, Cameroon*)
- ▶ A six-month multimedia campaign in Zimbabwe encouraged abstinence for young people with no sexual experience together with condom use and reduction in partners for those already sexually active by promoting self-respect and self-control. In the campaign areas, 97% reported being exposed to the campaign. Youth in the campaign areas reported that they had said no to sex 2.5 times more than youth in the comparison areas. Youth in campaign sites were 4.7 times more likely to have visited a health center

and 14 times more likely to have visited a youth center than youth in the comparison areas. Significantly, youth in the campaign area were over 26 times more likely to report one sexual partner and over 5 times more likely to use condoms than youth in the comparison area. The project used 10,000 posters, 19,000 leaflets, 100,000 copies of a newsletter, 26 one hour radio shows, launch events with popular musicians, 60 community theater presentations with discussions, trained 24 peer educators, and established a hotline, with youth participating in every aspect of designing and implementing campaign materials and activities. The project intervention also designated 26 clinics as youth friendly and conducted a one-week training with a provider from each clinic in counseling youth. A baseline survey was conducted with 1,426 randomly sampled adolescents with a follow-up survey one year later with 1,400 respondents (Kim et al., 2001). (Gray III) (*abstinence, youth, condoms, mass media, Zimbabwe*)

- ▶ A national television and radio HIV prevention campaign in Zambia for young people ages 13 to 19 found that viewers were 1.68 times more likely to report primary or secondary abstinence. Viewers were 1.91 times more likely to have ever used a condom and 1.63 times more likely to report condom use during last sex when contrasted with nonviewers, holding sex, age, residence and education constant. Among adolescent females who were sexually experienced, 82% of viewers reported that they felt confident that they had “the ability to say no to unwanted sex,” in contrast with 69% at baseline and 64% of nonviewers. Nearly 86% of viewers recognized that a person who looks healthy could be HIV-positive, compared to 72% of nonviewers. The campaign design team included youth, including an HIV-positive youth, message concepts were tested, and comprehension was assessed through focus group discussions, interviews, and post-broadcast surveys. A total of 533 male adolescents and 656 female adolescents were included in the survey (Underwood et al., 2001). (Gray III) (*adolescents, mass media, condom use, self-perception, Zambia*)
- ▶ In 2002 MTV launched a **global** multicomponent HIV prevention campaign, “Staying Alive,” reaching over 166 countries worldwide. An evaluation of this campaign focused on three diverse sites: Kathmandu, **Nepal**; São Paulo, **Brazil**; and Dakar, **Senegal**. Data were collected before and after campaign implementation through population-based household surveys. Using linear regression techniques, the evaluation examined the effects of campaign exposure on interpersonal communication about HIV and the effects of campaign exposure and interpersonal communication on beliefs about HIV prevention. Researchers found a consistent positive effect of exposure on interpersonal communication across all sites, though there were differences among sites with regard to whom the respondent talked about HIV. The analysis also found a consistent positive effect of exposure on HIV prevention beliefs across sites when interpersonal communication was simultaneously entered into the model. In two sites, researchers found a relationship between interpersonal communication and HIV prevention beliefs, controlling for exposure, though again, the effects differed by the type of person the communication was with. These similar findings in three diverse sites provide ecolog-

ical validity of the findings that “Staying Alive” promoted interpersonal communication and influenced young people’s beliefs about HIV prevention in a positive way, evidence for the potential of a global media campaign to have an impact on social norms (Geary et al., 2007). (Gray IV) (*adolescents, mass media, communication, Nepal, Brazil, Senegal*)

- ▶ Straight Talk (ST) mass media communication programs, which have been implemented in **Uganda** since 1993, comprise three main materials: multilingual Straight Talk Radio Shows, multilingual *Straight Talk* newspapers, and an English language *Young Talk* newspaper. Straight Talk also implemented a wide array of school-based activities to engender a youth-friendly school environment. The evaluation concludes that many Ugandan adolescents have benefited from ST activities, and that greater exposure was associated with greater benefits. Among both males and females, exposure to ST activities is associated with greater knowledge about sexual and reproductive health, more balanced attitudes toward condoms, and more communication with parents about sexual and reproductive health issues. The results also show that for girls, exposure to ST materials is further associated with greater self-assuredness, greater sense of gender equity, and the likelihood of having a boyfriend but not having a sexual relationship. Among males, ST exposure is associated with lower likelihood of sexual activity, greater likelihood of resuming abstinence, and a greater likelihood of taking relationships with girls seriously. Adolescents exposed to ST were more likely to have been tested for HIV than those never exposed (Adamchack et al., 2007). (Gray V) (*adolescents, mass media, condoms, communication, abstinence, Uganda*)
- ▶ A pilot education campaign using posters and take away cards in numerous venues in Russia increased condom use by 18% in one area and 21% in another among tertiary students ages 15 to 23 (Alekseeva et al., 2008b). (Abstract) (*mass media, condoms, adolescents, Russia*)

#### 4. Communication between adults and young people about reproductive health information can increase protective behaviors.

- ▶ A study of 750 women and 870 young people in rural Limpopo Province, **South Africa** evaluated whether an intervention that paired a microfinance program with participatory HIV/AIDS and gender empowerment education for women in the poorest half of households could impact communication about sexuality between the women participants and adolescents in their households. During mandatory bi-weekly meetings, the Intervention with Microfinance for AIDS and Gender Equality (IMAGE) used three pathways to encourage loan holders to engage with young people in their households about sexuality issues: 1) by teaching the women participants about HIV, 2) by allowing the women to recognize their responsibility in protecting young people from HIV, and 3) by giving the women participants guidance in changing social taboos and norms. Initially, many women were “hostile to receiving what they considered to be irrelevant information.” A focus discussion group participant indicated “each time the facilitator

starts the sessions we would say, “there she goes again with her condoms speech... [we] talked about AIDS and our children, we were bored.” But by the end of the training, women stated, “We saw many role-plays that showed us how to communicate with our children. These were useful skills,” (Phetla et al., 2008: 511). The study found “an overall increase in the frequency and comfort levels of participants’ efforts to convey the risk HIV poses to their community” (Phetla et al., 2008: 509). The women who participated in the intervention spoke to children about sexuality issues significantly more often, and the content of their discussions changed. While previously the women warned their children with “vague admonitions,” after the intervention, they provided concrete guidance to young people: 97.6% of the women who communicated with children about sexuality discussed condoms while 58.2% discussed HIV testing (Phetla et al., 2008: 511). Young people who lived with the women participants generally wanted to discuss sexuality with their parents (Phetla et al., 2008). (Gray III) (*youth, communication, sexuality, South Africa*)

- ▶ A survey study in 1998 in three sites in **Ghana** with 526 youth ages 11 to 26 found that youth who talked to both adults and peers about reproductive health during the last three months were more than twice as likely to have taken actions to protect themselves from AIDS than those youth who did not talk to anyone about reproductive health during the last three months. Actions taken to protect themselves from AIDS included: abstinence or delaying sex; using condoms; one sexual partner; and avoiding risky situations (Wolf and Pulerwitz, 2003). (Gray III) (*youth, communication, condoms, sex behavior, abstinence, Ghana*)
- ▶ A cross-sectional descriptive study of girls ages 12 to 18 and their mothers in **Uganda** in 1997 found that 75.8% of mothers reported having discussed the issues of sexuality and HIV/AIDS with their daughters and 67.9% of daughters reported having had their mothers discuss the topics with them, however, discrepancies between the two groups were noted in reported frequency and topics covered. Respondents were selected using the WHO 30 cluster, seven quota sampling method with 105 households being included from each of the sites, with a total of 186 adolescent girls and 183 of their mothers being included in the study. Five trained research assistants administered questionnaires, both open- and closed-ended, and two focus groups for mothers and four for daughters were conducted with seven to eight individuals per focus group who were randomly selected from the questionnaire group. Results from the data collected indicated that parents were the major source of information concerning sexuality and HIV/AIDS for young girls, 32.3% of the time, followed by friends 24.7% of the time, radio 21.5%, teachers 16.6%, books 4.3%, health workers 3.2%, and finally youth clubs 1.6% of the time. Seventy-five percent of mothers reported beginning sexuality dialogues at puberty, 15.9% when a daughter was leaving home for school, 13% when a daughter announced having a boyfriend, 8.7% after a relative died of HIV/AIDS, and 5.1% after the daughter became pregnant. On average, mothers reported discussing sexuality matters with their daughters 7.8 times per month. Overall, 67.9% of the adolescent girls included in the

study reported having received information from their mothers, while 32.1% claimed that they had not, and 68.8% reported that their mothers assisted them in accessing information via discussions or encouragement to read material, watch television, or join a club, while 31.6% said their mothers did not. Forty percent of the daughters claimed they had some difficulty or problems discussing sexuality with their mothers for reasons such as fear, shyness, and that mothers were too busy, among others. Girls reported preferring their mothers as the source of their information. Lastly, when asked how mothers might be enabled or empowered to better communicate with their daughters on matters concerning HIV/AIDS and sexuality, 50.7% suggested providing seminars and workshops within the community to teach communication techniques and skills, 8.7% mentioned suggestions related to reading materials that would be useful, and 7.2% said they would like counselor or teacher assistance (Damalie, 2001). (Gray III) (*adolescents, communication, sex behavior, Uganda*)

- ▶ A review of 5,592 questionnaires administered to adolescents in **Mexico** found that discussion with parents about risk and prevention prior to sexual initiation was associated with higher condom use at first sex and late discussion was associated with younger age at first intercourse. Communication before onset of sexual activity about risk and prevention is positively associated with safer sex practices (Atienzo et al., 2008). (Abstract) (*adolescents, communication, condom use, Mexico*)

### Promising Strategies:

#### 5. National efforts to decrease or delay sexual activity, increase condom use and reduce the number of sexual partners may be effective in preventing HIV nationwide.

- ▶ Using longitudinal data from annual and serological surveys from 1989 to 2007 in **Uganda**, a study analyzing sexual behavior data found that young people making their sexual debut during the period of study (1996 to 2007) did delay sexual debut, delaying sexual initiation by one year. In addition, younger males and females reported increased condom use. More than a quarter of males 20 to 25 years of age reported condom use at last sex but for males above age 40, only 10% reported condom use at last sex. Among females, more than 10% reported condom use at last sex at the ages of 18 to 22 years of age, but above age 40, only 4% reported condom use at last sex. Males in birth cohorts born before 1985 reported 13% fewer partners than males in older birth cohorts. Females born after 1985 reported around 7% fewer partners than females in the older birth cohorts at the same age (Todd et al., 2009). (Gray III) (*sex behavior, sexual debut, condom use, sexual partners, Uganda*)
- ▶ Data from the 2004 to 2005 **Uganda** HIV/AIDS Sero-Behavioral Survey and the 1988, 1995, and 2001 DHS surveys showed that the proportion of youth ages 15 to 24 who reported never have had sex increased significantly from 23% in 1998 to 32% in 2005,

including men for whom the proportion increased from 32% in 1995 to 42% in 2005. Among women aged 15 to 19, those who reported never having had sex increased from 38% in 1995 to 54% in 2005. In addition, the proportion of sexually experienced women aged 15 to 19 who reported no sex in the 12 months preceding the survey rose from 7% in 1989 to 18% in 2005. Interventions included public health education, condom promotion, HIV counseling and testing, etc. (Opio et al., 2008). A more recent analysis of DHS data found that women in Uganda who were born after 1970 have, on average, had sex at a later age than those born earlier (Slaymaker et al., 2009). (Gray III) (*youth, sex behavior, communication, Uganda*)

- ▶ A study of population-based sexual behavior surveys in one urban and one rural community of young people ages 15 to 24 in **Zambia** from 1995, with 1,720 youth, in 1999 with 1,946 youth and 2003, with 2,637 youth found that the proportion of both women and men who reported more than one sexual partner in the year immediately prior to the survey declined. The percent of urban young women who reported using a condom at their last sexual intercourse in 1995 was 36% but this increased to 57% by 2003. In 1999, 15% of urban females and 42% of rural males ages 15 to 19 reported sex before the age of 15; this decreased to 5% of urban females and 24% of rural males by 2003. The change in behavior may be linked to the nationwide comprehensive HIV prevention campaigns launched in the early 1990s (Sandøy et al., 2007). (Gray IV) (*youth, sex behavior, condoms, mass media, Zambia*)
- ▶ A review of surveillance data between 1998 and 2003 in Manicaland, **Zimbabwe** among a population cohort of 9,454 adults found evidence for delay in the onset of sexual activity among adolescent men and women. At baseline, 45% of young men ages 17 to 19 reported having commenced sexual activity; 3 years later, 27% of the same age group reported having started sexual activity. During the same time period, the percentage of 15 to 17 year old women who reported sexual experience fell from 21% to 9%. HIV prevalence fell by 23% among men aged 17 to 29 and by 49% among women aged 15 to 24 years (Gregson et al., 2006). (Gray IV) (*youth, sex behavior, Zimbabwe*)
- ▶ A review of three independent data sources in **Zimbabwe**—mortality rates; HIV prevalence data from ANC clinics; and DHS sexual behavior from 1988 to 2005—found that behavioral changes in the late 1990s contributed to generating substantial reductions in HIV incidence, with reductions in the numbers reporting having started sex, decreased numbers of casual partners and decreased sex work linked to generating substantial reduction in HIV incidence. Distribution of condoms also increased (Hallett et al., 2008b). (Abstract) (*adolescents, sex behavior, condoms, Zimbabwe*)

## 6. Promoting condoms for pregnancy prevention may increase condom use for safe sex among young people.

- ▶ Over 75% of 3,000 male and female college students ages 18 to 24 in **South Africa** surveyed reported condom use at last sexual intercourse, primarily to prevent preg-

nancy. Almost 87% of men and 89% of women in the survey felt that condoms were part of sex. Six focus group discussions with found that condoms had become part of sex, highly acceptable and easily accessible. If a woman requested condoms, men and women agreed the man must comply. Some men were suspicious of women who agreed to unprotected sex. Students reported that they would rather use condoms than jeopardize their future. (Maharaj and Cleland, 2006). (Gray III) (*youth, condom use, pregnancy prevention, South Africa*)

- ▶ From 1993 to 2001 the use of condoms for pregnancy prevention rose significantly in 13 of 18 countries and the median proportion increased from 5.3% to 18.8%. In the 13 countries in **Africa** with available data, condom use at more recent coitus rose from a median of 19.3% to 28.4%. Of these, 58.5% of condom users were motivated by a wish to avoid pregnancy (Cleland et al., 2006a). (Gray III) (*condom use, pregnancy prevention, Africa*)
- ▶ An analysis of survey data from **18 African countries** found that use of condoms for pregnancy prevention rose significantly in 13 of 18 countries between 1993 and 2001. Condom use among young African women increased by an average annual rate of 1.4 percent, with more than half of the users (58.5 percent) reporting that they were motivated by a desire to prevent pregnancy (Cleland et al., 2006b). (Gray IV) (*youth, condom use, pregnancy prevention, Africa*)
- ▶ A study of 678 male adolescents from **Brazil** found that condoms were the preferred method of contraception for 95% of sexually active adolescents. Avoiding pregnancy is also a primary motivation for young men in steady relationships (Juarez and Martin, 2006). (Gray V) (*adolescents, condom use, pregnancy prevention, Brazil*)

## 7. Providing HIV prevention education by people living with HIV (who wish to serodisclose) to youth can reinforce messages about protective behavior.

- ▶ A longitudinal matched control study in **Australia** to evaluate the efforts on 1,280 young people of talks by people living with HIV who disclose their perspective of living with HIV found that meeting HIV-positive people decreased fear and prejudice, reinforced messages about protective behavior and increased the belief that HIV is preventable. Improved attitudes after talks by females remained significant over three months. “Female speakers, in particular, break down common stereotypes about who contracts HIV. They make students realize that anybody is vulnerable to infection” (Paxton, 2002: 288). For female students, talks by people living with HIV “reinforced messages of safe sex” (Paxton, 2002: 287). Speakers changed perceptions, broke down stereotypes, and made students realize that anybody is vulnerable to infection. Focus group discussions with 117 students were used to elucidate the impact. Six hundred and twenty-eight respondents were recruited into the intervention group and 652 into the control. The quantitative data collection tool was a highly structured Attitude Scale for Teenagers to measure attitudes, such as “I would shake hands with a person having HIV.” Short-

term and long-term attitudes changed in the intervention group, with scores significantly different before the talk with after the talk, with changes sustained over three months (Paxton, 2002). (Gray III) (*adolescents, communication, self-perception, Australia*)

- ▶ Women participants in a microcredit program with a participatory HIV/AIDS and gender empowerment education aspect for the poorest half of households in rural Limpopo Province, **South Africa** reported that meeting a healthy-looking HIV-positive young woman during an education session was crucial to understanding their vulnerability and the vulnerability of their families to HIV. One of the women surveyed reported that, “most people thought that HIV-positive people were skinny and sickly looking. We were scared because we found out that the virus can affect anyone indiscriminately... I will never forget her face; it reminds me about the seriousness of the virus and the need for protection” (Phetla et al., 2008: 512). (Gray V) (*self-perception, communication, South Africa*)

## 8. Comprehensive programs for youth can improve HIV knowledge and encourage protective behavior.

- ▶ JSI evaluated the African Youth Alliance (AYA) Programs in **Uganda** (implemented 2001–2005), **Tanzania** (2002–2005), and **Ghana** (2001–2005) using post-intervention analysis between and intervention sites to determine the impact AYA’s comprehensive integrated program on SRH behavior. The AYA Program had six components, namely, (1) policy and advocacy coordination; (2) institutional capacity building; (3) coordination and dissemination; (4) BCC (behavior change communication), including life planning skills and enter-education activities such as sports, dance, and rap; (5) Youth Friendly Services; and (6) Integration of adolescent sexual and reproductive health (ASRH) with livelihood skills training. The study compared knowledge, attitudes, and behavioral outcomes between intervention and control sites of 3,416 youth (17–22 year old) in Ghana, 1,900 in Tanzania, and 3,176 in Uganda and found a significant positive impact of AYA on condom use, contraceptive use, partner reduction and several self-efficacy and knowledge antecedents to behavior. Areas with little evidence of AYA impact included delay of sexual debut and abstinence among females and males and partner reduction among males. The impact of AYA was greater on young women than on young men, although in many cases, the knowledge of unexposed men was much higher than that of unexposed women. In Ghana, AYA significantly improved the confidence of young women in obtaining condoms and in insisting that a partner use a condom. The number young women who reported having ever used a condom, used a condom at last sex, used a condom at first sex, and who claimed to have had fewer than two sex partners in the last year also significantly increased. In Tanzania, young women expressed a significant increase in positive attitudes toward condom users, confidence in putting on a condom correctly, and confidence that they can insist that a partner use a condom. Tanzanian females exposed to AYA also were significantly more likely to report fewer than two sexual partners in the last year, condom use at first sex, condom use at

last sex, having ever used a condom, and consistent uses of condoms. Among males in Tanzania, consistent use of condoms, condom use at first sex, and modern contraceptive use at first sex significantly increased, although their use remained low (28, 44, and 43 percent, respectively). The study limitations included a lack of comparable baseline data (Williams et al 2007). An evaluation of the in-school Life Planning Skills component of African Youth Alliance’s program in **Botswana** found that the program increased knowledge of HIV transmission, improved risk reduction behaviors among those who felt at risk (getting tested for HIV, reducing partners, using condoms, or abstaining), and increased both the intention to use and actual use of condoms. Due to the program’s success, the AYA Life Planning Skills manual was adopted for use in secondary schools nationwide in 2004 (African Youth Alliance 2007). (Gray III) (*adolescents, condoms, sex behavior, Uganda, Tanzania, Ghana, Botswana*)

- ▶ A survey of 933 university students (mostly ages 20–24) in Harare, **Zimbabwe** found that students who had participated in SHAPE (Sustainability, Hope, Action, Prevention, Education), a comprehensive HIV/AIDS education program that organized workshops, topical seminars, clubs, and sports teams for university and school-aged youth, were less likely to have ever had sex and had fewer sexual partners in the past year (mean 1.4 for SHAPE members vs. 2.2 for non-SHAPE respondents). SHAPE participants were more likely to have discussed AIDS in the past month (95% to 83.4%), have been tested for HIV (85% vs. 76%), get treatment for AIDS, consider abstinence as a prevention practice for HIV, and more likely to have seen a female condom. SHAPE programs had been active at the University of Zimbabwe for two years prior to the survey. However, because the rate of consistent condom usage was only 70% for both participants and control students, it is possible that “the most vulnerable couples are those who believe they know each other well enough to forgo condoms.” (Terry et al., 2006). (Gray III) (*youth, condoms, sex behavior, sexual partners, female condom, Zimbabwe*)

**9. Increased employment opportunities, microfinance, or small-scale income generating activities can reduce risky behavior—particularly among young people.** [See Chapter 11D. *Strengthening the Enabling Environment: Promoting Women’s Employment, Income and Livelihood Opportunities*]

## Gaps in Programming—Encouraging Behavior Change

1. Effective programs (as described in this compendium) must be expanded to reach many more young people, especially young people who are most neglected such as very young adolescents, out-of-school youth, young people living with HIV, homeless and rural youth.
2. Greater efforts are needed to help young people personalize HIV risks.
3. Sex education and condom promotion programs need to take into account the different motivations among young men and women for engaging in unsafe sex.
4. Clear policies supporting access to information and sexuality education are needed to reduce the risk of HIV transmission among young people.
5. Interventions are needed to counter gender norms, such as those that value girls' sexual ignorance and virginity, which place girls at risk for HIV transmission.
6. Interventions are needed to reduce cross-generational sex.
7. Intensified efforts are needed to increase condom use and reduce multiple partnerships by people who know their HIV-positive status or who are on ARV treatment, including young people.

1. **Effective programs (as described in this compendium) must be expanded to reach many more young people, especially young people who are most neglected such as very young adolescents, out-of-school youth, young people living with HIV, homeless and rural youth.** *[See also Chapter 12B. Care and Support: Orphans and Vulnerable Children]* Studies found adolescent girls did not know that anal sex increased the risk of HIV acquisition, did not use condoms, and did not know that oral sex carries a low risk of HIV acquisition. Out-of-school-youth were at high risk of early sexual debut.
  - ▶ Gap noted globally for girls 15 to 19, as the proportion of these girls in school is quite low (Haberland and Rogow, 2007). Gap also noted, for example, in **Nigeria** (Fajola et al., 2008; Anyanti et al., 2008a); **Egypt** (Soliman et al., 2008); **Nicaragua** (Manji et al., 2007); **Ethiopia** (Alemu et al., 2007; Erulkar et al., 2006); **over 30 countries in Africa and four countries in Asia** (Dixon-Mueller, 2009); and **Côte d'Ivoire, Senegal, Kenya, Tanzania, Uganda, Ethiopia, Sudan, Zambia and South Africa** (Thomsen, 2007).
2. **Greater efforts are needed to help young people personalize HIV risks.** Studies found that knowledge about HIV prevention was superficial and that young people believed that they were not personally at risk of HIV acquisition despite risky behaviors.

- ▶ Gap noted, for example, in **South Africa** (Anderson et al., 2007, Stadler et al., 2007); **Laos** (Toole et al., 2008); and **Burkina Faso, Ghana, Malawi and Uganda** (Biddlecom et al., 2007).
3. **Sex education and condom promotion programs need to take into account the different motivations among young men and women for engaging in unsafe sex.** Studies found that boys complained about reduced sensation with condoms to cover their fear of losing their erection when putting on a condom; girls believed that unsafe sex proved their love and trust in their partner.
    - ▶ Gap noted, for example, in **Thailand** (Vuttanont et al., 2006); **Brazil** (Mane et al., 2001, Juarez and Martin, 2006); **South Africa** (Moyo et al., 2008); **Mozambique** (Machel, 2001).
  4. **Clear policies supporting access to information and services are needed to reduce the risk of HIV transmission among young people.** Studies found that sex education was lacking.
    - ▶ Gap noted, for example, in **India** (McManus and Dhar, 2008; Yesudas et al., 2008).
  5. **Interventions are needed to counter gender norms, such as those that value girls' sexual ignorance and virginity, which place girls at risk for HIV transmission.** [See also Chapter 11A. *Strengthening the Enabling Environment: Transforming Gender Norms*] Studies found that gender norms valued sexual ignorance of girls and therefore girls were at risk of HIV acquisition. Some studies found that women did not know anything about HIV until they became HIV-positive.
    - ▶ Gap noted, for example, in **29 countries in Africa and Latin America** (Clark et al., 2006); a review of **more than 150 studies** (Collins and Rau, 2000; Gupta et al., 2003 cited in Gillespie and Kadiyala, 2005); **Zimbabwe** (Feldman and Masopha, 2003); **Ethiopia, Malawi, and Haiti** (Mathur et al., 2003); and **Tanzania** (Silberschmidt and Rasch, 2001).
  6. **Interventions are needed to reduce cross-generational sex.** Studies found that young women relied on older men to pay their school fees in exchange for sex. Numerous studies found significant numbers of young girls having sexual relationships with older men, who are more likely to be HIV-positive and seek sexual partnerships with younger women.
    - ▶ Gap noted, for example, in a review of **45 quantitative and qualitative studies** in **Sub-Saharan Africa** (Hope, 2007). **Cameroon** (Hattori and DeRose, 2008); **South Africa** (Reddy et al., 2008a, Jewkes et al., 2002 cited in Jejeebhoy and Bott, 2003); **South Africa and Uganda** (Geary et al., 2008; Katz and Low-Beer, 2008); **Democratic Republic of Congo** (Akilu, 2008a); **Tanzania** (Komrower et al., 2008, Silberschmidt and Rasch, 2001); **Burkina Faso, Ghana, Malawi and Uganda** (Bankole et al., 2007); **Botswana** (PHR, 2007a); **Kenya** (Longfield et al., 2004); **Ghana** (Goparaju et al., 2003); **Zimbabwe** (Gregson et al., 2002).

7. **Intensified efforts are needed to increase condom use and reduce multiple partnerships by people who know their HIV-positive status or who are on ARV treatment, including young people.** [*See Chapter 3. Prevention for Women and Chapter 7C. Treatment: Reducing Transmission*]

## **5B. Prevention for Young People: Increasing Access to Services**

While the literature on access to HIV services by adolescents is limited, the literature on access to sexual and reproductive health services more broadly demonstrates that youth-friendly approaches can increase use of reproductive health care services by female adolescents (Neukom and Ashford, 2003). Young people's service needs are frequently overlooked in HIV programming that is not specifically for young people. Numerous studies in developing countries show that adolescents under the age of 15 are sexually active. For example, in sub-Saharan Africa, adolescent girls under age 15 are 50% more likely than boys to be sexually active (UNAIDS, 2008). A nationally representative sample of youth in South Africa found that 18% of young men and 8% of young women said they had had sex for the first time at age 14 or younger (Pettifor et al., 2009). As a result of a 2002 study of Zambian secondary school students, Warenus et al. (2007) noted that although "government policy in Zambia states that all sexually active men and women should have access to reproductive healthcare and information...in practice, young people have limited access to such services" (p. 534). Increasing services for adolescents need not reinvent the wheel, however; "strengthening the health care system to better serve adolescents requires taking a strategic look at ways to build capacity within the existing system, rather than creating a parallel structure focused only on adolescents" (Boonstra, 2007). [*See also Chapter 13. Structuring Health Services to Meet Women's Needs*]

### ***Policy and Legal Barriers to Access Must Be Overcome***

Policy and legal barriers often prevent young people from accessing services. Many health services will not provide sexual and reproductive health services to unmarried women. In most countries, young people under the age of 18 need parental consent to obtain medical care, including VCT, despite the fact that counseling and testing can lead young people to change their behavior and many youth are sexually active before age 18. Laws that require providers to seek parental consent before testing minors or to provide test results to parents may make adolescents reluctant to seek services. Adolescents must feel comfortable accessing necessary services in order to protect themselves from HIV. Surveys of nearly 20,000 adolescents in Burkina Faso, Ghana, Malawi and Uganda found that adolescents prefer services from clinics and hospitals rather than traditional healers and pharmacies but are often embarrassed or too shy to seek them out (Biddlecom et al., 2007).

### *Disaggregated Data Is Needed*

Effective programs for young people need to understand how young people use services and what other barriers (e.g., community and provider attitudes) must be overcome. “Effectiveness is hindered by the lack of systematic attention to gender in designing programmes for most-at-risk young people. Most countries do not have accurate data on the population of young men and women, nor do they maintain records by sex of young people’s use of services” (UNFPA Inter-Agency Task Team on HIV and Young People, 2008: 4). To ensure an accurate picture of the sexual and reproductive health needs of young people, basic data on adolescents should be disaggregated by gender with more precise age groups, such as ages 10–11; 12–14; 15–17; and 18–19 (Dixon-Mueller, 2007). In addition, data should be disaggregated by marital status, as access to services and sexual behaviors differ in many countries based on marital status.

### *Access to HPV Vaccinations May Benefit Girls Who Become HIV-Positive Later in Life*

A 2007 meta-analysis found that HPV infection is much more prevalent in women with HIV (De Vuyst and Franceschi, 2007). Clinical trials are underway to assess HPV vaccination in perinatally infected HIV-positive adolescents. Vaccination against HPV strains 16 and 18 is effective and these strains cause approximately 70% of cervical cancers worldwide (The Future II Study Group, 2007). However, HPV vaccines do not protect against all types of HPV strains that cause cancer and therefore, all women, even those who have received the HPV vaccine, should still get regular pap smears or screening for cervical cancer. It is critical to assess if the HPV vaccine will demonstrate efficacy for longer than five years (Kim and Goldie, 2008 cited in Rothman and Rothman, 2009). HPV vaccination for adolescent girls has been rolled out in some countries in the Global North and initial efforts are underway to roll out HPV vaccinations for young girls in some countries in the Global South. Vaccinating young girls against HPV may provide additional protection against cervical cancer, particularly if the young women acquire HIV as they get older. Studies have shown a higher rate of cervical cancer among women living with HIV. Increasing access to HPV vaccinations is therefore an important service for young women. *[See also Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*

## What Works—*Prevention for Young People: Increasing Access to Services*

1. Providing clinic services that are youth friendly, conveniently located, affordable, confidential and non-judgmental can increase use of clinic reproductive health services, including VCT.

### *Promising Strategies:*

2. Youth-friendly condom distribution can help young people feel more comfortable accessing condoms.

## EVIDENCE

### I. **Providing clinic services that are youth-friendly, conveniently located, affordable, confidential and non-judgmental can increase use of clinic reproductive health services, including VCT.**

- ▶ A review of HIV prevention interventions among youth from 80 developing countries found evidence that youth-friendly services increase young people's use of health services (Ross et al., 2006). (Gray III) (*health services, youth*)
- ▶ A survey of 445 young women with access to a youth-friendly clinic in **Mozambique** demonstrated high levels of knowledge to avoid risk of HIV acquisition and low rates of HIV compared to HIV prevalence in the same city. In 1999, Adolescent and Youth Friendly Services (SAAJ) was created in the capital city, Maputo. The service was part of a multidisciplinary project that provides young people with sexual and reproductive health services with a no cost clinic. In October 2001, the clinic offered HIV testing and counseling. From 1999 to 2003, approximately 23,000 adolescents attended the clinic. In 2002, a sample of 435 young women completed a questionnaire and lab exams. The level of HIV knowledge was high, with correct answers about the effectiveness of condoms at 96% and 74% knowing that healthy looking people can transmit HIV. Of the young women, 44.4% had sexual intercourse with occasional partners. Of the young women, only 4% tested positive for HIV, while the general seroprevalence for Maputo City was 17.3% (Melo et al., 2008). (Gray III) (*HIV testing, youth, health services, Mozambique*)
- ▶ A survey conducted between 2000 and 2002 in **Madagascar** evaluating the development and promotion of a network of youth-friendly, private sector clinics offering HIV testing, STI treatment, and other reproductive health services, found that the number of youth seeking services at these clinics rose dramatically, from 527 to 2,202 youth (predominately female), over two years. In addition to offering confidential, convenient, and affordable services by nonjudgmental providers to attract youth to the clinics, mass media and face-to-face communication campaigns using peer educators, television and radio spots, television talk shows, films, and mobile condom use demonstration teams

were also effective in increasing use of the clinics (Neukom and Ashford, 2003). (Gray III) (*adolescents, HIV testing, STIs, treatment, health services, mass media, Madagascar*)

### Promising Strategies:

#### 2. Youth-friendly condom distribution can help young people feel more comfortable accessing condoms.

- ▶ A study in **Mexico** evaluating a program that made condoms available in schools found that 570 high school students used the program at least once during the three months in which the program operated in each school. More than 27% (158) used the program three or more times. On average, students used the program 2.09 times. Most stated that obtaining printed educational materials was one of the reasons to visit the program, however, sexually initiated students were more likely to report that obtaining condoms was one of the reasons to visit the program. The majority was satisfied with the program but 27.6% felt that more educational materials should be provided. In addition, significantly more males than females accessed the program. Nearly 33% of female users were planning to have unprotected sex compared to 12% of their male counterparts (Zellner et al., 2006). (Gray III) (*condoms, adolescents, Mexico*)
- ▶ Two social marketing interventions conducted between 2000 and 2002 in **Cameroon** and **Rwanda** promoted the use of community-based, youth-friendly condom sellers, which contributed to a decrease in reported ‘shyness’ by both sexes in purchasing condoms. In Cameroon, youth-friendly condom sellers were trained and identified as youth-friendly condom ‘outlets’ and sold more than 40,000 condoms to youth in 2002. In Rwanda, peer educators collaborated with the community-based condom sales agents to identify and promote youth-friendly condom sellers in the rural areas, resulting in a significant increase in youth reporting “knowledge of a nearby condom source,” and a decrease in reported shyness to buy condoms, from 79% to 56%, among females (Neukom and Ashford, 2003). (Gray IV) (*condoms, young people, self-perception, Cameroon, Rwanda*)

#### Gaps in Programming—Increasing Access to Services

1. Interventions are needed to increase community involvement and investment in programs that promote the introduction and utilization of youth-friendly services.
2. Laws and practices that obstruct adolescents’ access to services, such as parental consent requirements, age, and marital status requirements, must be reviewed and revised.
3. Adolescents who acquired HIV through perinatal transmission need information and services through adolescent-friendly HIV and family planning services.
4. Actions are needed to increase young people’s knowledge of when and where to access health services.

1. **Interventions are needed to increase community involvement and investment in programs that promote the introduction and utilization of youth-friendly services.** A literature review found that in order to increase utilization of youth friendly services, efforts to change community attitudes on adolescent sexuality were needed.
  - ▶ Gap noted, for example, in a **literature review** of youth-friendly service programs (Speizer et al., 2003).
2. **Laws and practices that obstruct adolescents' access to services, such as parental consent requirements, age, and marital status requirements, must be reviewed and revised.** Studies found that legal requirements restricted adolescents from getting tested for HIV even if they were sexually active and at risk for HIV.
  - ▶ Gap noted, for example, in **Democratic Republic of Congo** (Muyisa et al., 2008); **India, Botswana, Kenya, Malawi, Mozambique, Rwanda, Tanzania, Thailand, Trinidad, Uganda, Zambia and Zimbabwe** (McCauley, 2004) and **South Africa** (HRW, 2003a).
3. **Adolescents who acquired HIV through perinatal transmission need information and services through adolescent-friendly HIV and family planning services.** Studies found that health providers were unprepared to discuss HIV and contraception with adolescents who acquired HIV through perinatal transmission, despite the fact that significant numbers of these adolescents were already sexually active.
  - ▶ Gap noted, for example, in **Uganda and Kenya** (Birungi et al., 2009a,b,c) and **Uganda** (Nyombi et al., 2008).
4. **Actions are needed to increase young people's knowledge of when and where to access health services.** A UNESCO review found that young people lacked knowledge of where to access health services to meet their needs.
  - ▶ Gap noted in numerous countries (UNESCO, 2009).



# HIV Testing and Counseling for Women

Global consensus exists that “greater knowledge of HIV status is critical to expanding access to HIV treatment, care and support in a timely manner, and offers people living with HIV an opportunity to receive information and tools to prevent HIV transmission to others. Increased access to HIV testing and counseling is essential in working towards universal access to HIV prevention, treatment, care and support” (WHO and UNAIDS, 2007: 5). There is also wide recognition that the way HIV testing and counseling is undertaken is also critical and that there is an “urgency to clarify and articulate—in clear rights-based, operational terms—what is needed to ensure that people are able to obtain the full benefits from learning their HIV status for themselves and others; receive the best and most ethical care, diagnosis and treatment in health settings; and if positive, be supported to manage HIV infection, including prevention of transmission of HIV, and equipped to avoid, or seek redress for, stigma, discrimination and violence; and if negative, be supported through prevention strategies to stay negative” (UNAIDS Reference Group on HIV and Human Rights, 2007: 1).

---

“HIV testing can and should be expanded without disregard for human rights.”  
(Jurgens, 2007a: 1).

---

## More Testing Modalities Enable More People to Learn Their Status

Attention to testing in HIV/AIDS programming has resulted in a proliferation of HIV testing and counseling (HTC)<sup>1</sup> modalities. Some of these modalities include provider-initiated testing; couples counseling; client-initiated testing, also known as voluntary counseling and testing (VCT); and home-based testing, among others. Increased use of a variety of testing modalities has allowed more and more people know their HIV status. While only 0.5% of adults in reporting countries received HTC in 2005 (Stover and Fahnestock, 2006), by December 2009, nearly half of all people living with HIV were aware of their serostatus (UNAIDS, 2009e). Among the 45 countries that reported data on sex workers, the median proportion of sex workers who knew their status from a recent HIV test was 38% (UNAIDS, 2009e).

Experts disagree, however, on the best testing modality. Each modality has advantages and disadvantages. For example, home-based testing may reach people in rural areas where transport is a barrier, particularly for women. But home-based interventions need to have the infrastructure in place to provide safe counseling and testing, for example, provider capacity, availability of quality assurance, and the ability to protect fundamental human rights. Other studies show that different HIV testing strategies should be used for men and women: on-site testing for women and mobile HTC services for men (Zamanillo et al., 2008). A recent analysis in the *Lancet* called for universal HIV testing with immediate treatment access as a way to halt the epidemic (Granich et al., 2009). This “Test and Treat” approach has received a range of critiques about methodology and operational constraints from a number of experts worldwide (Cohen, Mastro, and Cates, 2009; Wilson, 2009b; Ruark et al., 2009; Epstein, 2009; Jurgens et al., 2009a; Hsieh and Arazoza, 2009; Jaffe, Smith, and Hope, 2009; Assefa and Lera, 2009). Further expert consultation on this topic is likely.

---

1 The term HIV testing and counseling (HTC) covers the range of options for ensuring that people know their HIV status. Different terminology has been used in HIV testing over the past three decades. Voluntary Counseling and Testing (VCT) has long been used to refer to client-initiated testing and can also refer to free-standing clinics where people go for the purpose of accessing HIV tests and counseling (Obermeyer and Osborn, 2007) at any facility that provides HIV testing. Many of the points in the “what works” list are based on evidence that discussed “VCT” and thus that term is used most commonly. “Provider-initiated testing” refers to HIV testing and counseling “which is recommended by health care providers to persons attending health care facilities as a standard component of medical care” (WHO, 2007c: 19). Additionally, reference is made to “routine” or “opt-out” testing where HIV tests are given routinely unless a client decides specifically to “opt-out.”

## Equitable Access to Testing and Counseling Services Is Needed

To ensure universal access, expanding coverage of HIV testing and counseling for women is needed, both within and outside of antenatal care settings. [See also Chapter 9C-1. *Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*] Most women access HIV testing within maternal health services. “Pregnant women are disproportionately tested for HIV since they come into contact with the health system regularly” (Groves et al., 2009: 2). One study from India of 800 adult men and 800 recently pregnant women found even though women were over 80% less likely than men to be aware of HIV testing facilities or the existence of HIV testing and counseling, women were more than twice as likely to have had an HIV test (Khale et al., 2008). A review of literature from 1980 to 2008 on gender-equitable services in rural India found that “men sought testing out of personal concern, whereas women utilized testing on the recommendation of, and in some cases reported mandatory testing by, their antenatal provider (Sinha et al., 2009: 200). Analysis of 2005–2006 DHS data from Zimbabwe with 6,997 women and 5,359 men found that HIV testing is higher for women (30%) than men (22%). Women are tested as part of routine counseling in ANC, “whereas for men it is volunteering to be tested” (Sambisa, 2008: i). In South Africa, counseling and testing for HIV is currently limited to antenatal care settings and a few stand-alone centers (Mullick et al., 2008).

The emphasis on counseling and testing for prevention of maternal to child transmission (PMTCT) means that women who are not pregnant are inadequately reached with HIV testing and counseling services. Few HIV testing programs that are not part of PMTCT services are designed to meet the needs of women. Health care providers often only refer women from vulnerable groups, such as sex workers, or women with HIV-related symptoms to testing and counseling, not recognizing the value of testing and counseling for all women. More recent data from some sites suggests that even outside of PMTCT clients, more women than men access HIV testing (Greig et al., 2008; Fernandez et al., 2008). One study in South Africa found that by not counting access to HTC via PMTCT services, females were still twice as likely as males to use HTC (Snow et al., 2008). “Men’s underutilization of HIV services significantly undermines prevention and treatment efforts” (Peacock et al., 2008: 1). The fact that fewer men get tested than women means that women end up bearing the burden of status disclosure to men, with attendant risk of stigma and abandonment (Greig et al., 2008).

---

“Compared to men, despite lower HIV services awareness, women had greater access to HIV testing services in already highly-utilized antenatal clinics.”  
(Khale et al., 2008).

---

## Women’s Barriers to Testing Go Beyond Access

For women, access to testing is not necessarily the key constraint to testing, although women certainly face a number of barriers to accessing testing. Barriers for women include lack of information, time, childcare, resources, and transportation. In a study of serological and demographic survey data collected between 1994 and 2004 for 8,790 men and women living in rural Tanzania, “knowledge of VCT emerged as one of the strongest predictors of VCT use among both sexes” (Wringe et al., 2008: 326). Women who had no prior knowledge of VCT had a much lower rate of completing VCT. Only 4 percent of women who had no prior exposure to VCT and indicated a desire to get tested actually completed the program. In comparison, 17 percent of women who had heard of VCT completed the program” (Wringe et al., 2008: 326). A comparative study in four Asian countries (India, Indonesia, the Philippines and Thailand) found that men were more likely to be tested if they had HIV-related symptoms, whereas women were more likely if their partner tested positive. Additionally, women who tested HIV-positive were more likely than men to be excluded from social interactions and events, forced to change residences or be physically assaulted (Paxton et al., 2005).

Many women, especially rural women, are unable to afford the time or money required to travel to a facility providing HIV testing. High rates of illiteracy mean that many women cannot access information about the benefits or availability of HIV testing. Women without access to treatment may not see any advantage in learning their HIV status. Stigma, gender inequalities, and fear of negative outcomes following disclosure are significant barriers. Fear of stigma and discrimination from health care providers is also a concern, especially for women from marginalized groups. *[See Chapter 11. Strengthening the Enabling Environment and Chapter 13. Structuring Health Services to Meet Women’s Needs]*

## Expanded Testing Must Not Put Women at Risk for Violence

While continuing to expand HIV testing and counseling options and opportunities is beneficial, it is important to ensure that testing is undertaken in ways that support women and girls. “Efforts to increase access to HIV testing must be accompanied by vastly scaled up efforts to confront the stigma and human rights abuses that deter people from seeking HIV tests in the first place....” (Jurgens and Cohen, 2007: 7). Rapid expansion of testing without ensuring informed consent and confidentiality could increase the risk of women being rejected by their families, losing their property, and suffering violence and abuse. A study of 245 women who were enrolled after pre-test counseling and prior to the collection of test results in Tanzania found that many women lack autonomy to make decisions about HIV testing. Fifty-two percent of the women, regardless of HIV serostatus, feared their partners’ reaction; principally fear of abuse or abandonment. Only a small percentage of women’s male partners said

they would come for HIV testing, regardless of the women's serostatus. Partner violence was a serious problem among many female VCT clients, with more than 25% of women agreeing with the statement "violence is a major problem in my life." Of the 245 women, one-third were HIV-positive and were 2.68 times more likely than HIV-negative women to have experienced a violent episode with a current partner. Young HIV-positive women ages 18–29 were ten times more likely to report partner violence than young HIV-negative women. If a woman underwent testing on her own without informing her partner, she risked being blamed as the source of infection (Maman et al., 2001a). [See also Chapter 11B. *Strengthening the Enabling Environment: Addressing Violence Against Women*]

Serodiscordance in a relationship can result in violence and other adverse outcomes for women. Focus groups with 18 women, 11 HIV counselors and 16 men in Tanzania found that divorce and abandonment were outcomes of serodiscordant test results within couples (Milay et al., 2008). A study with interviews of 26 women in Uganda who experienced violence and were in a serodiscordant relationship found that violence increased in their relationship after knowledge of HIV serostatus. None reported their experience to law enforcement authorities. Women who tested seronegative with a husband who tested HIV-positive reported that their husband deliberately tried to infect them with HIV by raping them in order to accuse the woman of having infected him, a more acceptable scenario for the man. Women who tested HIV-positive and had a seronegative husband were told to leave their homes (Emusu et al., 2009). Counseling concerning violence in pre- and post-HIV testing is very much needed. A review of the published scientific literature from 1990 to 2008 on couple-oriented HIV counseling and testing found that in five African countries, at least two-thirds of couples with at least one HIV-positive partner were HIV serodiscordant. HIV counseling has largely been organized on an individual and sex-specific basis. Interventions are needed to promote continuous long-term condom use within long-term serodiscordant partnerships with education and information on serodiscordance (Desgrées-Du-Loû and Orne-Gliemann, 2008).

Providers need the training, skills, and tools to enable them to identify women at risk of violence or other negative consequences. Program planners also need to develop links between HIV testing services and programs that address gender-based violence and services that support survivors of violence, and develop strategies to reach women who do not come to clinics because of violence. Women living with HIV have been found to be 2.7 times more likely to have experienced a violent episode from a current partner than HIV-negative women, and this rate is even higher among younger women (Maman et al., 2001a). However, some couples want to test together and should be able to do so. In five African countries, at least two-thirds of couples with at least one HIV-positive partner were serodiscordant; in half of them, the woman was the HIV-positive partner. To date, such couples are not among the 'key populations' to whom prevention interventions are targeted. Couple-centered initiatives for HIV testing have not been scaled up (Desgrées-Du-Loû and Orne-Gliemann, 2008). Some sites have had success in increasing couples HTC, such as the AIDS Information Center in Uganda, with over 700,000 clients serviced since 1990, with an increase of 9% of clients coming with their partner for HTC in 1992 rising to 28% of clients by 2000, of whom 18% were serodiscordant (Malamba et al., 2005).

## Women Must Have a Choice in Testing

Given the consequences they face, including violence, women must have the right to opt out of “routine” testing. [See also Chapter 9C-1. *Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*] Mandatory testing, besides being a human rights violation, may not lead to any positive outcomes in HIV prevention or treatment. For example, a study in Ethiopia found that of 4,000 HTC clients, 14% were being tested because they planned to be married. Among pre-marital testers, 93% of men and 89% of women reported that the HIV test was required. Male pre-marital testers were more likely than other single clients to believe couples tested for HIV before marriage do not need to test again for the duration of the marriage (40.2% of men; 30.4% of women). Male pre-marital HIV testers were 65% less likely than other single clients to intend to use condoms for HIV prevention and female pre-marital HIV testers were 65% less likely than other single clients to intend to use condoms for HIV prevention (Bradley et al., 2008b).

Provider-initiated testing and counseling, implemented appropriately, has the potential to increase testing. In the study of 1,268 respondents in Botswana, routine testing during antenatal care increased the proportion of women undergoing HIV tests by 15%, with a doubling of those on treatment (Weiser et al., 2006a). However, some members of the International Community of Women Living with HIV/AIDS (ICW) have reported that providers do not sufficiently advise women that HIV testing is a choice: “When I got pregnant at 16 I knew nothing. I didn’t know I had a choice not to be tested” (ICW member, South Africa, cited in Bell et al., 2007: 119). A study in the Ukraine in 2003 of 15 healthcare workers and of 40 HIV-positive women ages 16–33 who were either pregnant or had been pregnant in the last two years found that 24 of the women included in the study reported feeling that they had little or no choice in the decision-making process to be tested for HIV. Only 12 reported their decision to be tested to be an independent one (Yaremenko et al., 2004). Further efforts are needed to ensure that women are able to make their own choices in testing.

## Confidentiality and Consent Are Critical in Testing and Counseling

If women fear that they will be pressured into having a test or that the results will not be kept confidential, they may be less likely to use services. Focus group discussions along with interviews of twelve health professionals in Brazil found concern that partner notification would prejudice the provider-patient relationship, possibly generating situations of violence and stigma (Silva and Ayres, 2008). In interviews with HIV-positive women conducted in the Dominican Republic in 2004 (no numbers given), HIV-positive women reported that they did not access reproductive health services for fear of being subjected to an HIV test and losing

their jobs (Human Rights Watch, 2004a). Studies have found that women in Kenya will give birth at home rather than at a health facility in order to avoid being forced to take an HIV test, be tested without their informed consent, or have the confidentiality of their HIV tests results breached (Turan et al., 2008a). Further, a survey of 1,268 respondents in Botswana in 2004 found that while most participants reported being in favor of routine testing, 43 percent of participants believed that routine testing would lead people to avoid going to the doctor for fear of testing (Weiser et al., 2006a). In the same study, 14 percent agreed that routine testing leads to more violence against women and that 62 percent of women and 76 percent of men believed that they could not refuse an HIV test (PHR, 2007a).

Clearly, HIV testing which discourages women from needed health services contraindicates all public health benefits that could accrue from knowing one's serostatus. It is possible to increase access to HIV testing and more likely for women to engage in HIV prevention if counseling, confidentiality and consent are inherent to the HIV testing process (WHO and UNAIDS, 2007). Routinely offering and recommending HIV testing and counseling, but requiring that women specifically agree ("opt-in") may increase the numbers of those tested while respecting human rights (Jurgens, 2007a). Studies are needed to compare routine testing that includes an "opt-in" component with other approaches to what have been called "opt-out" testing, evaluating outcomes both in terms of respect for human rights and increasing the numbers of those who want to get an HIV test. The "opt-in" aspect of routine testing would mean that providers explain the benefits of HIV tests and recommend an HIV test. Additional research is needed to assess how to streamline but keep essential elements of pre- and post-test counseling (Jurgens, 2007a; Chersich and Temmerman, 2008). A study in Zimbabwe of 5,775 people based on survey data between 1998 and 2000, followed by a repeat survey in 2003 found that women who had had pre-test counseling were significantly more likely to return for their test results than those with no pre-test counseling (Sherr et al., 2007). For those who test HIV-negative, testing should be seen as part of an ongoing prevention strategy, with encouragement for those who are HIV-negative or untested to protect themselves and others from HIV transmission (Bell et al., 2007).

Interventions are needed to help those who have tested HIV-positive to prepare for disclosure. Policy documents and reports that strongly advocate for the involvement of people who have tested positive often do not consider the processes involved, the psychological impact of disclosure, and the potential impact on relationships or career prospects (Manchester, 2004). Possible approaches include disclosure plans, disclosure mediated by a friend or counselor, and couple counseling. Voluntary couples counseling can encourage men to reduce negative reactions and promote shared responsibility for reproductive health; however, women's confidentiality must be guaranteed, along with support (Cohen and Burger, 2000).

## Early Testing and Testing in the Era of Treatment

Acute HIV infection, when HIV is highly transmissible, can be tested as early as nine days following HIV acquisition via polymerase chain reaction (PCR) test (Cohen, 2009). However, this early stage of acute infection is when few know their HIV-positive serostatus. “Rapid, inexpensive, point-of-care tests that can determine both acute and established HIV infection status are already in development. Rapids tests will also be available to determine the HIV viral level and...CD4 count” (Mastro et al., 2008). Further guidelines to testing can be found at the WHO website <http://www.who.int/hiv/pub/vct/en/>.

It is important to note that some of the studies in this chapter were done before treatment was available. Now that treatment has become more available and accessible in many countries, it is expected that testing will increase. Treatment, alone, however will not be the only motivating factor in testing. Even in the absence of treatment, testing to know one’s status can improve one’s own health and may prevent HIV transmission.

## What Works—HIV Testing and Counseling for Women

1. Voluntary counseling and testing can help women know their HIV infection status and increase their protective behaviors, particularly among those who test HIV-positive.
2. Providing VCT together with other health services can increase the number of people accessing VCT.
3. Mass media interventions can increase the numbers of individuals and couples accessing VCT.
4. Community outreach and mobilization can increase uptake of VCT.
5. Home testing, consented to by household members, can increase the number of people who learn their serostatus.

### *Promising Strategies:*

6. Encouraging couple dialogue and counseling, including techniques to avert gender-based violence, may increase the number of couples who receive and disclose their test results.
7. Knowledge of treatment availability may increase uptake of HIV testing.
8. Promotion of VCT by people openly living with HIV may increase uptake of VCT.
9. Availability of VCT on-site at workplaces may increase uptake of VCT.
10. Counseling may reduce risk behaviors and HIV acquisition.
11. Incorporating discussions of alcohol use into VCT and HIV counseling may increase protective behaviors such as condom use, partner reduction and reduction of alcohol use.
12. VCT may be successfully provided to internally displaced people.
13. Support programs for rape survivors may be effective in encouraging survivors to test for HIV and access services.

## EVIDENCE

1. **Voluntary counseling and testing can help women know their HIV infection status and increase their protective behaviors, particularly among those who test HIV-positive.**
  - ▶ A randomized control trial in Tanzania, Kenya and Trinidad found that individuals over the age of 18 who received VCT significantly changed their risk behaviors compared

to those who received health education. Individuals reporting unprotected intercourse with non-primary partners declined by 35% for men who received VCT as compared to 13% for those receiving health information and by 39% for women who received VCT as compared to 17% who received health education. Individual men who had received VCT reduced the mean number of non-primary partners with whom participants had unprotected intercourse from 38% to 15% and women reduced the mean number of non-primary partners with whom participants had unprotected intercourse from 43% to 22%. VCT was based on a client-centered counseling model, including personal risk assessment and developed of a personalized risk reduction plan. Participants in the health information intervention watched a 15-minute video and participated in a discussion about HIV transmission and condom use. All precipitants received free condoms and a brochure showing correct condom use. Urine samples were taken to assess if STIs were new infections. A total of 3,120 individuals and 586 couples were enrolled in Kenya, Tanzania and Trinidad (Voluntary HIV-1 Counseling and Testing Efficacy Study Group, 2000) (Gray II) (*counseling, HIV testing, education, sex behavior, condom use, Tanzania, Kenya, Trinidad*)

- ▶ A systematic review of the efficacy of VCT in **Rwanda, Kenya, Tanzania, Trinidad, Thailand and Uganda** settings in studies from 1990 to 2005 found that a significant increase in condom use was reported in four studies conducted in free-standing VCT centers, antenatal clinics, and STI clinics. One study found significant reduction in HIV incidence among ANC women whose partners also underwent VCT. The randomized control design showed a significant decrease in unprotected sex among, a) individuals with non-primary partners, and b) between couples when they were tested together. VCT was shown to promote the most behavior change between couples tested together, and among HIV-positive individuals, especially with their non-primary partners. The review used a standardized protocol. Studies were included where the intervention used CDC or WHO VCT standards; was published between 1990 and 2005, were conducted in a developing country, and used a pre/post or multi-arm study design. Nine articles from six studies were identified. Designs were 1) randomized controlled trial, 2) pre/post studies, and 3) post-intervention only assessments. (Denison et al., 2008). (Gray II) (*counseling, HIV testing, couples, sex behavior, Rwanda, Kenya, Tanzania, Trinidad, Uganda*)
- ▶ A cross-sectional and nationally representative study from 2004 to 2005 in **Uganda** of 1,092 HIV-positive people, 64% female, from a HIV/AIDS Sero-Behavioral Survey which tested 18,525 adults found that knowledge of one's HIV status, both one's own and one's partner's, was associated with increased condom use. Those who knew their HIV status were three times more likely to use a condom at last sex encounter and those who knew their partners' HIV status were 2.3 times more likely to use condoms. Of all sexually active HIV-positive adults, 80% reported only one sexual partner in the previous year. Within the subset of married HIV-positive persons, 86% reported having had sex only with their spouses in the last year, including 75% of men and 96% of

women. Of all married HIV-positive persons, 13% reported only one sexual partner in their life (1% of men and 23% of women). Of the 81% of HIV-positive married persons who did not understand that HIV-discordance was possible within couples, 92% did not know the HIV status of their spouse (Bunnell et al., 2008). (Gray III) (*HIV testing, condom use, contraception, sexual partners, Uganda*)

- ▶ Interviews with 127 patients (42% male) in May 2006 in a large public hospital HIV clinic in Santiago, **Dominican Republic** found that sexually active patients reported using condoms significantly more frequently following their HIV diagnosis and were more likely to use a condom if they believed their partner did not have HIV. Most patients (72.4%) were sexually active. Following their diagnosis, 72.8% of sexually active patients used condoms more frequently. The most common reason cited for not using a condom after HIV diagnosis differed by sex: men cited decreased sexual pleasure (70%) and women reported that their partner had refused to use a condom (71.8%). Sexually active patients who believed that their partner did not have HIV were more than 16 times more likely to report condom use at their last sexual encounter than those who did not know their partner's HIV status. Those who reported their partner was HIV-positive were estimated to be more than twice as likely to use a condom as those who were unsure of their partners' HIV status. One-third reported using a condom every time they had sex following their diagnosis. A majority of men had ever paid for sex (80%), while only one woman (1.4%) had ever paid for sex (Sears et al., 2008). (Gray III) (*condom use, HIV testing, disclosure, Dominican Republic*)
- ▶ A longitudinal cohort study in **Mozambique** from 2002 to 2003 with 450 people who participated in VCT groups and 504 people who were not in VCT groups found that those participating in VCT groups increased condom use while those not in VCT groups did not. Three visits were required for the VCT group, which included both testing and counseling components. Those who did not attend VCT attended outpatient ANC clinics. Reported condom use always or sometimes was not significantly different between VCT and non-VCT groups at baseline, but was significantly higher at follow-up. Condom use at most recent sex was the same in both groups at baseline but became significantly more frequent in the VCT group. Condom use during the most recent sexual act increased over time for both HIV-positive and HIV-negative people, but the increase was greater in those who were HIV-positive. Change was most significant for those with no literacy skills, showing the importance of interpersonal communication: for those attending VCT an increase from 10% to 64% at the end of the project (Mola et al., 2006). (Gray III) (*counseling, HIV testing, condoms, Mozambique*)
- ▶ A study of 963 cohabitating heterosexual couples with one HIV-positive and one HIV-negative partner in **Rwanda**, found that less than 3% reported condom use prior to VCT. The frequency of sex did not change after joint VCT, but the proportion of reported contacts with a condom increased to over 80% and remained stable through 12 months of follow-up. Couples with regular appointments thorough one year reported

more frequent intercourse with condoms than couples with missing appointments. At baseline, 21% of HIV-positive men and 15% of HIV-negative men in discordant couples reported at least one sexual encounter outside the marriage in the last three months. These contacts represented 7% of all acts of intercourse in the three months preceding the study, decreasing to 3% during the first year of follow-up. Thirteen percent of incident HIV infections were acquired from an outside partner (Allen et al., 2003). (Gray III) (*counseling, HIV testing, couples, condom use, Rwanda*)

- ▶ A quantitative study in Zimbabwe of 4,429 young men and women, complemented by informal confidential interviews and focus group discussions, found that young women found to be HIV-positive in the survey were almost two and a half times more likely to report consistent condom use if they previously had an HIV test (Gregson et al., 2002). (Gray III) (*counseling, HIV testing, condom use, Zimbabwe*)
- ▶ A qualitative study of in-depth interviews with 15 women, 15 men and 15 couples in **Tanzania**, including 10 seroconcordant HIV-negative couples, found that among seroconcordant HIV-negative couples VCT was an important strategy to encourage couples who may be at risk for HIV infection to initiate preventive health behaviors to maintain their HIV-negative status. “Couples described testing as a preventive health measure they used prior to unprotected sexual intercourse, marriage or pregnancy” (Maman et al., 2001b: 597). (Gray III) (*counseling, HIV testing, couples, Tanzania*)
- ▶ A review of data from 157,423 visits, of whom 117,234 clients were first time clients from VCT centers in **Botswana** (Tebelopele) found that clients previously tested at the VCT centers were much more likely to use condoms than were first time clients. Free-standing VCT centers were initiated in 2000. Testing demand increased steadily from 2000 to 2002. A rapid increase of testing was found following the introduction of ARVs in 2002. By the beginning of 2003, more than 20% of clients reported that their reason for seeking a test was illness or wanted access to treatment. The percentage of clients who were HIV-positive increased from 26.3% before the launch of the national ARV program to 38.8% after ARVs were available. Among those seeking a test for health reasons, 77.7% were HIV-positive. Clients who came for testing as part of a couple made up 8.2% of all clients, with no change over the five year period. Discordant results were found in 23.1% of couples. Since 2003, 16 VCT centers were opened, with free anonymous HIV rapid testing with same day results. All counselors have 8 weeks of training in counseling and testing, and many are university educated. A one hour standardized counseling and testing protocol takes approximately one hour. Information was collected anonymously from clients including sexual history, reasons for seeking an HIV test and the test result. Multivariate analysis was used (Creek et al., 2006). (Gray IV) (*counseling, HIV testing, condoms, Botswana*)

2. **Providing VCT together with other health services can increase the number of people accessing VCT.** [See also Chapter 13. *Structuring Health Services to Meet Women’s Needs*]

- ▶ A study in **Ethiopia** found that incorporating VCT into a reproductive health facility greatly increased the numbers of those who accessed VCT, with those accessing VCT having high HIV prevalence rates. The study used 30,257 VCT client records from Family Guidance Association of Ethiopia (FGAE), a non-governmental non-profit providing reproductive health services in clinics. When both VCT and family planning were either in the same room or offered by the same counselor, clients were 1.9–7.2 to initiate HIV testing than if VCT and family planning were simply offered in the same health facility. Relative to facilities co-locating services in the same compound, those offering family planning and HIV services in the same rooms were 2–13 times more likely to serve atypical family planning client-types than older, ever-married women. Facilities where counselors jointly offered HIV and family planning services and served many repeat family planning clients were significantly less likely to serve single clients relative to older, married women. Younger, single men (78.2%) and older, married women (80.6%) were most likely to self-initiate HIV testing, while the highest HIV prevalence was seen among older, married men (20.5%) and older, married women (34.2%). FGAE attracts both pregnant women, who are at high risk for HIV, and young, single people who want to initiate VCT (Bradley et al., 2008a). (Gray III) (*counseling, HIV testing, family planning, health facilities, Ethiopia*)
- ▶ From 1985–2000, the Group Hatien d’Etude du Sarcome de Kaposi et des Infections Opportunistes (GHESKIO), an NGO with a VCT center in **Haiti** increased the integration of additional health services. The number of new people seeking VCT increased from 142 in 1985 to 8,175 in 1999, a 62-fold increase. Of new adults seeking VCT in 1999, GHESKIO provided AIDS care to 17%, TB treatment to 6%, STI management to 18%, and 19% became new users of a contraceptive method. Of the 6,709 adults coming for VCT in 1999, 36% benefited from at least one service visit. Of the 2,013 adults who tested HIV-positive, 56% benefited from at least one service visit and 21% referred a sexual partner for VCT. One hundred ten HIV-negative sexual partners of HIV-positive individuals were identified, and of these, 85 returned for repeat HIV testing after a median of 18 months, and none of these 85 seroconverted. The prevalence of HIV among patients served by GHESKIO was 30% or six times the prevalence rate in the general adult Haitian population. On their first visit to GHESKIO, individuals are assisted to develop a personalized HIV risk reduction strategy. Patients reporting a history of cough for more than 3 weeks are provided on-site, same day TB screening including clinical exam and sputum smears. Patients with STI symptoms are provided treatment based on algorithms. All patients are screened for syphilis. Same day pregnancy tests are conducted. Condoms are provided. All patients are encouraged to obtain family planning. Post-test HIV-negative patients are counseled in groups of 5. All HIV-positive patients are counseled individually, encouraged to refer sexual partners and offered comprehensive HIV care, including HAART for all adult patients, PMTCT, long-term access to HAART when women give birth, treatment of opportunistic infections, home care, education to family care givers, and nutritional support. Availability of

other reproductive health services may encourage people to access VCT despite the fact that “people diagnosed with HIV/AIDS in Haiti still risk tremendous social stigmatization.” The study conducted a retrospective review of patient records (Peck et al., 2003). (Gray III) (*HIV testing, counseling, contraception, condoms, STIs, Haiti*)

- ▶ A 2005–2007 study in **Kenya** using a pre-post design found that provider-initiated testing and counseling is feasible and acceptable in family planning services, does not adversely affect the quality of the family planning consultation and increases access to and use of HIV testing in a population who would benefit from knowing their status. One group of 28 family planning providers were trained for nine days in integrated family planning and HIV testing and counseling to family planning clients, using rapid HIV tests and another group of 47 planning providers were trained for five days to refer clients interested in a HIV test. Staff in the intervention clinics were updated on contraceptive methods, STIs and HIV, reproductive rights, informed choice and consent, safe sex and dual protection, values clarification, risk assessment and reduction, record keeping and logistics management. The proportion of clients requested an HIV test increased from 1% to 26%, with approximately one-third of these never having had an HIV test previously. In 2003, 38% of all women who had intercourse in the previous month and 44% of unmarried women who had had intercourse in the previous month reported using a contraceptive method, with the majority of these women attending clinics for family planning. The study took place in twenty-three public sector hospitals, health centers and dispensaries. Focus group discussions were held prior and following the intervention. Implementing the intervention required two to three minutes per client. For clients who decided to have an HIV test with the family planning provider, the median time increased from 10 minutes to 17 minutes, which included time both for the HIV test and counseling the client on the result. The incremental cost per family planning client ranged from USD\$5.60 per client in the hospital to \$9.63 in the dispensary and compares favorably with an estimated cost of \$27 per client for stand-alone VCT (Liambila et al., 2009). (Gray III) (*HIV testing, family planning, health facilities, Kenya*)
- ▶ Among 7,400 patients between 2006 and January 2008 in a **Malawian** STI clinic who had not yet had an HIV test were offered VCT, of whom 49.6% accepted. Uptake was higher among males (51.5% for men compared to 48.3% for women). Including those reporting a previous positive result, overall HIV prevalence was 41%: 43% among women and 38% among men (Powers et al., 2008b). (Gray IV) (*counseling, HIV testing, Malawi*)
- ▶ A program in **Nigeria** found that although free HIV testing is available in ANC, most women refuse to test in ANC settings due to issues of confidentiality related to their husbands, along with lack of HIV treatment options. When VCT is offered in primary health care posts for treatment of malaria in children, women who had not previously tested for HIV were more likely to test (Olebara and Barrera, 2008). (Gray V) (*HIV testing, antenatal care, malaria, Nigeria*)

- ▶ At a provincial hospital in Mombasa, **Kenya**, HIV testing and counseling were offered to women bringing their child for immunization or acute care services. Most women said HIV testing should be offered in these clinics (472/493, 95.7%), with many citing the benefits of regular testing and entry to prevent mother-to-child transmission. Of 500 women, 416 (83.4%) received test results, 97.6% on the same day. After 50 participants, point-of-care testing replaced laboratory-based rapid testing. Uptake increased 2.6 times with point-of-care testing. Of 124 women who had not accessed HIV testing during pregnancy, 98 tested in the study (79.0%) (Chersich et al., 2008a). (Abstract) (*HIV testing, counseling, health facilities, Kenya*)

### 3. Mass media interventions can increase the numbers of individuals and couples accessing VCT.

- ▶ A **Cochrane review** of mass media interventions for promoting HIV testing, which included 35 references with two randomized trials, three non-randomized controlled studies and nine interrupted time series found that mass media was significantly effective in promoting HIV testing (Vidanapathirana et al., 2005). (Gray I) (*mass media, HIV testing*)
- ▶ A mass media campaign in **Zimbabwe** disseminated via TV, radio and print that encouraged heterosexual couples to access VCT increased the proportion of couples accessing VCT significantly. Comparison of routine clinic data between the proportion of couples attending VCT before and after the launch of the campaign found that couples accessing VCT increased from 13% in 2005 to 18% in 2007. Survey data showed that individuals with exposure to the campaign were more likely to access VCT than those without exposure to the campaign (Dhlamini et al., 2008). (Gray V) (*mass media, counseling, HIV testing, Zimbabwe*)

### 4. Community outreach and mobilization can increase uptake of VCT.

- ▶ A study from 2002 to 2003 in rural **Thailand** with people above age 16 found that mobile HIV testing increased the number of people testing. Of the 427 people who were tested via mobile VCT, 131 had had a prior HIV test. Prior to testing, HIV/AIDS education was launched in communities. Two-way communication and group discussions were used for the educational programs conducted at a convenient location in the community. Confidential or anonymous testing was provided. Those who chose confidential testing were provided a study unique number for receiving test results. People received pre-test counseling, HIV testing, and post-test counseling and test results by trained counselors. Non-testers were randomly selected for interviews and testers were also interviewed. 427 people who participated in community based VCT were compared to 389 community non-testers. A total of 31 village leaders, 54 testers and 43 non-testers were interviewed in-depth and all three groups viewed community testing positively due to convenience and no cost (Kawichai et al., 2007). (Gray III) (*counseling, community outreach, HIV testing, Thailand*)

- ▶ A 2006 and still ongoing study until 2011 that randomized communities to either a multilevel intervention providing community-based HIV mobile VCT in 48 communities in **Tanzania, Zimbabwe, South Africa and Thailand** or clinic-based VCT found that HIV testing uptake increase three-fold in the communities with mobile testing, with 21,391 people tested. In the intervention communities, community mobilization and post-test services of support groups for both HIV-positive and HIV-negative to maintain negative status were instituted, counseling, training workshops, stigma reduction workshops, and information sharing sessions as well as mobile VCT. In addition, outreach workers and volunteers were used to increase access to VCT and make awareness of HIV status more acceptable in community settings (Khumalo-Sakutukwa et al., 2008). (Gray III) (*counseling, HIV testing, support groups, community outreach, Tanzania, Zimbabwe, South Africa, Thailand*)
- ▶ A study in **Zambia** from 1995 to 2000 found that community workers who promoted couples counseling in their neighborhoods significantly increased the numbers of couples who tested jointly. Previously tested couples were trained for three days to be community outreach workers: “Like you, I am married and have been tested with my spouse.” Community workers emphasized the importance of testing together and explained that one person in a couple can be HIV-positive and the other can be HIV-negative. Services were confidential. Complex questions were referred to counselors. Once outreach by community workers was discontinued, couples VCT dropped by 90%, from 230 couples per month to 20 couples per month when promotion was limited to mass media. Of the 8,500 cohabitating couples who sought HIV testing, 51% were concordant HIV-negative; 26% were concordant positive; and 23% were couples with one partner positive and the other partner negative. Each couple spoke privately with a counselor in deciding to test. Individual counseling was provided on request. Transport, childcare, lunch and counseling were provided whether couples elected to test or not (Chomba et al., 2008). (Gray III) (*counseling, HIV testing, community outreach, couples, Zambia*)
- ▶ A randomized controlled trial in **Thailand** found that mobile VCT offered at no cost in community public settings along with entertainment and education increased VCT uptake. VCT uptake increased from 18 to 25 people per day. The median age of those accessing VCT decreased from 38 to 35 years of age. Between February 2007 and December 2008, 6,996 people accessed VCT with 1.6% testing HIV-positive (Kawichai et al., 2008). (Abstract) (*counseling, HIV testing, Thailand*)
- ▶ A six-week awareness campaign in six rural villages in **Tanzania** that was evaluated by a randomly selected pre-post household survey for 120 households and VCT monitoring data found that mobile VCT resulted in the direct testing of 1,116 people, 54.5% male or 6.7% of the total adult population in the villages, with a significant increase in community members reporting having ever been tested for the first time (Churchman et al., 2008). (Abstract) (*counseling, HIV testing, Tanzania*)

- ▶ Between June and December 2007, mobile VCT in a rural area in **Zambia** with no health facilities coupled with drama performances to create awareness and used tents for counseling rooms, resulting in 2,487 people accessing VCT, of whom 1,167 were women. Of 290 people testing positive (an 11.6% incidence rate), 179 were female and 190 were referred for services (Chimba Kasoma, 2008). (Abstract) (*counseling, HIV testing, Zambia*)
- ▶ A project in **Kenya** using community mobilization resulted in reaching over 127,000 people with HIV prevention information out of which over 42% were counseled and testing. Of these, 2,630 were found HIV-positive and were referred for care while HIV-negative people were counseled on risk reduction (Ngede et al., 2008). (Abstract) (*mass media, counseling, HIV testing, Kenya*)
- ▶ Community outreach and mobilization through youth peers who go door to door, using speakers on cars to encourage VCT, dissemination of information and discussions at community events in rural **South Africa** resulted in increased numbers of youth accessing VCT services (Ngubane et al., 2008a). (Abstract) (*community outreach, youth, peer education, counseling, HIV testing, South Africa*)
- ▶ An HIV/AIDS hotline was introduced in **Egypt**, resulting in over 145,000 calls, where more than 75% were by men. Data at VCT sites demonstrated that about 20% of clients had been referred by the hotline (Bahaa et al., 2008). (Abstract) (*mass media, HIV testing, Egypt*)

5. **Home testing, consented to by household members, can increase the number of people who learn their serostatus.**

- ▶ An analysis of a non-randomized study from rural Southwestern **Uganda** with 1869 participants (Wolff et al. 2005) found “very high acceptability and uptake of VCT results when testing and or results were given at home compared to the standard (facility)” (Bateganya et al., 2007: 15). In Zambia, the participants who were offered home-based testing were “4.6 times more likely to accept VCT,” while in Uganda, during the year that HIV results were offered at home, “participants were 5.23 times more likely to receive their results” (Bateganya et al., 2007: 15). Overall, the review found that “home-based testing may be an effective way of delivering HIV prevention services in populations not targeted by earlier efforts” and that “the advantages of home-based VCT may outweigh any potential adverse effects that are associated with premature disclosure from home-based VCT” (Bateganya et al., 2007: 16). However, “given the limited extent of literature and the limitations in existing studies, large-scale implementation is premature. This is particularly true in developing countries, especially in sub-Saharan Africa, where the cost and feasibility of implementing large-scale home-based testing programs is wrought with infrastructure problems, as well as cost/benefit issues in areas where HIV prevalence may differ.” (Bateganya et al., 2007: 16). These two studies were included in a 2007 *Cochrane* review of home-based HIV VCT interventions in developing countries (Bateganya et al., 2007). (Gray I) (*counseling, HIV testing, Zambia, Uganda*)

- ▶ In **Uganda**, through mobile and home-based VCT, the proportion of adults in Uganda who have ever tested and received their HIV test results increased from 4% in 2000 to 21% in 2006 (UNAIDS, 2009b). (Gray III) (*counseling, HIV testing, Uganda*)
- ▶ Surveys between 2005 and 2007 that assessed door-to-door VCT in a rural district in **Uganda** found that the proportion of those who ever tested for HIV increased from 20% to 63%. The proportion of people disclosing their serostatus increased from 72% to 81%. Among HIV-positive people who knew their serostatus, condom use at last sex increased from 15% to 40% (Nuwaha et al., 2009). (Gray III) (*HIV testing, condoms, disclosure, Uganda*)
- ▶ A study nested in a cluster randomized trial in **Uganda** which compared home and clinic-based methods of HIV testing for family members of HIV-positive patients found that those reached at home were more likely to be tested for HIV. Of a total of 7,184 household members, 3,974 (55% female) were reached at home. Assuming HIV prevalence of 7%, 56% of HIV-positive household members were identified at home compared to 27% in the clinic. HIV-positive patients were given free HIV testing vouchers and encouraged to invite members of their household to the clinic; or people were visited at home. Of 148 spouses of HIV-positive clients getting treated, 47% were HIV-negative (Lugada et al., 2009). (Gray V) (*counseling, HIV testing, Uganda*)
- ▶ A study in Kampala, **Uganda** from October 2005 to October 2007 identified many otherwise undiagnosed HIV-positive adults through home-based testing that was conducted if index clients had disclosed their serostatus to a household member, consented to the visit, or requested counselor-assisted disclosure. Of 4,662 household members visited, 90% agreed to VCT. Of the index clients, 75% were female. HIV prevalence was 19% among adults as compared to the Kampala average as per the 2004/2005 HIV/AIDS Sero-Behavioral survey. Prevalence was higher among women (21%) as compared to men (14%). Same day results were given using Determine for screening, Statpak for confirmatory and Unigold for a tie-breaker (Nawavvu et al., 2008). (Abstract) (*counseling, HIV testing, Uganda*)
- ▶ Four hundred community mobilizers and 75 trained counselors going house to house in rural western **Kenya** increased counseling and testing. Using handheld computers, census data was recorded, whether household entry was allowed, consent for testing, age, sex, and HIV test results. Those consenting who were above age 12 were counseled and tested. The door to door census found 8,999 households containing 35,976 people, of whom 52% were women. All but 13 allowed entry. Only 24% had previously had an HIV test. Of 19,034 counseled, 18,229 had HIV tests. All who tested positive were referred for care; those who tested HIV-negative were counseled on lowering risk behaviors (Kimaiyo et al., 2008). (Abstract) (*community outreach, counseling, HIV testing, Kenya*)

## Promising Strategies:

### 6. Encouraging couple dialogue and counseling, including techniques to avert gender-based violence, may increase the number of couples who receive and disclose their test results.

- ▶ A study of 245 women who were enrolled after pre-test counseling and prior to the collection of test results in Tanzania found that disclosure of HIV serostatus was significantly higher for couples who discussed HIV testing prior to coming to the health center: 94.6% of women who told their partners they were going to be tested disclosed their HIV results to their partners within three months after testing, compared to only 44% of women who did not tell their partners that they were going to be tested (Maman et al., 2001a). (Gray IV) (*HIV testing, counseling, couples, disclosure, Tanzania*)
- ▶ A qualitative study of in-depth interviews with 15 women, 15 men and 15 couples in Tanzania, including 10 seroconcordant HIV-negative couples, found that among seroconcordant HIV-negative couples VCT was an important strategy to encourage couples who may be at risk for HIV infection to initiate preventive health behaviors to maintain their HIV-negative status. “Couples described testing as a preventive health measure they used prior to unprotected sexual intercourse, marriage or pregnancy” (Maman et al., 2001b: 597). (Gray IV) (*counseling, HIV testing, couples, Tanzania*)
- ▶ A study in Rwanda and Zambia that promoted couples’ voluntary counseling and testing resulted in 1,411 couples requesting couples counseling and testing. Cohabiting couples in Africa represent a large HIV risk group. (Allen et al., 2007b). (Gray V) (*counseling, HIV testing, couples, Rwanda, Zambia*)
- ▶ An intervention in one district in Uganda in which 35 VCT volunteer couples were oriented on couple dialogue techniques to avert gender based violence and who subsequently counseled an additional 206 couples greatly increased the numbers of couples who were willing to know their HIV status. VCT volunteers from eight civil society organizations were trained in rights based community mobilization approaches to preventing violence and skills to integrate GBV interventions into VCT services. In 2006 and 2007, out of 206 couples that were counseled in the GBV intervention area, all received their HIV test results. In comparison, 5% of 8,708 couples that received HIV counseling and testing service in the non-GBV intervention area received their test results. Couples were ten times more likely to receive results in GBV intervention areas than in non-GBV intervention areas (Wandera et al., 2008). (Abstract) (*counseling, HIV testing, violence, Uganda*)

### 7. Knowledge of treatment availability can increase uptake of HIV testing. [See also Chapter 7A. Treatment: Provision and Access]

- ▶ A cross-sectional study during 2004 of 184 men and women (121 were women) attending a hospital for any reason in South Africa found a significant association for women between those who knew someone on antiretroviral therapy and having been tested

for HIV. Among women, 68% of those who knew someone on ARVs had had an HIV test as compared to 48% of women who had a HIV test who did not know someone on ARVs (Mfundisi et al., 2005). (Gray IV) (*HIV testing, treatment, South Africa*)

- ▶ A study of 12 focus group discussions, half with women, in Uganda found that participants affirmed the incentive for testing was the possibility of accessing free ART. Prior to ART, “testing for HIV was perceived as soliciting a death warrant” (Nyanzi-Wakholi et al., 2009: 903). ART was preferred over traditional herbal treatment because it had clear dosages, expiry dates and was scientifically manufactured. ART was described as restoring physical health allowing patients to resume their daily activities. Men deliberately postponed accessing HIV testing until they were evidently sick. “Participants commended pre- and post-test counseling for enabling them to accept their status, cope with depression, stigma and thoughts of death... They emphasized the need for counseling to be continuous and not a one time event” (Nyanzi-Wakholi et al., 2009: 905). (Gray V) (*HIV testing, counseling, treatment, Uganda*)

#### 8. Promotion of VCT by people openly living with HIV may increase uptake of VCT.

- ▶ A study of ten comparable small and medium scale enterprises was split into two matched groups of five each in **Nigeria**. One group of companies recruited, trained and deployed a person each who was living openly with HIV. Each of the ten enterprises nominated and trained two peer educators who conducted regular peer education sessions. After six months, the companies that had VCT promoted by a person living with HIV had four times the number of staff accessing VCT compared to those that did not (no numbers given) (Efuntoye et al., 2008). (Gray III) (*peer education, counseling, HIV testing, Nigeria*)
- ▶ A CD with taped testimonies of women who tested HIV-positive was shown in 21 clinics in **Mexico**. Of the 1,869 women who tested in a ten-week period, 60% said they were motivated to access HIV testing because of the taped testimonies of other women (Guthreau et al., 2008). (Gray III) (*peer education, counseling, HIV testing, Mexico*)

#### 9. Availability of VCT on-site at workplaces may increase uptake of VCT.

- ▶ A cluster-randomized trial in **Zimbabwe** found that businesses randomized to on-site rapid HIV testing at their occupational clinic greatly increased uptake of VCT compared to vouchers for off-site VCT. Over 51% or 1,957 of 3,950 employees randomized to on-site testing had VCT compared to 19% or 586 of 3,532 employees randomized to off-site testing. Of those randomized to VCT through on site rapid testing, 88% were men; 12% were women. Of those randomized to VCT through off-site vouchers, 86% were men, 12% were women. Rapid testing was linked to basic HIV care which did not include antiretroviral therapy (Corbett et al., 2006). (Gray II) (*counseling, HIV testing, workplace, Zimbabwe*)

## 10. Counseling may reduce risk behaviors and HIV acquisition.

- ▶ A study of voluntary HIV counseling and testing in **Tanzania** found that a personalized risk reduction counseling session of 40 minutes was more effective in reducing risk behaviors and STIs than watching a 15-minute video. Using information from the formative research, the counseling sessions entailed a personalized risk assessment and a personalized risk reduction plan based on level of knowledge, interpersonal situation, specific risk behaviors, and readiness to change. Participants were randomly assigned to receive either HIV counseling and testing or a health information intervention where participants watched a 15-minute video in the presence of a health information officer, who responded to their questions at the end. Couples were randomized together so that both members always received the same intervention. Participants enrolling as couples were counseled together or individually, depending on their choice. Each couple member was given individual time with the counselor. Test results were initially given individually, and then the couple was encouraged to share their results in a joint counseling session. Post-test counseling then proceeded with both members of the couple. All participants were given condoms at no cost and tested for STIs and treated as appropriate if found positive. A total of 1,427 participants were enrolled (500 men, 489 women, and 222 couples). HIV prevalence among those assigned to received HIV counseling and testing at baseline was 21%—13% for men and 29% for women. After 6 months, although there was a reduction in risk behavior for both groups, individuals who received the counseling and testing intervention showed significantly reduced risk behavior (26% to 16%) than those who received health information only (26% to 23%) (Kamenga et al., 2001). (Gray II) (*counseling, HIV testing, sex behavior, couples, Tanzania*)
- ▶ A prospective cohort study of 250 HIV-negative women and 250 HIV-negative men at increased risk for HIV acquisition in India who received risk reduction counseling at the start, six months later and twelve month later had low rates of HIV acquisition, and reported statistically significant reductions in the number of different sex partners, the number of new partners and the proportion of sexual encounters with nonprimary partners. Only two participants, one male and one female, seroconverted over 457 person years of follow up. All attended an STI clinic and had VCT. To be considered high risk, all either had to have had five or more different sexual partners; had a diagnosed STI; or having had vaginal or anal sex with a known HIV-positive partner. Counseling covered prevention techniques and reducing the number of partners. Condom use was demonstrated and condoms were provided free of charge. Condom use increased. Sessions lasted about one hour (Solomon et al., 2006). (Gray III) (*sex behavior, sexual partners, counseling, HIV testing, India*)

## 11. Incorporating discussions of alcohol use into VCT and HIV counseling may increase protective behaviors such as condom use, partner reduction and reduction of alcohol use.

- ▶ A 2006 study in **Kenya** with intervention and comparison sites and follow up data was conducted at 15 static and 10 mobile VCT sites with 1,073 VCT clients found that clients from interventions sites displayed more concrete intentions to change behavior, stating that they would reduce or stop their alcohol intake. The intervention consisted of alcohol counseling, which increased the VCT component time by seven minutes. Providers did not find this burdensome. Over 90% of clients reported being receptive to discussions about alcohol use while attending a VCT center. Alcohol use is associated with high-risk sexual behavior and reduced inhibitions (Woolf and Maisto, 2008; Kilonzo et al., 2008b; Zablotska et al., 2009; Ghebremichael et al., 2009; Kalichman et al., 2007; Fisher et al., 2007). Alcohol users are more likely to perpetrate intimate partner violence. [*See also Chapter 11B. Strengthening the Enabling Environment: Addressing Violence Against Women*]. Clients were screened with AUDIT and CAGE consisting of questions concerning alcohol use, such as feeling the need to cut down on drinking; feeling guilty about drinking; seeking help for drinking, etc. (Mackenzie et al., 2008). (Gray III) (*sex behavior, violence, HIV testing, alcohol, Kenya*)
- ▶ A study from 2004 to 2007 with 425 women in **South Africa** at high risk of alcohol abuse found that HIV education resulted in uptake of HIV testing, with 276 or 65% agreeing to HIV testing. HIV education addressed fear of stigma and testing for HIV, along with access to prevention, treatment and care services. Of the 425 women, 200 or 74% reported drinking five or more drinks containing alcohol on a typical day (Luseno and Wechsberg, 2009). (Gray III) (*education, alcohol, HIV testing, South Africa*)
- ▶ A randomized community field trial in **South Africa** found that a brief HIV and alcohol risk reduction workshop reduced HIV-related risks among drinkers. 117 men and 238 women were randomly assigned either a three-hour skills training on HIV-alcohol risk reduction or a one-hour HIV-alcohol information session. The three-hour program resulted in significant declines in unprotected intercourse and sexual partners, alcohol use prior to sex and increased condom use compared to the one-hour session, evaluated six month post intervention. However, effects were weakest for the heaviest drinkers (Kalichman et al., 2008). (Gray III) (*alcohol, sex behavior, sexual partners, South Africa*)
- ▶ A pilot study with 80 women in **South Africa** who reported recent substance use and sex trading were randomly assigned to a standard HIV prevention intervention or a woman-focused HIV prevention intervention. Those who participated in the woman-focused intervention reported greater decrease in unprotected sex with paying clients or with baseline than those in the standard prevention intervention. Those in the woman-focused group showed a large increase from 3% to 48% in any female condom use with boyfriends, while the standard group showed a smaller increase from 20% to 40%. Focus group discussions noted that drugs and alcohol were used prior to sex work to give the women courage to approach clients. In the woman-focused intervention

women learned violence prevention strategies such as staying sober to assess the situation, communication techniques, ways to exit a volatile situation and how to actively seek community resources. At baseline, although 77% considered their substance abuse a problem, only 26% knew about substance abuse treatment and only 7% had ever been in treatment. A reduction of 15% to 5% was observed in the proportion of women reporting daily alcohol use in the woman-focused group compared to a smaller decrease of 18% to 10% in the standard group (Wechsberg et al., 2006). (Gray III) (*sex behavior, alcohol, substance abuse, violence, South Africa*)

12. **VCT can be successfully provided to internally displaced people.** [See Chapter 4D. Prevention for Key Affected Populations: Women and Girls in Complex Emergencies]
13. **Support programs for rape survivors can be effective in encouraging survivors to test for HIV.** [See Chapter 4D. Prevention for Key Affected Populations: Women and Girls in Complex Emergencies]

#### **Gaps in Programming—HIV Testing and Counseling for Women**

1. Interventions are needed that support women safely through the disclosure process.
2. Efforts are needed to identify opportunities to offer HIV testing and counseling in health care settings that might reach women who are otherwise inaccessible, such as within post-abortion care services.
3. Further efforts are needed to ensure optimal counseling strategies and topics, such as pre- and post-test counseling and detailed information about treatment and the risks within marriage.
4. Interventions are needed to reduce the risk of provider coercion in HIV testing, particularly in provider-initiated testing and counseling.
5. Further efforts are needed to make HIV testing and counseling available and accessible to young people.

1. **Interventions are needed that support women safely through the disclosure process.** [See also Chapter 9C-1. *Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*] Studies found that women experienced increased violence and abandonment following disclosure.
  - ▶ Gap noted, for example, in **Uganda** (Emusu et al., 2009); **Brazil** (Silva and Ayres, 2008); and **Tanzania** (Milay et al., 2008 and Maman et al., 2001a).

2. **Efforts are needed to identify opportunities to offer HIV testing and counseling in health care settings that might reach women who are otherwise inaccessible, such as within post-abortion care services.** Studies found that abortion and post-abortion care services failed to offer HIV testing to women.
  - ▶ Gap noted generally by Askew and Berer, 2003; de Bruyn, 2003 and Oosterhoff et al., 2008.
3. **Further efforts are needed to ensure optimal counseling strategies and topics, such as pre- and post-test counseling and detailed information about treatment and the risks within marriage.** Studies found that women who went for an HIV test prior to marriage felt they did not need another HIV test for the duration of the marriage and that pre-test counseling was important.
  - ▶ Gap noted, for example, **globally** (Jurgens, 2007a); in **Tanzania** (Mmbaga et al., 2009); in **Ethiopia** (Bradley et al., 2008b); and **Zimbabwe** (Sherr et al., 2007).
4. **Interventions are needed to reduce the risk of provider coercion in HIV testing, particularly in provider-initiated testing and counseling.** Studies found that significant numbers of women felt that they could not refuse an HIV test or that HIV testing was mandatory.
  - ▶ Gap noted, for example, in **South Africa** (Groves et al., 2009); **Botswana** (PHR, 2007a and Weiser et al., 2006a); **China** (Li et al., 2007); and **Ukraine** (Yaremenko et al., 2004).
5. **Further efforts are needed to make HIV testing and counseling available and accessible to young people.** [See Chapter 5B. *Primary Prevention for Young People: Increasing Access to Services*]

## Treatment

- A. Provision and Access
- B. Adherence and Support
- C. Reducing Transmission

HIV is a chronic, incurable illness requiring ongoing therapy. Antiretroviral therapy “is remarkably effective for infected persons who can receive treatment on an ongoing basis. Indeed, many people with HIV infection can now look forward to achieving undetectable viral loads and relatively normal lives and life spans—developments that were once hard to imagine... Unfortunately, only 20% of people with HIV infection in low- and middle-income countries know that they are infected, and less than a third of those who need therapy are receiving it” (Steinbrook, 2008: 886). The Millennium Development Goals include achieving universal access to HIV prevention, treatment, care and support by 2010 and to “halt and reverse the spread of HIV/AIDS by 2015.” As a recent report of the All Party Parliamentary Group on AIDS in the UK noted in July 2009, “We are not on track for either target” (All Party Parliamentary Group on AIDS, 2009: 5). In addition, all those millions of people who do get on treatment will need to continue being treated, cared for and supported for many decades to come.

Treatment for HIV begins prior to antiretroviral therapy with access to routine monitoring of HIV infection, including diagnosis of opportunistic infections, and routine testing of CD4 counts (WHO, 2009j, WHO, 2006b). Antiretroviral therapy is not curative—it suppresses but does not eradicate HIV-1 infection. Studies show, however, that ARV therapy does increase life expectancy of people living with HIV (The Antiretroviral Therapy Cohort Collaboration, 2008, Jahn et al., 2008, Chigwedere et al., 2008). Continuous therapy is important. With an inter-

ruption of therapy, the virus and risk for opportunistic infections increase, even in patients where the virus has been suppressed for long periods of time (SMART Study Group, 2006).

A recent review found that gender-specific differences in recommendations concerning initiation of therapy are not warranted (Florida et al., 2008). An analysis of United States Food and Drug Administration (FDA) databases also found “no clinically or statistically significant gender differences” in 48-week efficacy of ART in randomized controlled trials between 2000 and 2008 (Stubbel et al., 2009).

While there may not be a need for different recommendations for initiation of therapy by gender, there are indications that certain interventions can be highly beneficial to women specifically in treatment provision and access, adherence and support, and reducing transmission.

## 7A. Treatment: Provision and Access

Evidence has repeatedly demonstrated that antiretroviral therapy has been successfully accessed by both men and women with near perfect adherence, good patient retention, and good clinical outcomes in resource-poor settings common to many developing countries; results have been similar to those achieved in resource-rich countries. A systematic comparison of 4,810 treatment-naïve adult patients (51% female) from 18 HAART treatment programs in Africa, Asia

and South America (low-income settings) with 22,217 treatment-naïve adults (25% female) in 12 HIV cohort studies from Europe and North America (high-income settings) found that antiretroviral therapy is feasible and effective in low-income settings. Mortality was higher in the first few months of treatment for patients in low-income settings. Those in low-income settings started treatment with considerably more advanced immunodeficiency than those from industrialized countries, but virological and immunological response to HAART were similar in both settings (ART-LINC & ART-CC, 2006). A review of nine articles and 18 abstracts until 2006 from sub-Saharan Africa, with

---

“I am still on ARVs but my husband does not know...I hide medicine. I don't want to lose my marriage and I do not want to lose my life. If I am divorced I cannot look after the children.”  
—HIV-positive woman, Zambia  
(Human Rights Watch, 2007: 30)

---

12,116 patients found favorable levels of adherence, with 77% of patients achieving 95% adherence according to patient self-reports. Adherence from studies in sub-Saharan Africa showed that that more patients were adherent than patients in North America, based on 31 studies with 17,537 patients (Mills et al., 2006).

## *Treatment Has Been Successfully Administered in a Range of Situations and Populations*

Treatment has been successfully administered with good adherence (95% in 92% of patients) in internally displaced camps in Uganda (Kiboneka et al., 2008b). In the United States, treatment has also been successful in postmenopausal women (Patterson et al., 2009). Youth-friendly treatment services, such as the “girls-only day” at a youth program in Kenya, can increase the numbers of HIV-positive youth—especially girls—accessing treatment (Otieno et al., 2008). Further, accelerating treatment access for adults with young children can reduce the numbers of orphans, and improve pediatric mortality and social wellbeing. [*See Chapter 12B. Care and Support: Orphans and Vulnerable Children*]

## *Access to Treatment Must Be Equitable*

To date, more women than men have accessed treatment. “Women are often more likely than men to attend health services because of dedicated provision of reproductive and child health clinics” (Braitstein et al., 2008b: 53). Data disaggregated by sex show that adult women are slightly advantaged over adult men in access to antiretroviral therapy in low- and middle-income countries. About 60% of adults receiving antiretroviral therapy in reporting countries were women, who represent 55% of the people in need (UNAIDS, 2009e).

Gender norms may make it less likely for men to seek health care as well. More attention needs to be paid to ensuring that HIV-positive men know their serostatus, have access to condoms and understand the need for consistent and correct condom use, and have equitable access to treatment. However, it is unclear whether access for women is higher simply because PMTCT programs facilitate HIV testing and treatment or whether HIV-positive women who do not want or are unable to get pregnant still have more access than men to treatment (Eyakuze et al., 2008). Still, “the need for increased and equitable access to AIDS treatment cannot be overstated” (UNAIDS and WHO, 2004 cited in UNAIDS et al., 2004a).

Furthermore, some studies have found that women are more likely than men to be asymptomatic when accessing treatment for the first time (Makwiza et al., 2009). A study with 65,000 patients at 18 sites in Kenya found that men were more likely to be WHO stage 3/4 with lower CD4 counts and less likely to have disclosed their serostatus. Men were 34% more likely to be lost to follow-up, defined as being absent from the clinic for more than three months if on ARVs and more than six months if not on ARVs, even with adjusting for CD4 count and other factors (Ochieng et al., 2008). A study in Uganda with 20,900 clients, of whom 9,387 were in WHO stage 3 at the time clients sought treatment, found that women are less likely than men to be in WHO stage four (with the lowest CD4 counts) (Sebuliba et al., 2008). A cross-sectional study of clinic data from 86 facilities in Uganda, along with exit interviews with 2,285 clients and 389 service providers found that women comprised 1.4 times more clients than men and women were more likely to adhere to ARVs (Kirungi et al., 2008a).

Other studies have found that equity in access differs by age group: In Malawi, 10,000 people are on treatment, with proportionately more females accessing treatment than men.

However, in the 15 to 19 year age group, more men are proportionately on treatment despite the fact that HIV prevalence in this age group is higher among women. There were more women than men on treatment for ages 30 to 39, yet HIV prevalence in this age group is higher in men as compared to women.

Despite having better access to treatment, a study in Chile that evaluated quality of life for 409 people living with HIV in public hospitals, of whom fewer than 19% were women, found that women have a worse quality of life (Sgombich Mancilla et al., 2008). One study in rural India found that rural women were 30% less likely than men to initiate antiretroviral medication (Ramchandani et al., 2007 cited in Sinha et al., 2009).

Cost is another factor in treatment access. A study of AIDS-related deaths in Addis Ababa, Ethiopia found that following the launch of no-cost antiretroviral therapy in 2005, women died from AIDS at almost the same rate as men. Prior to no-cost antiretroviral therapy, more women than men died of AIDS, possibly due to sex differences in access to resources for financing treatment (Reniers et al., 2009). Treatment provided at no cost can substantially increase both women and men's access to life-saving therapy.

### *Increased Access Must also Include Respect for Human Rights*

Expanding comprehensive medical services for HIV-positive women and providing multiple entry points for care—including antenatal, family planning and other sexual and reproductive health care services and psychosocial support—will be essential to increase women's access to optimal ARV treatment. The benefits of treatment access go beyond improvements in health status and can include increasing employment and income for people living with HIV. [See Chapter 11D. *Strengthening the Enabling Environment: Promoting Women's Employment, Income and Livelihood Opportunities*] However, fear of stigma and discrimination associated with HIV/AIDS may deter HIV-positive women from seeking ARV therapy as women living with HIV are at increased risk for being blamed as the source of infection and face more severe consequences of stigma (Hong et al, 2004; Maman et al, 2001a).

Regardless of who has better access to treatment, human rights must be respected. Requiring HIV-positive people to disclose their serostatus to sexual partners and/or community members in order to receive treatment, care or support is a human rights violation (Niyirenda et al., 2008). Further, requiring a “treatment buddy” or “medical companion” to access ARV therapy may place undue burdens on women and their children: a study of 1,453 patients in Uganda (71% female) on the impact of requiring patients to disclose their HIV status and have a “treatment buddy” or “medical companion” to access ARV therapy found that of the women, 41% chose a child as their medical companion versus 14% of the men (Amuron et al., 2008). Finally, coercing women to accept contraception in order to access treatment violates women's rights to make their own fertility choices. [See Chapter 8. *Meeting the Sexual and Reproductive Health Needs of Women Living With HIV*]

## *HIV Prevention Is Needed as well as Universal Access to Treatment*

Universal access to antiretroviral therapy in low-income countries can be achieved. A number of countries from Brazil to Ethiopia to Thailand are achieving progress in increasing the numbers of those initiating ARV treatment at recommended CD4 thresholds (Messou et al., 2008, Marcellin et al., 2009, The ART-LINC Collaboration of the International Databases to Evaluate AIDS (IeDEA), 2008, Kloos et al., 2007, WHO, 2007c). Studies in Tanzania and Kenya have shown that treatment, including the availability of fixed-dose combination antiretroviral therapy, can also be effectively used for children in resource-poor settings with good outcomes in CD4 counts and nutritional status (Ble et al., 2007; Nyandiko et al., 2006; Jadhav et al., 2008; Calmy et al., 2006).

WHO has issued new guidance to initiate treatment for those whose CD4 counts are below 350, raising this level from earlier guidance that recommended initiating treatment when CD4 counts went below 200 (WHO, 2009j). However, the optimal time to initiate treatment is still a subject of considerable debate. Guidelines from the U.S. and Europe now recommend considering initiation of treatment when CD4 counts are between 350 and 500 (Wilken and Glick, 2008 cited in Dieffenbach, 2009). Recent studies in developed countries have found that patients starting antiretroviral treatment with CD4 counts greater than 350 are significantly more likely to achieve normalized CD4 counts than those starting later (Gras et al. and the AIDS Therapy Evaluation Project (ATHENA), 2007; Moore and Keruly, 2007 cited in Dieffenbach, 2009). A large clinical trial of 8,362 in the U.S. and Canada found a 69% higher risk of death for patients who deferred rather than initiated antiretroviral therapy at a CD4 count between 351–500 (Kitahata et al., 2009).<sup>1</sup> However, “whatever the side effects of HAART, side effects are not as deleterious as untreated HIV infection” (Sax and Baden, 2009: 2).<sup>2</sup> It is clear that there still is a paucity of data from developing countries on early initiation of treatment at CD4 counts over 350. A randomized clinical trial started in March 2009 with sites in 23 countries in North and South America, Europe, Africa, the Middle East and Asia is assessing whether immediate initiation of antiretroviral treatment is superior to deferral of treatment until the CD4 count declines to below 350. The pros and cons on initiating treatment when CD4 counts are over 350 must be weighed (Dieffenbach, 2009). [*See also Chapter 9C-2. Safe Motherhood and Prevention of Vertical Transmission: Treatment*]

Progress is being made with treatment access. However, caution is warranted. ... Mathematical modeling using surveillance and census data between 1986 and 2004 from Uganda found that as a result of population growth, by 2008, a similar number of people will be HIV-positive (1.1 million) as during the peak of the epidemic in 1994. More effective prevention programs are still needed (Hladik et al., 2008a). A recent consultation at WHO in

---

1 Note: As this is a new study, it is unclear how this will change clinical guidelines in the U.S. and Canada, as well as whether WHO will revise guidelines and whether patients in developing country contexts will be able to initiate treatment earlier.

2 Study authors receive consulting fees from many of the companies who manufacture and market antiretroviral therapy drugs. The funding for the study, however, came from NIH and other U.S. government agencies.

Geneva, Switzerland (November 2–4, 2009), noted that “In 2007 alone, there were 2.7 million new HIV infections. By the end of 2008, more than 4 million people were accessing antiretroviral therapy in low- and middle-income countries. That same year, an estimated 5.5 million in immediate need of treatment could not access it. Current efforts to treat HIV are not keeping pace with all those who need therapy. Without a dramatic reduction in new HIV infections, this trend will continue (WHO, 2009j).

### What Works—*Treatment*: Provision and Access

1. Antiretroviral therapy has been successfully administered to both men and women with good adherence, good patient retention, and good clinical outcomes in resource-poor settings; results have been similar to those achieved in resource-rich countries.

## EVIDENCE

1. **Antiretroviral therapy has been successfully administered to both men and women with good adherence, good patient retention, and good clinical outcomes in resource-poor settings; results have been similar to those achieved in resource-rich countries.**
  - ▶ A systematic comparison of antiretroviral therapy on mortality of HIV-positive patients in both low-income and high-income countries found that antiretroviral therapy is feasible and effective in low-income settings. Mortality was higher in the first few months of treatment for patients in low-income settings. Those in low-income settings started treatment with considerably more advanced immunodeficiency than those from industrialized countries, but virological and immunological response to HAART were similar in both settings. The study compared 4,810 treatment-naïve adult patients (51% female) from 18 HAART programs in **Africa, Asia and South America** (low-income settings) with 22,217 treatment-naïve adults (25% female) in 12 HIV cohort studies from **Europe and North America** (high-income settings) and compared baseline characteristics and outcomes during the first year of HAART (ART-LINC & ART-CC, 2006). (Gray III) (*treatment, HAART, Africa, Asia, South America, Europe, North America*)
  - ▶ A review of nine articles and 18 abstracts until 2006 from **sub-Saharan Africa**, with 12,116 patients found favorable levels of adherence, with 77% of patients achieving 95% adherence according to patient self-reports. Adherence from studies in sub-Saharan Africa showed that that more patients were adherent than patients in **North America**, based on 31 studies with 17,537 patients (Mills et al., 2006). (Gray IV) (*adherence, treatment, sub-Saharan Africa, North America*)

## Gaps in Programming—Provision and Access

1. Initiatives that provide for early diagnosis and appropriate longitudinal care prior to treatment eligibility are needed to reduce mortality rates among adults accessing treatment.

1. **Initiatives that provide for early diagnosis and appropriate longitudinal care prior to treatment eligibility are needed to reduce mortality rates among adults accessing treatment.** A review found that early mortality among adults accessing antiretroviral therapy can be attributed to late diagnosis of HIV.
  - ▶ Gap noted, for example, in a review of 18 published cohort studies in **Africa** (Lawn et al., 2008).

## 7B. Treatment: Adherence and Support

Access alone does not ensure that women will adhere to treatment. “The regimens are often complicated, can require dietary restrictions and may lead to adverse effects,” such as changes in body fat that can negatively impact body image (Mills et al., 2006: 2; Holstad et al., 2006).

A systematic review of 84 studies examining barriers to treatment adherence found “fear of disclosure, forgetfulness, a lack of understanding of treatment benefits, complicated regimens, and being away from medications were consistent barriers to adherence in developed and developing nations. More common to developing settings were issues of access, including financial constraints and a disruption in access to medications” (Mills et al., 2006: 18).

### *There Are Gender Differences in Treatment Adherence*

Men and women have similar adherence rates, and women are able to follow complicated regimens as well as men. But there are gender differences in predictors of adherence. Women may need family support, including redistribution of household responsibilities, to enable them to adhere to treatment. Even if drugs are free or subsidized, women may not be able to afford the time or money required to travel to a clinic. Women may also have difficulty navigating treatment when it conflicts with other activities for survival. One South African sex worker points out the struggles she faces: “If you don’t pay off the police, they take you to jail...you can’t take antiretroviral drugs or any medication you need” (Arnott and Crago, 2009: 10).

It is also critical for treatment programs to assess not just how many people who need treatment gain access to treatment but who gains access, how, and if it is accompanied by care and support. Does the program address adherence? Do patients receive adherence support? Do patients receive good quality counseling? Are patients satisfied with their quality of care?

---

“I started HIV medication in 2006. My husband does not know...He beats me up and locks me out of the house...I sleep under the tree until tomorrow. As a result of that, I miss doses sometimes.”  
—HIV-positive woman, Zambia (Human Rights Watch, 2007: 1)

---

Have patients received proper information on medications and dosage? (Gruskin et al., 2007c). Adherence is defined as “taking medication as prescribed, and therefore issues such as pharmacy stock-outs are out of the patient’s control” (Bangsberg, 2008). Programs should also promote treatment literacy so that all people know that AIDS cannot be cured but that ARV treatment can prolong life, with improved quality of life (UNAIDS, 2005). For those on ARV therapy, treatment literacy is vital to understanding the importance of adherence.

### *Improving Treatment Adherence Requires Counseling, Empowerment to Overcome Barriers*

While there is little data demonstrating what works specifically for women in improving treatment adherence, there are some interventions that have been shown to work for both men and women such as provision of counseling, including treatment support and literacy. A meta-analysis of 19 randomized controlled trials including 1,839 patients found that patients given one-on-one counseling by health providers, with a median of two sessions lasting 60 minutes each, resulted in patients being more than one and a half times more likely to achieve 95% adherence, compared to controls (Simoni et al., 2006 cited in Vergidis et al., 2009). An observation study of low-literacy and low-income patients in 2005 in Mozambique also found improved adherence among patients who received counseling from health care providers (Magnano San Lio et al., 2009). Counseling support by HIV-positive peers has been found to also be effective in improving treatment adherence in Thailand, through a model developed by the Thai Network of People With HIV/AIDS (TNP+), and in Haiti, Rwanda and Lesotho, supported by Partners in Health’s “accompaniment” model, which includes daily home visits by community health workers, free clinic visits, nutritional support, transportation to clinics and preferential hiring of HIV-positive people (Ford et al., 2009a; Mukherjee et al., 2008b). [See also Chapter 11G. *Strengthening the Enabling Environment: Promoting Women’s Leadership*]

Pill counts and pillbox organizers are low-technology empowerment tools that can increase adherence (Jean Jacques et al., 2008). Data obtained from an observational cohort of 245 people living with HIV from 1996 to 2000 in the United States showed that pillbox organizers were estimated to improve adherence by 4.1 to 4.5% and was associated with a decrease in viral load of .34–.37 log<sub>10</sub> copies/mL and a 14.2% to 15.7% higher probability of achieving a viral load of greater than 400 copies/mL, with statistically significant effects. “Pillbox organizers should be a standard intervention to improve adherence to antiretroviral therapy” (Peterson et al., 2007).

Mobile phones are promising tool that may facilitate adherence. In a study in Kenya of 322 ARV patients, of whom 81% owned a mobile phone, found that nearly 88% of those who owned a mobile phone said they would be comfortable receiving reminders and assistance with side effects by phone (Lester et al., 2008).

These practices and tools are useful for both men and women, however further research is needed regarding the best ways to overcome a number treatment adherence barriers specific to women such as fear of disclosure, stigma, violence, body image issues related to fat redistribution (a side effect of some medications), among others.

### Gaps in Programming—Adherence and Support

1. In addition to treatment access, interventions are needed to reduce barriers to treatment adherence for women.

**I. In addition to treatment access, interventions are needed to reduce barriers to treatment adherence for women.** Studies found that women face a number of barriers that impact treatment adherence, such as violence, stigma, cost, and changes in body image.

- ▶ Gap noted, for example, in a systematic review (Mills et al., 2006); **Sierra Leone** (Vandi et al., 2008); **Uganda** (Weiser et al., 2008); **Nigeria** (Oloriegbel and Adirieje, 2008); **Argentina** (Pecheny and Manzelli, 2008); **Tanzania and Zambia** (Moyer et al., 2008); **Zambia** (Murray et al., 2009); **China** (Sabin et al., 2008); **Uganda, Tanzania and Botswana** (Hardon et al., 2007).

## 7C. Treatment: Reducing Transmission

The efficiency of HIV transmission is directly proportional to the viral load in the transmitting individual (Quinn et al., 2000) i.e. the higher the viral load, the easier it is to transmit HIV. Acute HIV infection, lasting weeks or months, may account “for a substantial proportion of HIV-1 transmission worldwide. Viral burden is particularly high during this brief period, resulting in individuals being highly infectious” (Powers et al., 2008: 560). Acute HIV infection usually evolves, in the absence of treatment, into a state of chronic HIV infection that can remain relatively constant for years. While this period is associated with a much lower risk of transmission compared with that of acute HIV infection, because the period following acute HIV infection can last a median duration of eight years, the cumulative risk of transmission during these eight years can be substantial (Granich et al., 2009).

---

“Condom issues are difficult. We know we can prolong our lives if we do not infect each other. On the other hand, marriage is also important... We cannot survive without men. Who will help us meet our needs?”

—Woman who dropped out of a PMTCT Program, Malawi (Chinkonde et al., 2009: 14)

---

### *Treatment May Be a Successful Strategy in Reducing Transmission*

“Given the dramatic effect of ART on viral load, it is reasonable to consider using treatment of individuals infected with HIV as a means of preventing HIV transmission” (Dieffenbach and Fauci, 2009: 2380). However, “...there is insufficient evidence to formulate guidance on the role of ART in HIV prevention, both at the level of the individual and the population” (Attia et al, 2009: 1402). Emerging evidence shows that “reducing virus levels with antiretroviral therapy...reduces the risk of HIV transmission in a variety of settings” (IAS, 2010: 3). Results are awaited from HPTN 052, an ongoing, prospective, two-arm, randomized, controlled, multi-center study with 1,750 HIV-positive people and their HIV-negative sexual partners, started in 2008, with results in five years. In the study, the HIV-positive partner goes on treatment when CD4 counts go below 200; the study endpoint is seroconversion of the HIV-negative sexual partner (Godbole et al., 2008).

Though ARV treatment can reduce transmission through reduced viral load (Attia et al., 2009; Vernazza et al., 2008), condom use is still necessary to increase protection for both HIV-positive and HIV-negative sexual partners. “While the use of HIV treatment as prevention is emerging as an exciting component of scaled up AIDS programmes, further research and clarification is needed. The reliability of projections developed from mathematical models is limited by the accuracy of the assumptions on which a model is built and by the realities of implementation. Additional areas of uncertainty range from questions regarding the accuracy of mathematical models used in recent publications to questions regarding the acceptability and impact of massive scale up of HIV testing, and of long-term treatment in people where HIV treatment may not yet [be] medically indicated but is being prescribed to prevent HIV transmission. Many of these questions will be addressed by studies planned or underway” (IAS, 2010: 6).

### *Treatment Alone Will Be Insufficient in Reducing Transmission*

Given the unknowns and the inadequate availability of medications, treatment alone is insufficient in reducing and preventing HIV transmission. Additional factors must be addressed to bridge the divide that exists between HIV prevention and treatment activities in order to reduce transmission of the virus, as well as to meet the SRH needs and fertility desires of women. “The historical separation of treatment and prevention and the focus of prevention on uninfected individuals are counterproductive in a setting [such as South Africa] where more than 30% of the sexually active population is infected with HIV” (Abdool Karim et al., 2009: 931). The new standard of care for all people living with HIV should include counseling, support, condom negotiation skills, and provision of male and female condoms to reduce transmission. In addition to antiretroviral therapy “all treatment programs should provide patients with routine risk-reduction counseling, access to condoms and other prevention tools, and other prevention services in their clinical settings” (Global HIV Prevention Working Group, 2008: 23).

Non-judgmental, non-stigmatizing interventions to reduce HIV transmission to sexual partners are urgently needed (Collins et al., 2008). Other interventions both within the health sector and outside the health sector, for example, those that transform norms, reduce violence against women, promote legal rights, etc, also need to be implemented in order to support safer sexual behavior once someone knows his/her positive serostatus. [See also Chapter 11. *Strengthening the Enabling Environment*] Transmission can also occur in the attempt to become pregnant: “In the absence of artificial insemination technologies, effectively unavailable in most low- or low-to-middle income countries, conception requires unprotected sexual intercourse; this means risk of either HIV transmission (in serodiscordant couples) or HIV super-infection (in couples where both couples are positive” (London et al., 2008: 14). [See also Chapter 9. *Safe Motherhood and Prevention of Vertical Transmission*]

“Treatment cannot replace the use of condoms. The proper use of condoms remains a reliable means of enabling everyone, without knowing the serologic status of their partners, to keep control on protecting themselves and others during sexual intercourse.... Treatment should be thought of as a tool providing regular condom users valuable extra safety. Moreover, condoms remain the only way to protect oneself against other STIs” (Bourdillon et al., 2008: 11).

Further research is critical to assess “what works” in reducing transmission. Randomized evaluations of different behavioral intervention models, including clinician-initiated communication are needed (Bunnell et al., 2006b). “When discussions of ongoing STD-related risk behavior do occur, they are infrequent and often initiated at the patient’s request. At best, the lack of these discussion in HIV-related care settings is unfortunate; at worst, it indirectly contributes to escalating rates of STDs among HIV-infected persons and of new HIV acquisition among others at risk” (Hall and Marrazzo, 2007: 518.)

### **What Works—Treatment: Reducing Transmission**

1. Providing antiretroviral treatment to people living with HIV can increase HIV prevention behaviors, including condom use.

#### *Promising Strategies:*

2. ARV therapy reduces (but does not eliminate) the risk of HIV transmission and may be an additional prevention strategy.

## EVIDENCE

### 1. Providing antiretroviral treatment to people living with HIV can increase HIV prevention behaviors, including condom use.

- ▶ A prospective cohort study between May 2003 and December 2004 a total of 926 HIV-positive adults in rural **Uganda** found that within six months of initiating ART, risky sexual behavior reduced by 70%. Risky sex was defined as inconsistent or no condom use with partners of HIV-negative or unknown serostatus in the previous 3 months. Study participants were followed in a home-based ART program that included prevention counseling, voluntary counseling and testing (VCT) for cohabitating partners and condom provision. At baseline and follow-up, participants' HIV plasma viral load and partner-specific sexual behaviors were assessed. Estimated risk of HIV transmission from cohort members declined by 98%, from 45.7 to 0.9 per 1000 person years. More than 85% of risky sexual acts occurred within married couples (Bunnell et al., 2006a). (Gray III) (*treatment, risk behavior, HIV testing, counseling, Uganda*)
- ▶ A prospective cohort in **Uganda** of HIV-negative household members of HIV-positive patients on ART receiving home-based care found that risky sex decreased among HIV-negative adult household members. The study of 182 men and 273 women found that inconsistent condom use decreased from 29% at baseline to 15% at 24 months (Bechange et al., 2008). (Gray III) (*treatment, condom use, Uganda*)
- ▶ A comparative study of people living with HIV or AIDS on HAART and those receiving preventative therapy (PT) in **Kenya** found participants receiving HAART were more likely to report condom use at last sex and consistent condom use with regular partners than those receiving PT. The study also found fewer multiple and casual partners among PLWHA receiving HAART compared with those receiving PT. However, more than 40 percent of all participants in the study did not know the HIV status of their regular partners (Sarna et al., 2008). (Gray III) (*treatment, condom use, sex behavior, Kenya*)
- ▶ A 2007 review of evidence for the impact of ART on sexual behavior in developing countries found three relevant studies conducted in Africa—one in **Côte d'Ivoire** and two in **Uganda**. In each study, condom use at last sexual intercourse was significantly higher among ART patients compared to non-ART patients. In the Côte d'Ivoire study of 711 patients, condom use at last sex was 80 percent for ART patients versus 59 percent for non-patients, regardless of partnership type (Moatti et al., 2003). Bateganya et al. (2005) on reported that of 926 participants in Uganda, of whom 164 received ART. Condom use was higher among ART patients: 71 percent used condom use at last sex with a spouse for ART patients, versus 47 percent for non-ART patients. Among study participants receiving weekly home-based ART delivery and individual counseling in Uganda, Bunnell et al. (2006) found that of 723 patients, with 354 ART-naïve patients and 369 ART-experienced patients, condom use at last sex increased from 59 to 82

percent among ART-experienced patients with uninfected partners or with partners they did not previously know, and from 58 to 74 percent among ART-experienced patients with HIV-positive partners. In individual counseling sessions, participants developed personal sexual behavior plans. Free condoms were provided. The available evidence indicates a significant reduction in risk behavior associated with ART in developing countries. However, there are few existing studies and the rigor of these studies is weak (Kennedy et al., 2007). (Gray III) (*treatment, risk behavior, Côte d'Ivoire, Uganda*)

- ▶ A study of longitudinal data from 2,993 HIV-discordant couples in **Rwanda and Zambia** from 2002 to 2008 found that couples where the HIV-positive partner was on ART were less likely to have self-reported vaginal sex not protected by condoms, presence of sperm on a vaginal smear or pregnancy than where the HIV-positive partner was not on ART (Sullivan et al., 2009). (Gray IV) (*treatment, condoms, pregnancy, Rwanda, Zambia*)
- ▶ An analysis of survey data from a cross-sectional study with 85 HIV-positive women from **Uganda**; 50 HIV-positive women in **South Africa**; and 44 HIV-positive women in **Brazil** found that HAART users were significantly (3.64 times) more likely to use condoms. Of the 179 HIV-positive women, 83 women reporting recent sexual intercourse, with 63% using condoms and 76% using contraceptive methods. Of the 179 HIV-positive women, 65% reported currently using HAART (Kaida et al., 2008). (Gray IV) (*treatment, condom use, contraception, Uganda, South Africa, Brazil*)
- ▶ A survey of 277 participants attending an HIV care clinic from their initiation to treatment starting in October 2004 until May 2006 in **Mozambique** found that following ART, more participants used condoms for sexual intercourse. Interviewer administered surveys were conducted at ART initiation and one year later. Of 277 participants, 48% reported sexual activity three months prior to ART initiation, whereas over 63% reported sexual activity one year later. After one year of ART, more participants reported sexual activity, however, 77% were more likely to report correct and consistent condom use compared to 33% prior to ART initiation. Following ART initiation, 77% had disclosed their HIV-positive serostatus to their sexual partners compared to 58% prior to ART initiation. Prior to ART initiation, only 22.6% used condoms with HIV-negative or unknown status partners as compared to over 33.9% following ART initiation (Pearson et al., 2008). (Gray IV) (*treatment, condom use, sex behavior, disclosure, Mozambique*)

### Promising Strategies:

2. **ARV therapy reduces (but does not eliminate) the risk of HIV transmission and may be an additional prevention strategy.**
  - ▶ A review of publications from 1996 to 2009 with 11 cohorts reporting on 5,021 heterosexual couples and 461 HIV transmission events found that studies of heterosexual discordant couples observed no transmission in patients treated with ART and with

viral load below 400 copies/ml but data were compatible with one transmission per 79 person-years. In ten studies with HIV-positive people not receiving antiretroviral therapy with 9,998 person years of follow-up, the overall HIV transmission rate, irrespective of viral load category and sexually transmitted diseases, the transmission rate was 5.64 per 100 person years. The largest number of serodiscordant couples was reported in five studies from **sub-Saharan Africa**. “There was insufficient data to allow estimation of summary rates of transmission through sexual intercourse without condoms, or to separate female-male and male-female transmission” (Attia et al., 2009: 1399). “This systematic review did not identify any study from which the risk of HIV transmission per act of unprotected sexual intercourse among persons with suppressed viremia following ART could be quantified directly. The available studies found no episodes of HIV transmission in discordant heterosexual couples If the HIV-infected partner was treated with ART and had a viral load below 400 copies/ml...The comparison of overall rates in patients on ART and not on ART nevertheless indicated that heterosexual transmission was reduced by 92%” (Attia et al., 2009: 1401). (Gray V) (treatment, sex behavior, Sub-Saharan Africa)

- ▶ “The Commission of Experts of Clinical HIV/AIDS Therapy of the Federal Office of Public Health of **Switzerland** concluded that an HIV-positive person who does not have an STI and is on HAART, with undetectable viral load under 40 copies per ml cannot transmit HIV sexually, as long as the person is completely adherent; viral load is undetectable for at least six months; and has no other STIs. It is estimated that in the case of complete suppression of viral load, the risk to transmit HIV through sexual intercourse without using condoms is less than 1 in 100,000. The Commission cautioned that this should apply only to patients who are highly motivated to be adherent, are in a stable relationship, are regularly followed by a physician, have no STIs, are in a mutually monogamous relationship and the HIV-negative partner is counseled and agrees to not use condoms. The HIV-negative partner must be the one to decide, since if they do acquire HIV, the consequences are most significant for the HIV-negative partner. Both partners must be counseled jointly (Vernazza et al., 2008). However, ability to detect viral load below 40 copies ml, regular physician monitoring and partner counseling as described in Switzerland in Vernazza et al., 2008 has not been described in a developing country context. Others have argued that treatment alone is not reliable, as women receiving antiretroviral therapy shed HIV (Cohen et al, 2009). (Gray V) (*treatment, condoms, Switzerland*)
- ▶ Data from 3,408 heterosexual HIV serodiscordant couples from seven African countries (**Botswana, Kenya, Rwanda, South Africa, Tanzania, Uganda, and Zambia**) was analyzed and found that ART use was associated with substantially lower risk for HIV transmission. Of 103 couples, only one transmission occurred when the HIV-positive couple had initiated treatment. Couples were followed for up to 24 months, with HIV testing of uninfected partners every three months. None of the HIV-positive partners who initiated treatment met national eligibility criteria for ARV treatment initiation

(Donnell et al., 2010). (Abstract) (*treatment, Botswana, Kenya, Rwanda, South Africa, Tanzania, Uganda, Zambia*)

### Gaps in Programming—Reducing Transmission

1. Intensified efforts are needed to increase condom use and reduce multiple partnerships by people who know their HIV-positive status or who are on ARV treatment, including young people.
1. **Intensified efforts are needed to increase condom use and reduce multiple partnerships by people who know their HIV-positive status or who are on ARV treatment, including young people.** Studies found that consistent condom use between discordant couples was low and, among those on treatment, decreased over time.
    - ▶ Gap noted, for example in **South Africa** (Almeleh, 2008); **Uganda** (Birungi et al., 2009a,b,c, Kirungi et al., 2008b, Bajunirwe et al., 2008, Asimwe et al., 2008, Bunnell et al., 2005); **Thailand** (Tunthanathip et al., 2009); **Ethiopia** (Deribe et al., 2008); **Zambia and Rwanda** (Dunkle et al., 2008); **Cameroon** (Dia et al., 2008); and **Cameroon, Kenya, Tanzania, Burkina Faso and Ghana** (De Walque, 2007).



# Meeting the Sexual and Reproductive Health Needs of Women Living with HIV

Given that most HIV transmission occurs through sexual intercourse, it is critical to include a sexual and reproductive health lens in HIV programming. The evidence and interventions in this chapter focus on the sexual and reproductive health of women living with HIV. However, because so many women do not know their HIV status, many of the interventions in this chapter are appropriate for all women irrespective of serostatus.

Full coverage of sexual and reproductive health (SRH) interventions for all women is beyond the scope of this document, however, “[r]egardless of HIV status, increasing access to sexual and reproductive health services will not only offer women more control over their reproductive lives and help them safely achieve their desired fertility, but will also produce major public health benefits on maternal and infant morbidity and mortality. Voluntary contraceptive services, in particular, will benefit the health of women and infants in a variety of ways by delaying first births, lengthening birth intervals, reducing the total number of children born to one women, preventing high risk and unintended pregnancies and reducing the need for unsafe abortion” (Wilcher and Cates, 2009: 833). In addition, sexual and reproductive health (SRH) services may provide an important entry point for HIV prevention information and services—entry points that include contraception and family planning clinics, antenatal care clinics, STI clinics, and programs for adolescents (Interact Worldwide et al., 2007).

---

“All women, including those with HIV, have the right ‘to decide freely and responsibly on the number and spacing of their children and to have access to the information, education and means to enable them to exercise these rights’” (CEDAW, 1979 cited in Wilcher and Cates, 2009: 833).

---

The sexual health of women is an important component of SRH services and is often overlooked, particularly for women living with HIV. Discussions of SRH services for women living with HIV often revolve around controlling fertility and ignore HIV-positive women's needs for services that include attention to safe and healthy sexuality and a desire for children. Because women living with HIV are more vulnerable to rights abuses, for example forced contraception or coerced sterilization, ensuring that their sexual and reproductive health needs are met is critical (Wilcher and Cates, 2009). [See Chapter 13: Structuring Health Services to Meet Women's Needs]

## Fertility Planning Is Important for All Women, Regardless of Serostatus

Women living with HIV have similar reproductive patterns as women without HIV (Stanwood et al., 2007; Hoffman et al., 2008a; Rochat et al., 2006 cited in Reynolds et al., 2008). Some women living with HIV want to start or continue having children and others do not. Worldwide more than 215 million women say they would prefer to avoid a pregnancy, but are not using any form of contraception, or they are using traditional methods, which are less effective means of contraception (Singh et al., 2009c). Among those 215 million women are women who may not know their HIV status.

Because many people still do not know their HIV status, and because negotiating condom use is not always possible, expanding access to contraceptives for all women who need and want them through rights-based, voluntary services, is an important component of HIV programming and is cost-effective (Adair, 2009; Halperin et al., 2009a). A 2008 modeling study in the 15 PEPFAR countries estimates that the annual number of unintended HIV-positive births currently averted by contraception use is over 220,000 (Reynolds et al., 2008). A study by the U.S. CDC in Uganda found that unwanted pregnancies may account for almost a quarter of all HIV-positive infants in Uganda (Hladik et al., 2008a; Hladik et al., 2009).

As for all women, a wide range of contraceptive options provided with quality counseling is required (WHO/RHR and CCP, 2007). "For women who do not currently desire pregnancy, the dual method approach—combining condoms for HIV/sexually transmitted disease (STD) prevention with longer-acting, more effective contraceptives for added protection against pregnancy—simultaneously prevents both heterosexual and perinatal HIV transmission. Prevention of unplanned pregnancies remains a cost-effective and economically feasible way to prevent pediatric HIV disease in most of Africa. This approach also reduces the number of AIDS orphans...." (Mark et al., 2007: 1201). The female condom also offers an important dual protection option for women (Welbourn, 2006). [See also Chapter 3. Prevention for Women and Chapter 9. Safe Motherhood and Prevention of Vertical Transmission] Women living with and without HIV report greater success in negotiating condom use if it is also presented to their partner as contraception.

## Integrating HIV and Contraceptive Services Can Meet the SRH Needs of Women

As women are living longer, healthier lives with HIV due to expanded access to treatment, there is an increased need for access to contraceptive methods suitable for women on anti-retroviral therapy. “In studies of women with HIV infection approximately 70% are sexually active, effective contraceptive use is variable and unplanned pregnancy is frequently reported” (Desgrées-Du-Loû et al., 2002; Magalhaes et al., 2002 cited in Mitchell and Stephens, 2004: 167). A recent study in seven African countries found that within four years of initiating anti-retroviral therapy, one-third of the women who initiated ARV therapy experienced a pregnancy. The treatment program did not include any contraceptive counseling or provision of contraceptives. “[T]he design and operation of most HIV treatment services do not explicitly acknowledge the likelihood or the actual occurrence of pregnancy” (Myer et al., 2010). Integrating SRH, including provision of contraception, with other HIV services can increase contraceptive use and reduce unintended pregnancies (Duerr et al., 2005). Antiretroviral programs have regular contact with women living with HIV over long periods of time and as a result are a particularly important venue for meeting the reproductive health needs of women living with HIV (Myer et al., 2007a). Most clients would rather access contraceptive services at the same sites they receive HIV services (Asiimwe et al., 2005; Farrell and Rajani, 2007).

Many positive women do not receive appropriate information from providers about contraceptive options, including dual protection, and lack access to contraceptives and emergency contraception (WHO, 2004). This applies equally to positive women who wish to avoid pregnancy and to those who discover their HIV status during pregnancy. Providers and clients need to know that research on hormonal contraceptives has not resulted in any changes to family planning guidelines for women living with HIV (FHI, 2008). A 2009 systematic review of hormonal and intrauterine contraception for women living with HIV found that although one randomized trial raised concerns about enhanced disease progression, the evidence was “generally reassuring regarding adverse health effects, disease transmission to uninfected partners, and disease progression” (Curtis et al., 2009). Clients should also know that while no method of contraception other than male and female condoms has been proven to protect against STIs including HIV, condoms are not the most effective method to prevent pregnancy (WHO/RHR and CCP, 2007), so dual protection is warranted. More countries need guidelines and training regarding antiretroviral treatment and contraceptive options for women of reproductive age (Stevens, 2007) and guidelines on HAART regimens for women of reproductive age are being developed (Stevens, 2009).

ARV treatment programs should be part of a continuum of care that includes contraceptive and other integral health services from the onset (Shelton and Peterson, 2004; Farrell, 2007). Inclusion of contraceptive care in ARV treatment will take effort; in some cases, women living with HIV are denied information about safer sex because it is believed that they should not be having sex (Esplen, 2007). In fact, “sexual and reproductive health services need to provide

[for women living with HIV]: improved information about, and access to...unbiased, legal, safe and confidential pregnancy, childbirth, and/or abortion services... [and] better training and awareness raising for health workers to reduce the frequency of forced abortion and forced sterilization of HIV-positive women” (ICW, 2008: 2). Based on the human rights underpinning of HIV and AIDS programming, “HIV-positive women should not be pressured not to have children, but should be given full information and be able to make their own informed decision” (Paxton et al., 2004a: 15). Health services should affirm a woman’s ability to make decisions about when and whether she wants children and forbid coercion in making family planning and reproductive health decisions (Eckman and Hersted, 2006). Women need to be asked on a regular basis: is pregnancy desired? If the answer is yes, preconception counseling is warranted along with support for a healthy and safe pregnancy. [See Chapter 9B. *Safe Motherhood and Prevention of Vertical Transmission: Pre-Conception*] If the answer is no, contraceptive options should be discussed and if an unintended pregnancy occurs, abortion, where legal, or, if necessary, post-abortion care services should be offered by providers (Wilcher and Cates, 2009).

Studies assessing the desire for children by women living with HIV rarely stratify results by time of diagnosis. Understanding how reproductive health choices change for women living with HIV is warranted. Studies have found that fertility desires of HIV-positive individuals changes over time (Chen et al., 2001 cited in Myer et al., 2010). The desire to limit births was higher among recently tested HIV-positive women in Zambia and Zimbabwe (Johnson et al., 2009). Some studies have found that knowing that one is HIV-positive may increase contraceptive use to prevent unintended pregnancies. A study of 227 women living with HIV in Malawi found that prior to receiving their HIV test results, 33 percent reported a desire to have future children; this declined to 15 percent one week later and remained constant for the following year. Contraceptive use increased from 38 percent prior to HIV testing to 46 percent after 12 months. The pregnancy incidence among women who reported that they did not want future children after HIV testing was less than half of the incidence among women who reported they did want future children (Hoffman et al., 2008b).

---

“My HIV status does not take away my sexuality.”  
—Grace Sedio,  
ICW Representative from Botswana, 2008

---

A growing amount of evidence exists on integrating sexual and reproductive health programs and services with HIV prevention, treatment and care, but more evaluated studies to demonstrate what works for women are needed (Wilcher and Cates, 2009; Spaulding et al., 2009). [See Chapter 13. *Structuring Health Services to Meet Women’s Needs*] Combining family planning information with HIV prevention messages may be a good way to prevent HIV among women but is often a missed opportunity. For example, in Ethiopia, community health workers have visited more

than 42% of women aged 15–19 years old throughout the country with family planning information, referral and services, but not HIV prevention (Wilson-Clark, 2008). Studies have shown that health care workers can provide counseling on sexuality, family planning, HIV/

AIDS, and STIs, if they receive adequate training (IPPF/WHR, 2000). To date, however, in most settings HIV and family planning services have been offered separately (Delvaux and Nöstlinger, 2007). Given the frequency of new information on HIV and SRH, it is important that providers receive ongoing training (Asiimwe et al., 2005; Farrell 2007).

Where HIV and contraceptive services are combined, women report greater use of both services. An analysis of VCT clients in Ethiopia suggests that various levels of service integration may attract different types of clients, including services provided in the same facility, the same room and by the same provider. More atypical family planning clients (younger women and males) were likely to increase use of HIV and SRH services provided in the same room. Facilities where counselors jointly offered HIV and family planning services and served many repeat family planning clients were most likely to serve older, married women who still had significant rates of HIV. Integrating VCT with family planning and vice versa is an effective strategy for expanding both services and reaching a wider range of clients (Bradley et al., 2008a).

## Women Living With HIV Need Screening and Treatment for Cervical Cancer

Cervical cancer is another sexual and reproductive health issue of particular concern for HIV-positive women. Cervical cancer is preventable and treatable (WHO, 2009c; Hale, 2009). Women living with HIV are at a high risk for developing cervical cancer (Agaba et al., 2009; Chaturvedi et al., 2009; and Singh et al., 2009a). Despite the fact that HIV infection increases the risk of cervical cancer as well as a range of vaginal and cervical infections (Levine, 2002; Cejtin, 2003 cited in Myer et al., 2007a; Franceschi and Jaffe, 2007; Banura et al., 2008), “coverage of cervical cancer screening in developing countries is on average 19%, compared to 63% in developed countries, and ranges from 1% in Bangladesh to 73% in Brazil (Gakidou et al., 2008: 0863). “We are getting HAART, but we still die of cervical cancer,” noted Grace Sedio, ICW representative in Botswana (Sedio, 2009). The impact of antiretroviral therapy on cervical cancer is unclear (Massad et al., 2009; Massad et al., 2008; Asheber et al., 2007 cited in Stevens, 2008; de Vuyst et al., 2008; Bernal et al., 2008), but ARV therapy improves immunity and increases lifespan, which increases likelihood of persistent HPV infection developing into cervical cancer. What works best to detect cervical cancer in HIV-positive women in places without sophisticated lab equipment is unclear and no test is optimal. PATH is currently testing different screening options for cervical cancer in HIV-positive women (Jeronimo, 2010).

## Available Guidelines

A number of sexual and reproductive health guidelines are available to program managers and policymakers. Guidance regarding which contraceptive options are best for women living with HIV is available from WHO, 2008a: [http://www.who.int/reproductivehealth/publications/family\\_planning/9789241563888/en/A\\_counseling\\_tool\\_is\\_also\\_available\\_at:\\_http://www.engenderhealth.org/pubs/hiv-aids-sti/srh-hiv-positive-women-girls.php](http://www.who.int/reproductivehealth/publications/family_planning/9789241563888/en/A_counseling_tool_is_also_available_at:_http://www.engenderhealth.org/pubs/hiv-aids-sti/srh-hiv-positive-women-girls.php). Strategic considerations on linking family planning and HIV services can be found at [http://www.fhi.org/en/RH/Pubs/booksReports/FP-HIV\\_Strategic\\_Considerations.htm](http://www.fhi.org/en/RH/Pubs/booksReports/FP-HIV_Strategic_Considerations.htm). EngenderHealth also has training guidelines for program managers and health workers to provide comprehensive SRH care for women and girls living with HIV: <http://www.engenderhealth.org/pubs/hiv-aids-sti/index.php>. Recent Global Fund guidelines have called for integration of the sexual and reproductive health needs of HIV-positive women into national AIDS plans, with successful examples of Global Fund proposals (Hardee et al. 2009a, [http://www.populationaction.org/Publications/Reports/A\\_Practical\\_Guide\\_to\\_IntegratingReproductive\\_Health\\_HIV-AIDS/Summary.shtml](http://www.populationaction.org/Publications/Reports/A_Practical_Guide_to_IntegratingReproductive_Health_HIV-AIDS/Summary.shtml)).

The following represents recent evidence as to what works in meeting the sexual and reproductive health needs of women living with HIV. [*See also Chapter 3D. Prevention for Women: Treating Sexually Transmitted Infections*]

### **What Works—*Meeting the Sexual and Reproductive Health Needs of Women Living with HIV***

1. Promoting contraceptives and family planning counseling as part of routine HIV services (and vice versa) can increase condom use, contraceptive use, and dual method use, thus averting unintended pregnancies among women living with HIV.
2. Hormonal contraception is safe for women living with HIV and does not seem to affect HIV acquisition or HIV progression.
3. Women with HIV can use IUDs if they have access to medical services in case of IUD expulsion.
4. Providing information and skills-building support to HIV-positive people can reduce unprotected sex.
5. Interventions to support disclosure can increase condom use in discordant couples.
6. Providing antiretroviral treatment to people living with HIV can increase HIV prevention behaviors, including condom use.

#### *Promising Strategies:*

7. Cervical cancer screening and treatment can be integrated into HIV care to reduce morbidity and mortality in women living with HIV.
8. Promoting condom use for contraception may make condom use more acceptable and easier to negotiate.
9. Early postpartum visits can result in increased condom use, contraceptive use, HIV testing and treatment.

## **EVIDENCE**

- I. **Promoting contraceptives and family planning counseling as part of routine HIV services (and vice versa) may increase condom use, contraceptive use, and dual method use, thus averting unintended pregnancies among women living with HIV.** [See also Chapter 13. *Structuring Health Services to Meet Women's Needs*]
  - ▶ A three-armed randomized controlled trial at a VCT clinic in Lusaka, **Zambia** with 251 couples found a threefold higher contraceptive initiation rate where family planning education and offer of contraceptives were available on site rather than by referral to an outside clinic. All couples received a presentation on family planning methods and the

advantages of dual method use, along with a free, unlimited supply of condoms. HIV discordant and concordant couples are advised to use condoms with every act of intercourse, with this information given during initial post-test counseling and repeated at each subsequent visit. Trained nurses help couples overcome barriers to condom use. The control group was referred to the Lusaka Planned Parenthood Association of Zambia for family planning methods, with all fees paid by the research project. Women in the intervention group who desired Norplant or surgical sterilization were referred to University Teaching Hospital, with transport and service fees paid. Self-reported condom use was assessed. Approximately half of the couples eventually wanted to have children. Self-reported condom use remained consistent at between 58 to 63%. Improving access to non-barrier contraceptives among couples already using condoms for HIV prevention increased dual-method use. Within three months of the intervention, 156 out of 169 couples had initiated nonbarrier contraception if family planning was provided on site, but only 27 out of 82 couples initiated nonbarrier contraception if they had to travel to a different facility for contraception. The majority of couples (92%) were HIV discordant (Mark et al., 2007). (Gray II) (*HIV testing, family planning, contraception, condoms, Zambia*)

- ▶ A three-arm randomized control trial in **South Africa** with two intervention groups and one comparison group which integrated routine discussion of HIV risk and prevention, dual method use and increased counseling and testing in family planning services resulted in a statistically significant improvement in dual method use from 5 to 10% at baseline to 35 to 50% at endline. Pre-intervention data was collected through 369 client exit interviews and 374 client provider observations in 2004; three day training took place with 56 providers and four day training was conducted with 73 providers in 2005 and the same data collection methods were repeated in 2005. Six focus group discussions were held with clients and six focus group discussions were held with providers (Mullick et al., 2008). (Gray II) (*counseling, testing, family planning, South Africa*)
- ▶ A study from 1999–2004 in **Haiti** with GHESKIO analyzed 348 HIV-positive mothers. Rapid HIV-testing and syphilis screening were performed on all pregnant women. After testing, all HIV-positive, pregnant women were informed of their status, counseled and referred to an ANC clinic. GHESKIO integrated VCT, STI screening, family planning services and tuberculosis screening and treatment into one central HIV clinic. At 18 months, 73.9% of mothers in the study were also using family planning services compared to 23% of women in the general population using contraceptives. “Although our clinic staff encouraged women to bring in their partners for testing, 86% were unable to do so due to power disparities and/or lack of interest or resistance from partners” (Deschamps et al., 2009: 26). The study also found limited participation due to fear of abandonment, violence and partners’ reaction (Deschamps et al., 2009). (Gray III) (*family planning, treatment, Haiti*)

- ▶ A pre-post study from 2004 to 2008 of serodiscordant couples in **Kenya** found that a multiprong family planning intervention lead to high rates of both condom use and contraceptive use. Among 213 serodiscordant couples in the intervention group, nonbarrier contraceptive use increased from 31.5% to 64.7% among HIV-positive women and from 28.6% to 46.7% among HIV-negative women. At the intervention site, approximately 90% of sex acts were reported to be protected by condoms. At other Kenyan sites which did not have the intervention, which had a total of 1,216 couples, contraceptive use changes from 15.6% to 22.3% for HIV-positive women and decreased from 13.6% to 12.7% among HIV-negative women. Pregnancy incidence among HIV-positive women in the intervention site, which declined from 21.1 to 11 per 100 woman years was approximately half that at other Kenyan sites during the intervention period which increased from 16.8 to 21.9 women years. The intervention consisted of: training clinical and counseling staff on contraceptive methods with job aids to use with clients; provision of free contraceptive methods; appointment cards; ongoing training for staff; ongoing contraceptive supplies; discussions with couples on contraceptives; involving male partners in discussions on contraception; and discussions of unintended pregnancies (Ngure et al., 2009).<sup>1</sup> (Gray III) (*family planning, contraception, Kenya*)
- ▶ A study in **Uganda** in 2005 found that clients expressed a desire for a wider range of services at HIV/AIDS centers. They also noted that FP services are only offered when requested by the client or as a result of a provider's assessment of client needs. The limited range of available family planning options and stockouts increases vulnerability to unintended pregnancies. Furthermore, reliance on the provider's assessment or the client's initiative to demand family planning services may be unproductive when the provider fails to make the correct assessment of the family planning needs or the client does not feel comfortable initiating a discussion about family planning needs to a provider whose preferred option for the client is abstinence (Asiimwe et al., 2005). (Gray III) (*contraception, family planning, treatment, Uganda*)
- ▶ A cross sectional survey of 484 women who were HIV-positive and attending an HIV clinic in **Uganda**, 45% of whom were receiving HAART, found that women receiving HAART were more than twice as likely to use contraceptive methods and more than three times as likely to use barrier contraceptive methods than were women not receiving HAART. Of those 184 women who were sexually active and receiving HAART, 84% used barrier contraceptive methods, primarily the male condom. Almost 30% used hormonal contraceptive methods, with injections as the most common hormonal methods and 5% were sterilized. Women on HAART reported a high degree of dual

---

1 Whether this study was coercive is an issue of concern. The authors state: "Finally, our clinical trial protocol required discontinuation of the study drug for HIV-1-seropositive women who became pregnant, which may have been an incentive for study staff to focus family planning messages more strongly towards HIV-1-seropositive women." (Ngure et al., 2009: S94).

contraception: 57% used hormonal contraceptive methods and barrier contraceptive methods. Among sexually active women, contraceptive use was 85%, a much higher contraceptive prevalence rate than in the general female population (23%). Clinic visits for those on HAART is monthly and for those HIV-positive patients not on HAART, every three months. Median HAART use was 15 months (Andia et al., 2009). (Gray IV) (*HAART, contraception, Uganda*)

- ▶ A 2007 study with 493 HIV-positive women in **Uganda** found that easy access to family planning services was significantly associated with contraceptive use among HIV-positive women accessing HAART services (Ssewankambo et al., 2009). (Gray V) (*family planning, HAART, Uganda*)
- ▶ A review of family planning records from 2005 until 2007 of 600 HIV-negative women and 150 HIV-positive women in **Malawi** found that providing on-site family planning services to women participating in HIV-related research studies was well accepted with high uptake: At the initial visit 79% chose Depo-Provera; 17% chose contraceptive pills, 3% chose Norplant and 1% used condom use only. In follow-up visits, 3% were referred for sterilization and less than 5% changed their initial contraceptive method (Kachipapa et al., 2008). (Gray V) (*family planning, contraception, Malawi*)
- ▶ A study in 2005 of 227 women attending a hospital based antiretroviral program in **South Africa** found that one-third reported the combined use of a condom and a non-barrier contraceptive at last sexual intercourse. Women initiating ART are also counseled on effective contraception, provided through referral to a nearby primary care clinic. Of 227 women, 86% discussed condom use with their providers and 89% discussed contraceptive use. However, less than 10% knew of the existence of emergency contraception and only 13% knew that abortion is a legal and free public health service (Myer et al., 2007a). (Gray V) (*condom use, contraception, South Africa*)

## 2. Hormonal contraception is safe for HIV-positive women and does not seem to affect HIV acquisition or HIV progression.

- ▶ A systematic review of evidence from 26 studies on the safety of hormonal and intrauterine methods of contraception for women with HIV/AIDS found that hormonal and intrauterine methods of contraception was generally well tolerated by women with HIV. Eight observational studies reported no increased risk of HIV disease progression with hormonal or intrauterine contraceptive use, whereas one randomized controlled trial found increased risks of declining CD4 cell count and death for hormonal contraceptive users compared with intrauterine device users. Women with HIV who used hormonal contraception had increased risk of acquiring STIs compared to women not using hormonal contraception, similar to the risk reported among HIV-negative women. One study found no association between hormonal or intrauterine contraceptive use and increased risk of HIV transmission to uninfected partners, whereas findings from nine studies examining contraceptive use and viral shedding from the genital tract (a proxy

for infectivity) were inconsistent (Curtis et al., 2009). (Gray III) (*contraception, family planning*)

- ▶ A multi-country cohort analysis comparing the incidence of HIV disease progression among anti-retroviral therapy-naïve women with and without exposure to hormonal contraception at 13 sites in Africa and Asia found no association between hormonal contraceptive use and HIV disease progression. Between August 2002 and December 2007, the MTCT-Plus programs enrolled 7846 women. 4109 (52%) women met the eligibility criteria for this analysis and contributed 5911 person-years of follow-up. At baseline, 3064 (75%) women reported using either no contraception or a nonhormonal method, whereas 823 (20%) reported using implants/injectables and 222 (5%) reported using oral contraceptive pills. The disease progression outcome was met by 944 (29%) women. Neither implants/injectables nor oral contraceptive pills were associated with disease progression (Stringer et al., 2009). (Gray III) (*contraception, family planning, PMTCT*)
- ▶ A study of 4,200 HIV-negative women in **South Africa** ages 35 to 49 years of age found that during 5,010 person years of follow-up, 111 women acquired HIV. Of the 4,200 women, 21% used hormonal contraception, of which 14% used DMPA and 5% norethindrone enanthate. After adjusting for sexual risk behaviors and STIs, the incidence of HIV was similar among women using combined oral contraceptives, DMPA and norethindrone enanthate compared to women not using any hormonal contraceptives. “The conflicting evidence regarding the potential role of hormonal contraception in increasing women’s risk of HIV infection would appear to demand further epidemiological investigation. However, any true association is likely to be small...In the case of hormonal contraception and HIV infection, it is unclear whether more definitive evidence is likely to emerge from observational epidemiological studies...” (Myer et al., 2007b: 173.). (Gray III) (*contraception, DMPA, South Africa*)
- ▶ A study with 13 years of follow-up in **Uganda** which assessed the association between hormonal contraceptive use on time from HIV seroconversion to death from 1994 to 2006 with 625 women found that hormonal contraception was not associated with an increased risk of death in HIV-positive women and “thus does not support the concern that hormonal contraception accelerates time-to-death among HIV-infected women” (Polis et al., 2009). (Gray III) (*contraception, Uganda*)
- ▶ An observational prospective cohort study of 498 HIV-positive women in **Kenya** and **Zimbabwe** with CD4 counts equal to or greater than 500 who used a contraceptive method of their choice and were followed up every six months for four years was not associated with HIV disease progression. Of the 363 women who used their contraceptive method consistently for a mean of two years, 135 (37%) used DMPA; 85 (23%) used oral contraceptives and 143 (39%) used non-hormonal methods. DMPA users and oral contraceptive users had a similar change in CD4 count in comparison to women using non-hormonal contraception methods; change in HIV viral load was not significantly

different; and progression to WHO clinic stage III or IV was also similar (Mwachari et al., 2008). (Gray III) (*contraception, Kenya, Zimbabwe*)

- ▶ Information on HIV status correlated with DMPA use among women ages 15 to 24 years of age for 874 women in **Kenya**, 867 women in **Lesotho**, 931 women in **Malawi** and 1,877 women in **Zimbabwe** found that users of DMPA had consistently higher HIV seroprevalence, with differences from nonusers significant for Lesotho and Zimbabwe and highly significant for the merged data set. However, “even if women shifted from DMPA to the pill, the net effect on HIV prevalence would be small and unlikely to change the course of the HIV epidemic” (Leclerc et al., 2008: 375). (Gray III) (*DMPA, Kenya, Lesotho, Malawi*)
- ▶ A study in the **United States** with 70 women, with 16 women who were not on HAART, who were followed for 12 weeks, found no significant changes in CD4 counts of HIV RNA levels occurred with DMPA use. No evidence of ovulation was detected and no pregnancies occurred. “Data suggest that DMPA can be used safely by HIV-positive women on the ARV studied [nucleoside; nelfinavir; efavirenz; nevirapine] (Watts et al., 2008: 85). (Gray III) (*DMPA, contraception, HAART, treatment, United States*)
- ▶ Based on results of five studies (Kapiga et al., 1998; Kiddugavu et al., 2003; Morrison et al., 2007; Myer et al., 2007b and Beaten et al., 2007 cited in Heikinheimo and Lahtenmaki et al., 2009), the use of oral contraceptives may be associated with an increased risk of HIV acquisition among sex workers; however, among other women, no increased risk of HIV was observed during use of oral contraceptives (Leclerc et al., 2008 cited in Heikinheimo and Lahtenmaki et al., 2009). (Gray IV) (*contraception, sex workers*)
- ▶ “Among women from the general population, combined oral contraceptives and DMPA use does not appear to significantly increase HIV acquisition risk; evidence from studies conducted among high risk groups of women is more mixed... Additional research is urgently needed...” The assessment was based on a review of 13 prospective studies (Morrison, 2009). (Gray IV) (*contraception, DMPA*)
- ▶ A review of peer-reviewed literature for prospective studies published between 1996 and August 2008 found that data suggest that neither oral contraceptives nor DMPA increase HIV risk among women in the general population. Data are equivocal for sex workers. Data suggested no increased risk among copper IUD users. Women’s contraceptive preferences would make randomized controlled trials unethical. “Care should be taken...to avoid inducing unwarranted concern about risks associated with contraceptive use” (Morrison et al., 2009: 280). (Gray V) (*contraception, sex workers*)
- ▶ Use of injectable contraception may increase risk of HIV acquisition for sex workers but not for other women (Ungchusak et al., 1996; Baeten et al., 2007; Kapinga et al., 1998; Kiddugavu et al., 2003; Morrison et al., 2007; Beaten et al., 2007; Kleinschmidt et al., 2007 cited in Heikinheimo and Lahtenmaki, 2008). (Gray V) (*contraception, sex workers*)

- ▶ An open label pharmacokinetic study of drug interactions among 54 HIV-positive women treated with DMPA in the **USA** while on different antiretroviral therapies—nelfinavir, efavirenz or nevirapine—found that suppression of ovulation was maintained, contraception was effective and there were no significant changes in median CD4 cell count at week 12 compared to baseline. DMPA, also known as Depo-Provera, is one the more frequently used contraceptive methods globally and is often used by women living with HIV (Cohn et al., 2007). (Gray V) (*DMPA, contraception, USA*)
- ▶ “Biological and epidemiological studies suggest that hormonal contraceptive use could influence susceptibility to HIV-1, as well as infectivity and disease progression for those who become infected. However, not all studies have shown this relationship and many questions remain” (Baeten et al., 2007: 360). (Gray V) (*contraception*)

### 3. **Women with HIV can use IUDs if they have access to medical services in case of IUD expulsion.**

- ▶ A randomized trial of 599 HIV-positive women to receive either IUD or hormonal contraception in **Zambia** (no year given) found that women who received hormonal contraception were more likely to experience a CD4 count decline to less than 200 cells/UL than were women who received the IUD. Over 642 woman-years of follow-up, one woman who received the IUD experienced Pelvic Inflammatory Disease (PID). Ten women expelled their IUDs; of these four were partial expulsions that required medical attention and six were complete expulsions. Only one woman who had experienced expulsion elected to have the IUD reinserted. Overall 184 patients (31%) discontinued their originally allocated form of contraception over a 24-month follow-up. Women assigned to hormonal contraception were more likely to become pregnant than were women who were assigned to the IUD (4.09 pregnancies per 100 women years vs. .38 pregnancies per 100 woman years). No cases of PID occurred among participants who received hormonal contraception. Women who received hormonal contraception were less likely to discontinue than were women who received the IUD (Stringer et al., 2007). (Gray II) (*contraception, Zambia*)
- ▶ A review performed by an independent expert group using 1,000 references related to IUDs found that: there are no known drug interactions between IUDs and HAART; there appears to be no effect of IUDs on HIV-1 viral shedding; there appears to be no increase in overall complications or infections with IUDs; and there is no increase risk of transmission to HIV-negative partners by HIV-positive IUD users (Castano, 2007 cited in Martinez and Lopez-Arregui, 2009). (Gray III) (*contraception, HAART*)

### 4. **Providing information and skills-building support to HIV-positive people can reduce unprotected sex.**

- ▶ A meta-analytic review based on electronic databases from 1988 to 2004, with twelve trials in the **USA** that used randomization, statistical analysis and assessment of

HIV-related behavioral or biologic outcomes at least three months after the intervention found that interventions for people living with HIV are effective in reducing unprotected sex and acquisition of sexually transmitted diseases. Only one study was with HIV-positive women only. All the interventions provided information with nine interventions providing skill building through live demonstrations, role plays or practice, such as correct use of condoms, coping or interpersonal skills such as communication about safer sex or disclosing serostatus. Interventions were delivered by health care providers, counselors or trained HIV-positive peers. Effective interventions were delivered on a one-to-one basis by providers or counselors with at least ten intervention sessions for at least three months. Reduced rates of unprotected sex were reported at 12 months post-interventions. No studies which met the meta-analytic criteria were found for developing country contexts. “Although it is unclear the extent to which our meta-analytic findings (based on the experience in the US) can be generalized to resource-poor settings and other populations, the lessons learned may provide insights... As antiretroviral therapy programmes are expanded worldwide, effective prevention strategies should be integrated within routine medical care and services provided for PLWH” (Crepaz et al., 2006: 154). (Gray I) (*STIs, condom use, education, sex behavior, United States*)

- ▶ A meta-analysis of 14 articles with 3,234 people (the majority in the **USA**) found that sexual risk reduction strategies that included HIV-positive participants; used a randomized controlled design; and measured condom use reduced sexual risk by increasing condom use especially if interventions included skills-building and motivated participants. “Perhaps the most surprising finding of this work is that more than two decades into the epidemic, there have been so few intervention randomized controlled trials that focus on people living with HIV” (Johnson et al., 2006: 28). (Gray I) (*sex behavior, condom use, education, United States*)
- ▶ An intervention of four focus group sessions for 180 women in **Zambia** with skills training on HIV prevention and transmission, communication, conflict resolution and sexual negotiation resulted in female participants reporting increased condom use, with 94% of the women reporting using condoms all of the time. Sexual risk behavior was assessed at the start of the project and after 12 months. (Jones et al., 2005). (Gray V) (*education, sex behavior, condom use, Zambia*)
- ▶ A review of published research in the **United States** from 1998 to 2008 of “prevention for positives” found a few studies with interventions that increased condom use between HIV-positive people and their sexual partners. In one study, providers were trained to deliver a standardized intervention resulting in a significant decline in unprotected anal or vaginal intercourse from 42% to 23% at 12-month follow-up among 767 patients at HIV clinics (Gardner et al., 2008 cited in Gilliam and Straub, 2009). In another study, 15 ninety-minute individually delivered intervention sessions resulted in a significant 36% reduction in the number of unprotected sex acts among 794 patients,

68% male, 52% Black (Healthy Living Project Team, 2007 cited in Gilliam and Straub, 2009). Another randomized controlled study with 233 men and 99 women, 48% high school graduates provided five group sessions, gender and sexual orientation specific on disclosure and reduction in transmission risk behaviors resulted in significant reductions in unprotected vaginal and anal intercourse in the previous three months at six month follow-up (Kalichman et al., 2005 cited in Gilliam and Straub, 2009). Another study found significant reductions in unsafe sex in 214 participants through emphasizing the negative consequences of unsafe sex for the HIV-positive person, such as “if you don’t use clean syringes, you could get hepatitis” (Richardson et al., 2004 cited in Gilliam and Straub, 2009). A study with HIV-positive women who received four four-hour interactive group sessions and a social network intervention, compared to a health promotion intervention had significantly lower self-reported vaginal intercourse at 12-month follow-up (Wingood et al., 2004 cited in Gilliam and Straub, 2009). Increased frequency of counseling about safe sex in several studies was correlated with having specific written procedures. Addressing provider attitudes and providing training to providers is also critical (Gilliam and Straub, 2009). (Gray V) (*sexual partners, disclosure, condom use, providers, United States*)

5. **Interventions to support disclosure can increase condom use in discordant couples.** [*See also Chapter 6. HIV Testing and Counseling for Women*]

- ▶ A 2003 study in **South Africa** interviewed 215 HIV-positive individuals (192 women) and found that HIV status disclosure lead to safer sexual behavior and greater social support. After disclosure 82% asked their partners to get tested, 81% decided to be monogamous, 64% used condoms every time, 56% reduced their number of sexual partners and 20% abstained from sex. One-third of HIV-positive individuals did not disclose their status to their sexual partner. Families provided 25% and doctors provided 20% of social support. The study measured social support by the patients’ perception as increased, maintained or decreased depending on to whom they disclosed (Wong et al., 2009). (Gray IV) (*disclosure, support programs, sex behavior, sexual partners, South Africa*)
- ▶ A study by TASO in **Uganda** found that support that resulted in sero-disclosure resulted in increased condom use. A total of 3,219 counseling records of sexually active clients, 65% female, accessing care in 2007 were analyzed using Epi Info. 3,129 or 40% of sexually active clients disclosed their HIV-positive serostatus to their sexual partners. Of these, 1,173 or 90.8% reported consistent condom use. Of those who disclosed their serostatus, 5% did not use condoms as compared to 19.3% of clients who had not disclosed their HIV-positive serostatus (Kadando et al., 2008). (Gray V) (*sex behavior, disclosure, condom use, Uganda*)
- ▶ 394 participants recruited through the **Caribbean** regional network of people living with HIV/AIDS (CRN+) found that 54% of respondents reported that they did not use a condom at last sex, with no difference by sex. Bivariate analysis showed that condom

use was positively associated with disclosure of HIV-positive serostatus and partner being HIV-negative, as well as being married (Allen et al., 2008). (Gray V) (*condom use, Caribbean*)

**6. Providing antiretroviral treatment to people living with HIV can increase HIV prevention behaviors, including condom use.** [See Chapter 7C. *Treatment: Reducing Transmission*]

**Promising Strategies:**

**7. Cervical cancer screening and treatment can be integrated into HIV care to reduce morbidity and mortality in women living with HIV.**

- ▶ A program for cervical cancer for both HIV-positive and negative women in Lusaka, **Zambia** has screened over 20,000 women in 15 primary care clinics and has linked cervical cancer prevention services with HIV care and treatment services. Due to lack of resources to establish a patient recall system, emphasis was on high population coverage rather than frequency of exams. Cervical cancer using visual inspection with acetic acid (VIA) provided on-the-spot results, which was then linked with same visit cryotherapy. Community randomized trials have documented the safety, acceptability and effectiveness of single visit “see and treat” methodology based on VIA and same visit cryotherapy of eligible lesions (Sankaranarayan et al., 2007; Goldie et al., 2005; Denny et al., 2005 cited in Mwanahamuntu et al., 2008). Peer educators as health promotion advocates and patient navigators reduced loss to follow-up. Community women were trained on conducting community-based cervical health promotion talk. Women who wanted more information were directed to the cervical cancer prevention clinics. Women who attended cervical cancer prevention clinics who had not been tested for HIV were counseled on HPV and HIV testing. HIV-positive women were escorted to nearby HIV care treatment clinics for further evaluation. To minimize stigma, screening clinics were co-located in government-operated public health clinics near to but not directly within the HIV clinic (Mwanahamuntu et al., 2008). (Gray V) (*cervical cancer, treatment, Zambia*)
- ▶ A 2007 overview states that cervical cancer screening of HIV-positive women in **low-resource countries** could be integrated with ARV treatments, which have established the regular observation, infrastructure and services to support cervical cancer screenings. The overview explains that a new, rapid HPV test is underway and may be the best option considering the difficulties associated with Pap smears, visual inspection and HPV tests in low-resource countries. Pap smears require high standards of implementation, which work in high-resource countries, but may be deficient in low-resource settings. Visual inspection relies heavily upon the training of the health provider, though it is a low-cost option giving immediate results (Franceschi and Jaffe, 2007). (Gray V) (*cervical cancer, treatment, Pap smears*)

8. **Promoting condom use for contraception may make condom use more acceptable and easier to negotiate.** [See Chapter 3A. *Prevention for Women: Male and Female Condom Use*]
9. **Early postpartum visits can result in increased condom use, contraceptive use, HIV testing and treatment.** [See Chapter 9E. *Safe Motherhood and Prevention of Vertical Transmission: Postpartum*]

### **Gaps in Programming—Meeting the Sexual and Reproductive Health Needs of Women Living with HIV**

1. Additional efforts are needed to provide information on contraceptive method use to women living with HIV (or whose serostatus is unknown) who do not desire to have a child or wish to space the next pregnancy.
2. Programs must adhere to the longstanding international agreement to voluntarism, informed consent, and ensuring the right of individuals and couples to decide freely and responsibly the number and spacing of their children.
3. Providers need training on contraception, including non-directive counseling and reducing stigma and discrimination for women living with HIV.
4. Interventions to increase dual protection and dual method use are needed.
5. Women living with HIV need information and access to services for emergency contraception; safe abortion, where legal; and post-abortion care (PAC) services where abortion is illegal. Research is also needed on the safest methods of abortion for HIV-positive women.
6. Efforts are needed to address barriers to ensure that women living with HIV can access and use contraceptives without the knowledge of their partner, if desired.
7. Potential drug interaction between contraceptive options and treatment for TB and HIV co-infection must be considered.
8. Efforts are needed to capitalize on opportunities to integrate family planning and HIV services.
9. Policy guidelines need to specify how family planning should be addressed in HIV prevention, treatment and care.
10. Additional efforts are needed to reduce the structural barriers, such as gender norms, that influence the behavior or decisions of people living with HIV to engage in unsafe sex.

## Gaps in Programming—Meeting the Sexual and Reproductive Health Needs of Women Living With HIV *(continued)*

11. Providers need additional skills and resources to provide non-judgmental, confidential safer sex counseling to people living with HIV.
12. Further interventions providing disclosure support are needed, particularly for women facing abandonment, violence, or other adverse events.
13. Interventions providing information on sero-sorting as a preventive strategy are needed.
14. Further interventions are needed to ensure that women, especially women living with HIV, are screened and treated for cervical cancer.
15. Screening and treating HIV-positive women and their partners for STIs may reduce HIV transmission and will improve health.
16. Adolescents who acquired HIV through perinatal transmission need information and treatment services through adolescent-friendly HIV and family planning services.

1. **Additional efforts are needed to provide information on contraceptive method use to women living with HIV (or whose serostatus is unknown) who do not desire to have a child or wish to space the next pregnancy.** Studies found that many women had significant numbers of unintended pregnancies.

- ▶ Gap noted, for example, in **South Africa** (Cooper et al., 2009, Laher et al., 2008; Laher et al., 2009a, Rochat et al., 2008); **Uganda** (Homsy et al., 2009, Heys et al., 2009, Nakayiwa et al., 2009, Bunnell et al., 2008, Bajunirwe et al., 2008); **Kenya** (Okundi, 2009, Imbuki et al., 2009); **Kenya and Malawi** (Anand et al., 2009); **Argentina** (Gogna et al., 2009); **India** (Suryavanashi et al., 2009); **Benin** (Gougounon et al., 2008); **Botswana** (ICW, 2006); **Côte d’Ivoire** (Desgrées-Du-Loû et al., 2002 cited in de Bruyn, 2003); general (Hoffman et al., 2008; Rochat et al., 2006 cited in Reynolds et al., 2008).

2. **Programs must adhere to the longstanding international agreement to voluntarism, informed consent, and ensuring the right of individuals and couples to decide freely and responsibly the number and spacing of their children.** Studies found that women living with HIV had been sterilized against their will, were pressured by providers to terminate a pregnancy, or were stigmatized for becoming pregnant.

- ▶ Gap noted, for example, in **Namibia** (ICW, 2009); **Brazil** (Oliveira et al., 2007, Nobrega et al., 2007 cited in Oliveira et al., 2007, Knauth et al., 2003); **India** (Batura et al., 2008); **Chile** (Araya, 2008); **Mexico** (Kendall and Perez-Vasquez, 2008); **Ukraine** (Yaremenko

et al., 2004); **Argentina, Mexico, Peru, Poland, Botswana, Kenya, Lesotho, Namibia, Nigeria, South Africa and Swaziland** (de Bruyn, 2006a).

3. **Providers need training on contraception, including non-directive counseling and reducing stigma and discrimination for women living with HIV.** Studies found that HIV-positive women were required to wait in separate waiting rooms and that because provider bias limited contraceptive options, providers needed additional training on the full range of contraceptive options.
  - ▶ Gap noted, for example, in **Namibia** (ICW, 2009); **Brazil** (Malta et al., 2009); **India** (Batura et al., 2008); **South Africa** (Hatzell et al., 2008); **Argentina** (Gogna et al., 2008); **Argentina, Mexico, Poland, Kenya, Lesotho, South Africa and Swaziland** (de Bruyn, 2004 cited in Delvaux and Nöstlinger, 2007); **Zambia** (Mark et al, 2007); **Uganda** (Asiimwe et al., 2005); general (Richey and Shelton, 2007).
4. **Interventions to increase dual protection and dual method use are needed.** Studies found that couples are reluctant to use dual protection because it may symbolize distrust of a partner, particularly among adolescents.
  - ▶ Gap noted, for example, **Ghana** (Goparaju et al., 2003); general (Spieler, 2001 cited in Goparaju et al., 2003, Delvaux and Nöstlinger, 2007).
5. **Women living with HIV need information and access to services for emergency contraception; safe abortion, where legal; and post-abortion care (PAC) services where abortion is illegal. Research is also needed on the safest methods of abortion for HIV-positive women.** Studies found that women did not have adequate knowledge of emergency contraception, nor access to services for post-abortion care or abortion, where legal. Abortion services are safe for HIV-positive women when performed by qualified professionals in sanitary conditions. However, unsafe abortion carries additional risks for HIV-positive women.
  - ▶ Gap noted, for example, in **India** (Sellers et al., 2008); **Argentina, Mexico, Peru, Poland, Botswana, Kenya, Lesotho, Namibia, Nigeria, South Africa and Swaziland** (de Bruyn, 2006a); global literature review (de Bruyn, 2003); general (Delvaux and Nöstlinger, 2007); globally (Guttmacher Institute, 2006 cited in Esplen, 2007).
6. **Efforts are needed to address barriers to ensure that women living with HIV can access and use contraceptives without the knowledge of their partner, if desired.** Studies found that women would not always tell their partner about contraception use for a number of reasons, including the desire to avoid pregnancy.
  - ▶ Gap noted, for example, in **South Africa** (Moodley et al., 2008b).
7. **Potential drug interaction between contraceptive options and treatment for TB and HIV co-infection must be considered.** Articles noted a lack of data on potential interactions.

Interactions between ARVs and oral contraceptives may alter the effectiveness or side effects of oral contraceptives.

- ▶ Gap noted, for example, in Delvaux and Nöstlinger, 2007; Stuart, 2009: 412; Anderson et al, 2005; Chu et al., 2005; Aweeka et al., 2006 cited in Stuart, 2009.

8. **Efforts are needed to capitalize on opportunities to integrate family planning and HIV services.** Studies found that both men and women wanted greater integration of services.

- ▶ Gap noted, for example, in **Ethiopia** (Wilson-Clark, 2008); **South Africa** (Mantell et al., 2008b); **Mexico** (Gonzalez, 2008).

9. **Policy guidelines need to specify how contraception should be addressed in HIV prevention, treatment and care.** Studies found that many guidelines did not explicitly address family planning in VCT and PMTCT guidelines and that providers and policymakers felt they had insufficient knowledge.

- ▶ Gap noted, for example, in **South Africa** (Harries et al., 2007); **16 high-HIV prevalence countries** (Strachan et al., 2004).

10. **Additional efforts are needed to reduce the contextual barriers that influence the behavior or decisions of people living with HIV to engage in unsafe sex.** Studies found that factors such as difficulties negotiating condoms, partner refusal, high unemployment, alcohol use, financial dependency, expectations of childbearing, fear of disclosure, etc., influenced protective behavior.

- ▶ Gap noted, for example, in **South Africa** (MacDonald et al., 2008, Eisele et al., 2008); **Uganda** (King et al., 2009; Bakeera-Kitaka et al., 2008); **Cameroon** (Abega et al., 2008).

11. **Providers need additional skills and resources to provide non-judgmental, confidential safer sex counseling to people living with HIV.** [See also Chapter 13. *Structuring Health Services to Meet Women's Needs*] Studies found that providers faced barriers in providing effective counseling including too few staff, limited time, discomfort discussing sex, etc.

- ▶ Gap noted, for example, in **South Africa** (Cornman et al., 2008); **Russian Federation** (Davidson et al., 2008).

12. **Further interventions providing disclosure support are needed, particularly for women facing abandonment, violence, or other adverse events.** [See also Chapter 9C-1. *Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*, Chapter 6. *HIV Testing and Counseling for Women* and Chapter 11F. *Strengthening the Enabling Environment: Reducing Stigma and Discrimination*] Studies found many women faced abuse and abandonment upon disclosing their status.

- ▶ Gap noted, for example, in **Malawi** (Chinkonde et al., 2009); **South Africa, Malawi, Swaziland, Lesotho and Tanzania** (Greeff et al., 2008).

13. **Interventions providing information on sero-sorting as a preventive strategy are needed.** Studies found that sero-sorting emerged as a strategy to reduce transmission risk.
  - ▶ Gap noted, for example, in **Uganda** (Seely et al., 2008).
  
14. **Further interventions are needed to ensure that women, especially women living with HIV, are screened and treated for cervical cancer.** Studies found that women were not aware of and/or did not receive regular screening and treatment of cervical cancer, despite higher risk of developing cervical cancer.
  - ▶ Gap noted, for example, in **Bahamas** (Dames et al., 2009); **Nigeria** (Dim et al., 2009); **South Africa** (Wake et al., 2009, Denny et al., 2008, Myer et al., 2007a, Gaym et al., 2007); **United States** (Massad et al., 2008); **Kenya** (Yamada et al., 2008); **Uganda** (Safaeian et al., 2008); **Tanzania** (Kahesa et al., 2008); **France** (Heard et al., 2006); general (Goldie et al., 1999).
  
15. **Screening and treating HIV-positive women and their partners for STIs may reduce HIV transmission and will improve health.** [*See Chapter 3D. Prevention for Women: Treating Sexually Transmitted Infections*]
  
16. **Adolescents who acquired HIV through perinatal transmission need information and treatment services through adolescent-friendly HIV and family planning services.** [*See Chapter 5B. Prevention for Young People: Increasing Access to Services*]



## Safe Motherhood and Prevention of Vertical Transmission

- A. Preventing Unintended Pregnancies
- B. Pre-Conception
- C. Antenatal Care:
  - 1. Testing and Counseling
  - 2. Treatment
- D. Delivery
- E. Postpartum

Two vital components of AIDS programming for women living with HIV are ensuring safe motherhood through access to health care during pregnancy and childbirth and ensuring access to services to prevent vertical HIV transmission. In 2008, an estimated 1.4 million pregnant women living with HIV in low- and middle-income countries gave birth. Sub-Saharan Africa accounted for 91% of all pregnant women living with HIV (UNAIDS, 2009d). Globally, of the 136 million women who gave birth each year between 2005–2010, an estimated 60 million women delivered at home each year without access to skilled attendants (Berer, 2004) and may not have access to prevention of mother-to-child transmission (PMTCT) services. “...Significant increases in PMTCT coverage among those at risk can only be achieved by substantially increasing uptake of general ANC and delivery services....

PMTCT programmes need to be strengthened by investing more generally in maternal health services...” (Kasenga et al., 2009: 1). For example, less than 70% of women in the Middle East and North Africa region have at least one antenatal checkup, hindering PMTCT efforts

---

“PMTCT is too much about the baby and not enough about the mother.”  
—Woman in a PMTCT program, Malawi (Bwirire et al., 2008: 1997)

---

(Remien et al., 2009). In Cambodia, 78% of births occur at home or outside medical facilities in which PMTCT services are available (ITPC, 2009). Programs to prevent vertical transmission, often referred to as prevention of mother-to-child transmission (PMTCT) programs, have historically focused on infant outcomes, rather than both the mother and infant.<sup>1</sup> Improving health systems and providing evidence-based interventions to ensure safe motherhood is critical for all women, and especially so for women living with HIV.

## Vertical Transmission Can Occur at Multiple Points

Vertical HIV transmission can occur in utero, during delivery and during breastfeeding. These are all points for reducing the probability of transmission while also serving as critical points for addressing women's health needs. Recent estimates of maternal mortality for 181 countries from 1980 to 2008 found that of the 342,900 estimated maternal deaths worldwide in 2008, 61,400 were attributed to HIV (Hogan et al., 2010).

While it is impossible for an HIV-negative woman to give birth to an HIV-positive infant, it is possible for a woman to seroconvert during her pregnancy; starting her pregnancy as HIV-negative and becoming HIV-positive through sexual transmission from a sexual partner, unscreened blood transfusions, injecting drug use or rape during the course of pregnancy. In some societies, men are encouraged to have multiple partners while their wife/partner is pregnant or breastfeeding which can lead to women seroconverting (Ghanotakis, 2010). Studies also show that significant proportions of women who are pregnant suffer from violence (Dunkle et al., 2004; Guo et al., 2004 cited in Tang et al., 2008; Cripe et al., 2008; Ellsberg, 2006). [See also Chapter 11B. *Strengthening the Enabling Environment: Addressing Violence Against Women*] Perinatal transmission is usually considered the time between 20 weeks of gestation and 28 days following birth. However, breastfeeding, when transmission can continue to occur, may be a period of months and even two or three years following birth. A woman can acquire HIV before or after the birth of her child and vertical transmission of HIV is still possible as long as breastfeeding continues. If a woman is HIV-positive and breastfeeds, because safe drinking water and replacement feeding are not available to her, or to avoid HIV stigma, her infant born HIV-negative can become HIV-positive.

## The Four Pillars of PMTCT

Prevention of vertical transmission has been categorized into four pillars, each of which contributes to preventing HIV acquisition and transmission (Glion Call to Action, 2004; UNAIDS, 2006; UNICEF, 2008).

---

<sup>1</sup> In fact, PMTCT, itself, is “a name that implies that mothers are the source of the virus, rather than the latest in a long chain of transmission” (Lewis and Donovan, 2009: iv). This document primarily uses the term vertical transmission.

### *Pillar 1: Preventing Primary HIV Infection in Women*

Primary prevention of HIV among adults remains critical to any efforts to reduce vertical transmission. Women who remain HIV-negative cannot transmit HIV to their infants. Further, “children whose mothers have died, regardless of the mother’s HIV status, are less likely to survive to their fifth birthday than are children of HIV-infected women who are still alive” (Zaba et al., 2005 cited in Heymann et al., 2007a). The programming in *Chapter 3. Prevention for Women, Chapter 4. Prevention for Key Affected Populations, Chapter 5. Prevention for Young People and Chapter 11. Strengthening the Enabling Environment* address this first prong of preventing primary HIV infection in women.

### *Pillar 2: Preventing Unintended Pregnancy Among Women Living with HIV*

Preventing unintended pregnancies can have a significant impact on reducing perinatal transmission of HIV and is a fundamental right for women. Once fully informed of her options, a woman can decide about her reproductive choices and make an informed decision about her fertility. The benefits of family planning include preventing unintended pregnancies; reducing maternal and infant deaths; and greater educational and economic opportunities for women (Halperin et al., 2009a). A 2006 modeling study found that for the same cost as treatment with antiretroviral drugs to prevent perinatal transmission, contraceptive use can avert nearly 30 percent more unintended HIV-positive births (Reynolds et al., 2006a). It is estimated that 22 percent of unintended HIV-positive births are already being prevented through current levels of contraceptive use in sub-Saharan Africa (Reynolds et al., 2006a). “One of the neglected areas in PMTCT globally has been the issue of fertility desires and fertility planning for HIV-positive women and their partners” (McIntyre and Lallemond, 2008b: 137). Interventions related to this pillar are included in this chapter as well as in *Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV*.

### *Pillar 3: Preventing Vertical Transmission of HIV During Pregnancy, Delivery and Postpartum*

Well-functioning maternal health programs are essential for all women, but particularly for pregnant women living with HIV. Access to preconception care, HIV testing and counseling that guarantees confidentiality, HIV treatment options, and evidence-based options in delivery and for postpartum care are critical to meeting the needs of women living with HIV and preventing perinatal transmission. Interventions related to this pillar are included in this chapter.

### *Pillar 4: Family Treatment—Providing Care, Treatment and Support to HIV-Positive Women, Their Children and Families*

Family treatment (also referred to as PMTCT-Plus) refers to programming that aims to reduce vertical transmission as well as to provide services before, during and after pregnancy for women living with HIV and to other family or household members. Globally, maternal-child

health facilities have traditionally excluded men even though fatherhood is important in almost all societies and women often want the support of their male partners during pregnancy, labor, delivery and the postpartum period. Good maternal health can also be highly dependent on access to HIV prevention, treatment and care for men, as focusing on men in addition to women protects the health of women and, by extension, their children.

Involving men in PMTCT programs—with the permission of women—is an important component in increasing women’s uptake of HIV testing, prevention, treatment and care (Ghanotakis, 2010). Yet in 2007, only 5% of the male partners of women attending antenatal care were tested for HIV (UNAIDS, 2009e). Involving men in PMTCT programs can also help address the gender issues that impact women’s acquisition of HIV, as well as access to prevention, testing, treatment and care. [See also *Chapter 11. Strengthening the Enabling Environment*] Recent work has focused on men and fatherhood (Barker et al., 2010). Programs such as Women Fighting AIDS in Kenya is successfully working to increase male involvement in PMTCT services (Ovaro and Kaduwa, 2008). A number of programs, such as EngenderHealth’s *Men as Partners* or Catholic Medical Mission Board’s *Men Taking Action* in Zambia are working to increase the positive involvement of men in maternal health care in general, but few evaluated studies were found for PMTCT programs. PMTCT programs may learn from involving men in safe motherhood programs. Interventions related to this pillar are included in *Chapter 7. Treatment*, *Chapter 10. Preventing, Detecting and Treating Critical Co-Infections*, and *Chapter 12. Care and Support*.

## Most PMTCT Programs Focus On Pillar 3

Despite the importance of pillars one and two in preventing vertical transmission, “for most programs in the field, PMTCT is in fact focused on the program’s third and fourth components” (Msellati, 2009:808). While this chapter touches on pillar two, additional information on preventing unintended pregnancies is in *Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV*. The majority of this chapter focuses on pillar three—safe motherhood and prevention of vertical transmission. The other pillars are covered, however, in additional chapters as noted above.

## What Works in Safe Motherhood and Preventing Vertical Transmission

A number of proven strategies work to reduce the risk of HIV transmission from mother to child. Confidential HIV testing with counseling during antenatal care that includes women, and with their permission, their partners, is a critical foundation for reducing vertical trans-

mission of HIV. HIV testing and counseling allows women to know their serostatus and make appropriate decisions to prevent vertical transmission. Maternal use of ARV therapy for her own health saves the lives of both mother and child and reduces orphan death in the long term. ARV prophylaxis during pregnancy drastically reduces perinatal transmission. Initiating ARV therapy or prophylaxis in a timely fashion and adherence are also important. [See Chapter 7. Treatment] A 2008 review on child survival and PMTCT reported that child survival depends largely upon the mother's health and survival. HAART for pregnant women dramatically reduces perinatal transmission; reduces the risk of resistance to antiretroviral drugs related to monotherapy or duo therapy; and the risk of virological failure of HAART for HIV-positive children (Russo et al., 2009). In November 2009, WHO released new rapid advice recommending ARV use for treatment or prophylaxis for pregnant women: [http://www.who.int/hiv/pub/mtct/rapid\\_advice\\_mtct.pdf](http://www.who.int/hiv/pub/mtct/rapid_advice_mtct.pdf).

Improvement of maternal health services globally will be necessary to reach all women and infants who need services, ensuring safe motherhood and prevention of vertical transmission. Provision of contraception to women who wish to avoid pregnancy is the first step in preventing vertical transmission. In order to best advise a woman living with HIV about her options for safe motherhood and prevention of HIV transmission to her future child, it is optimal to reach her prior to pregnancy. However, most women become aware of their positive serostatus once they are pregnant, via HIV testing during antenatal care. Strengthening access to early antenatal care, services for labor and delivery and postpartum is essential to providing adequate PMTCT services. During antenatal care, HIV testing, treatment options, syphilis screening malaria prophylaxis and other essential antenatal care must be fundamental services for pregnant women living with HIV. Access to basic emergency obstetric care and emergency obstetric care is also essential for pregnant women living with HIV. All the interventions noted in *“What Works, Safe Motherhood”* (Gay et al., 2003) take on additional importance for HIV-positive women [[www.policyproject.com/pubs/generalreport/SM\\_WhatWorksp2.pdf](http://www.policyproject.com/pubs/generalreport/SM_WhatWorksp2.pdf)]. For recent evidence and information on maternal health, see also WHO, 2010a; WHO, 2009g; WHO, 2006c and the website of the Maternal Health Taskforce: [www.maternalhealth-taskforce.org](http://www.maternalhealth-taskforce.org).

The evidence for what works in preventing perinatal transmission in this chapter is organized according to the way women access health services, particularly maternal health services: prevention of unintended pregnancies, preconception planning; antenatal care (testing and counseling, treatment); delivery; and postpartum.

## Not All of the Science Related to PMTCT Is Resolved

In many respects, programming for PMTCT is quite advanced and yet for some aspects of PMTCT, current research provides incomplete and complex guidance, adding to the ongoing challenge of programming to meet the needs of women and to reduce vertical transmission. Many unknowns remain about HIV in pregnancy and how best to provide appropriate and

good care to women and their infants. Topics such as perinatal ARV therapy and breastfeeding continue to raise questions. Some of the scientific evidence points to contradictory conclusions and further guidance from the WHO is anticipated. “...After more than two decades of intensive research into HIV, the precise mechanism or even route of the vertical transmission of the virus remains unknown” (de Vries and Peek, 2008: 679). But pregnancy is a time where many women have multiple contacts with health providers, “creating an opportunity to assess and address women’s sexual risk and HIV and STI status” (Kershaw et al., 2006: 310). However, one fact remains clear: it is vital that HIV-positive women are given counseling and support with the most accurate and comprehensive information available so that they can make informed decisions about their health and the health of their children.

## 9A. *Safe Motherhood and Prevention of Vertical Transmission: Preventing Unintended Pregnancies*

Reducing unmet need for family planning so that all women who do not want to become pregnant now or in the future have access to contraception could have a significant effect on preventing perinatal transmission of HIV—in part because many women do not know their HIV status. “Increasing voluntary contraceptive use had been an underused approach, despite clear evidence that preventing pregnancies in HIV-infected women who do not wish to become pregnant is an effective strategy for reducing HIV-positive births...The lack of attention to contraception as an effective HIV prevention strategy is particularly disconcerting given that the evidence of contraceptive efficacy is juxtaposed by high levels of unintended pregnancies among women living with HIV. Unintended pregnancies account for 14–58% of all births in countries where the burden of HIV is the greatest” (Wilcher et al., 2008: ii54). Additional information about contraception services for women living with HIV, along with linkages to HIV services can be found in *Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV* and *Chapter 13. Structuring Health Services to Meet Women’s Needs*.

### **What Works—*Safe Motherhood and Prevention of Vertical Transmission: Preventing Unintended Pregnancies***

1. Preventing unintended pregnancies can reduce perinatal transmission.

## EVIDENCE

### 1. Preventing unintended pregnancies can reduce perinatal transmission.<sup>2</sup> [See also Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living with HIV]

- ▶ An analysis that modeled the potential benefits of adding family planning to national strategies to achieve universal access to PMTCT found that focusing on unintended pregnancies as well as preventing vertical transmission is highly cost-effective. Modeling was based on 14 countries which contain four-fifths of all HIV-positive pregnant women living in 139 countries: **South Africa, Nigeria, Mozambique, Democratic Republic of Congo, Uganda, United Republic of Tanzania, Kenya, Zambia, Ethiopia, Malawi, Zimbabwe, India, Cameroon, and Côte D'Ivoire.** The average level of unmet need for contraception is 23% in these 14 countries and 17% globally. Even if all women in need accessed the most efficacious antiretroviral regimen available, this would prevent 240,000 infant HIV infections in the 14 countries with the highest HIV prevalence (300,000 globally) at a cost at US\$131 million (US\$208 globally). However, almost 72,000 infant infections would still occur in the 14 countries (over 90,000 globally). Preventing unintended pregnancies costs only US\$26 million in the 14 countries (over US\$33 million globally). Costs of treatment were based on 28 weeks of ARVs, including AZT, 3TC, and sdNVP. (Halperin et al., 2009a) (Gray V) (*pregnancy, PMTCT, contraception, South Africa, Nigeria, Mozambique, Democratic Republic of Congo, Uganda, Tanzania, Kenya, Zambia, Ethiopia, Malawi, Zimbabwe, India, Cameroon, Côte d'Ivoire*)
- ▶ In the fifteen PEPFAR countries, **Botswana, Mozambique, Namibia, South Africa, Zambia, Ethiopia, Kenya, Rwanda, Tanzania, Uganda, Côte d'Ivoire, Nigeria, Guyana, Haiti and Vietnam,** the annual number of unintended HIV-positive births currently averted by contraception use is over 220,000. Unintended births are composed of both those that were unwanted (i.e. wanted no more children) and those that are mistimed (i.e. pregnancies that were wanted later). This analysis used estimates of (1) contraceptive and HIV prevalence; (2) the number of women of reproductive age; (3) the number of annual births to HIV-infected women; (4) the rates of pregnancy and vertical HIV transmission; and (5) the proportions of unintended and unwanted births. The product of these estimates is the number of HIV-positive births currently averted by contracep-

---

2 Although this evidence is based on modeling, it is based on the well-established correlation between contraceptive use and fertility rates using a linear regression of the contraceptive prevalence rate (CPR) on the total fertility rate (TFR) (Ross and Frankenberg, 1993). Included in the total fertility rate is unintended pregnancy, including among women who are HIV-positive and may or may not know their status. Therefore expanding access to contraception among all women will result in a reduction in unintended pregnancy, including among women who are HIV-positive and do not know their status when they get pregnant. The analysis by Reynolds et al., 2008 also assessed the cost per HIV-positive birth averted by family planning and PMTCT services. However because the analysis compared the cost of family planning with the cost of nevirapine, which is no longer recommended for us in PMTCT programs, that part of the analysis is not included here.

tive use and the number of unwanted and unintended HIV-positive births. (Reynolds et al., 2008). (Gray V) (*pregnancy, contraception, PMTCT, Botswana, Mozambique, Namibia, South Africa, Zambia, Ethiopia, Kenya, Rwanda, Tanzania, Uganda, Côte d'Ivoire, Nigeria, Guyana, Haiti and Vietnam*)

- ▶ A study by the US CDC in Uganda found that unwanted pregnancies may account for almost a quarter of all HIV-positive infants in Uganda. “Satisfying family planning needs should be seen as an additional key PMTCT strategy. Estimation of the contribution of unmet family planning needs was done through Spectrum, a UNAIDS/WHO demographics software by entering the official national adult HIV prevalence; ARV uptake for PMTCT; total fertility rate and the wanted total fertility rate (the total fertility rate after removing unwanted fertility). In 2006, the authors estimated 100,900 women with HIV were pregnant with 19,200 vertical transmissions, 44,900 children needing ART and 16,700 pediatric AIDS deaths. PMTCT averted an estimated 1,200 vertical infections, 700 children needing ART and 2,000 AIDS deaths. The projected scale up from 2006 to 2015 of PMTCT based on single dose nevirapine may avert 23,100 deaths, whereas unmet family planning needs may account for a projected 33,800 infections; 4,700 children needing ART in 2015 alone; and 20,500 deaths (Hladik et al., 2008; Hladik et al., 2009). (Gray V) (*pregnancy, contraception, family planning, PMTCT, Uganda*)

## Gaps in Programming—Reducing Unintended Pregnancies

1. Additional efforts are needed to provide information on contraceptive method use to women living with HIV (or whose serostatus is unknown) who do not desire to have a child or wish to space the next pregnancy.
2. Programs must adhere to the longstanding international agreement to voluntarism, informed consent, and ensuring the right of individuals and couples to decide freely and responsibly the number and spacing of their children.
3. Providers need training on contraception, including non-directive counseling and reducing stigma and discrimination for HIV-positive women.
4. Interventions to increase dual protection and dual method use are needed.
5. Efforts are needed to capitalize on opportunities to integrate family planning and HIV services.
6. Policy guidelines need to specify how family planning should be addressed in HIV prevention, treatment and care.
7. Women living with HIV need information and access to services for emergency contraception; safe abortion, where legal; and post-abortion care (PAC) services where abortion is illegal. Research is also needed on the safest methods of abortion for HIV-positive women.
8. Efforts are needed to address barriers to ensure that women living with HIV can access and use contraceptives without the knowledge of their partner, if desired.
9. Potential drug interaction between contraceptive options and treatment for TB and HIV co-infection must be considered.
10. Additional efforts are needed to reduce the structural barriers, such as gender norms, that influence the behavior or decisions of people living with HIV to engage in unsafe sex.
11. Providers need additional skills and resources to provide non-judgmental, confidential safer sex counseling to people living with HIV.

- I. **Additional efforts are needed to provide information on contraceptive method use to women living with HIV (or whose serostatus is unknown) who do not desire to have a child or wish to space the next pregnancy.** *[See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*

2. **Programs must adhere to the longstanding international agreement to voluntarism, informed consent, and ensuring the right of individuals and couples to decide freely and responsibly the number and spacing of their children.** *[See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*
3. **Providers need training on contraception, including non-directive counseling and reducing stigma and discrimination for HIV-positive women.** *[See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*
4. **Interventions to increase dual protection and dual method use are needed.** *[See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*
5. **Efforts are needed to capitalize on opportunities to integrate family planning and HIV services.** *[See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*
6. **Policy guidelines need to specify how family planning should be addressed in HIV prevention, treatment and care.** *[See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*
7. **Women living with HIV need information and access to services for emergency contraception; safe abortion, where legal; and post-abortion care (PAC) services where abortion is illegal. Research is also needed on the safest methods of abortion for HIV-positive women.** *[See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*
8. **Efforts are needed to address barriers to ensure that women living with HIV can access and use contraceptives without the knowledge of their partner, if desired.** *[See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*
9. **Potential drug interaction between contraceptive options and treatment for TB and HIV co-infection must be considered.** *[See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*
10. **Additional efforts are needed to reduce the structural barriers, such as gender norms, that influence the behavior or decisions of people living with HIV to engage in unsafe sex.** *[See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*
11. **Providers need additional skills and resources to provide non-judgmental, confidential safer sex counseling to people living with HIV.** *[See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV]*

## 9B. Safe Motherhood and Prevention of Vertical Transmission: Pre-Conception

Although many women don't learn their HIV status until they become pregnant, for those women who know they are HIV-positive prior to choosing to become pregnant, pre-conception assessments may inform both her and her partner of the safest way to become pregnant without HIV transmission to the infant or HIV transmission between serodiscordant couples. Therefore, throughout their reproductive years, women living with HIV need ongoing comprehensive pre-conception care that is incorporated into primary care services so they can make informed choices about pregnancy prior to conception.

While maternal health services traditionally do not provide pre-conception care but rather start once a woman is pregnant with antenatal care, women with HIV can benefit from pre-conception care. As PMTCT programs are scaled up, including pre-conception care as part of maternal health services should be considered.

Pre-conception care should include counseling on barrier methods of family planning to decrease transmission of HIV and prevent secondary infection, skills to negotiate condom use, assessment of a woman's nutritional status, education and counseling on perinatal HIV transmission and pregnancy risks, and support and counseling for partner disclosure on HIV status before pregnancy. Specific recommendations include for health care providers to “ask about pregnancy intentions to every woman, every visit,” and to discuss “the risks and effects of pregnancy on...[preexisting] medical condition[s], and the effects of the medical condition on pregnancy outcomes...so that the patient can make an informed decision about becoming pregnant... Education and counseling for HIV-infected women about perinatal HIV transmission risks, strategies to reduce those risks, the potential effects of HIV or its treatment on pregnancy, and the risk of transmission during breastfeeding, allows patients to be fully aware of the issues concerning HIV infection and pregnancy before conception” (Aaron and Criniti, 2007).

“Because it is important for HIV-positive women receiving HAART to time their pregnancies at a point when their CD4 cell count is high and their viral load is low, women should be counseled to use contraceptives until laboratory testing can determine that these levels are optimal for becoming pregnant” (Sable et al., 2008). [See also Chapter 7C. *Treatment: Reducing Transmission*] Women should also know that studies conflict regarding an increased risk of HIV acquisition during pregnancy (Morrison et al., 2007 and Gray et al., 2005), but that pregnancy does not increase the risk of early death (Allen et al., 2007a). “For those with access to fertility centers, longitudinal data show that conception can occur with a very low risk of HIV transmission... While the experience with assisted reproductive health technologies is encour-

---

“It is also important to know your status even before you become pregnant so that you can at least know the ways of not letting the baby get infected.”

—Kenyan woman (Center for Reproductive Rights and Federation of Women Lawyers—Kenya, 2007)

---

aging, access to these treatments remains limited even for those individuals in resource-rich settings... Teaching couples about ovulation and intercourse timed to fertile periods offers a means for decreasing the number of unprotected sexual encounters” (Mathews and Mukherjee, 2009: S7).

Increasingly, services will be needed to provide counseling and support for perinatally infected adolescents who will want to know their options for pregnancy, birth and infant feeding to minimize the probability of transmission to the infant and yet protect their own health (Birungi, 2009a,b). Maternal health providers often lack the knowledge needed to guide women living with HIV through a safe pregnancy process and may discriminate against women living with HIV. Training is needed to ensure that providers will support women’s choices in reproductive health. [See also Chapter 8. *Meeting the Sexual and Reproductive Health Needs of Women Living With HIV*]

Focus groups in South Africa found men and women to be very careful in weighing the choice to have a child and acutely mindful of the long-term consequences for themselves, their partners and their future child (London et al., 2008); however studies have found that women and men living with HIV do not always seek pre-conception counseling due to fear of stigmatization by health care providers. This obstacle must be overcome in order to minimize the risk of perinatal transmission at the earliest possible point.

### **What Works—*Safe Motherhood and Prevention of Vertical Transmission: Pre-Conception***

#### *Promising Strategies:*

1. Discussing mother-to-child transmission risk with providers and/or other HIV-positive women with seronegative children can increase women’s confidence about preventing mother-to-child transmission of HIV.
2. When the woman is HIV-positive, or both male and female partners are HIV-positive and wish to conceive, having an undetectable viral load due to HAART may result in the lowest risk of perinatal transmission.
3. Self-insemination can minimize the risk of transmission to partner and infant when a woman is HIV-positive and her partner is seronegative.
4. Sperm washing may be used for an HIV-negative woman wishing to become pregnant with an HIV-positive male partner without acquiring HIV herself.

## EVIDENCE

### Promising Strategies:

1. **Discussing mother-to-child transmission risk with providers and/or other HIV-positive women with seronegative children can increase women's confidence about preventing mother-to-child transmission of HIV.**
  - ▶ A 1999–2001 study carried out with 329 HIV-positive women in **Thailand** found that some pregnant HIV-positive women (number not specified) who were originally advised to abort by providers (number not specified) but were then counseled on PMTCT subsequently chose to access PMTCT and have a child. One woman said: “A doctor told me about AZT and its effectiveness, that for every 10 children, only 3 to 5 children would contract HIV [an erroneous statement]. I wanted to try. I really needed my child so the information I learned from the doctor made me happier and I decided to keep my pregnancy and wait for the day that I would meet my child” (p. 39). The women were interviewed using a structured questionnaire. In-depth interviews were conducted among 60 HIV-positive women. Four participatory workshops were held on data analysis and report writing. Women interviewed were selected non-randomly from support groups, clinics, ANC clinics, NGOs and communities using dimensional sampling method. The dimensions used were age (15–25, 26–35, 36–49) and number of years from diagnosis. Women who met the criteria for both dimensions were selected based on convenient or snowball sampling techniques. Six focus group discussions were held with six to eight men (Yoddumnern-Attig et al., 2004). (Gray IV) (*PMTCT, Thailand*)
  - ▶ Evaluation of the mothers2mothers (m2m) program in **South Africa** found that the m2m program provided a strong continuum of care to the women and infants. Compared to non-participants, m2m participants had greater psychosocial well-being and greater use of PMTCT services and outcomes. Postpartum program participants were significantly more likely to have disclosed their status to someone than non-participants, and to have done so prior to delivery. m2m seeks to reduce PMTCT, empower pregnant and postpartum women to improve their health and the health of their babies, fight stigma and encourage and support disclosure. The program offered education and psychosocial support to HIV-positive pregnant women and new mothers, assisted women to access PMTCT services, and followed up to ensure care of mothers and infants after delivery (Baek et al. 2007). (Gray IV) (*PMTCT, support groups, South Africa*)
  - ▶ A study in **Cuba** found 28 of 55 women interviewed who had given birth in Cuba, said that their worries about transmitting HIV to their child subsided after discussing their pregnancy with doctors, learning about treatment and meeting HIV-positive women who had had HIV-negative children (Castro et al., 2007). (Gray V) (*PMTCT, treatment, Cuba*)
2. **When the woman is HIV-positive, or both male and female partners are HIV-positive and wish to conceive, having an undetectable viral load due to HAART may result in the lowest risk of perinatal transmission.** [See also Chapter 7C. *Treatment: Reducing Transmission*]

- ▶ A 2008 review of the global literature on gynecologic issues for HIV-positive women found that there is a 4.3% probability of transmission within HIV-positive couples trying to conceive using timed intercourse (timing sex without condoms when the woman is most fertile in order to increase the likelihood of pregnancy). Viral load should be undetectable, STIs should be treated and ovulation predictors should be used to accurately time sexual contact. However, “there are very little data on which to based recommendations to the HIV-positive seroconcordant couple” (Cejtin, 2008: 726). (Gray V) (*treatment, pregnancy*)
3. **Self-insemination can minimize the risk of transmission to partner and infant when a woman is HIV-positive and her partner is seronegative.**
- ▶ When HIV transmission to the male partner is to be avoided, self-insemination of ejaculated sperm is advised. “...the data on the safety of unprotected intercourse in the HIV-infected serodiscordant couples attempting to conceive are rather limited...” (Semprini et al., 2008: 374). (Gray V) (*transmission, self-insemination*)
  - ▶ A report in **Brazil** of three HIV-positive women resulted in two HIV-negative babies and a pregnancy at the time of the report at the Mexico IAC in 2008. All partners were tested for STIs. The couples were instructed to have sexual intercourse with a condom without additives during fertile period. After ejaculation into the condom, they collected semen in a cup, put the semen in a syringe and injected it slowly into the vagina without air, near to the cervix. Women then remained with their pelvis elevated for half an hour with minimal movement. Two of the women were on HAART; the other received HAART for PMTCT (Andrade et al., 2008). (Abstract) (*self-insemination, HAART, Brazil*)
4. **Sperm washing may be used for an HIV-negative woman wishing to become pregnant with an HIV-positive male partner without acquiring HIV herself.**
- ▶ A study in **Thailand** of 73 serodiscordant couples, where the man was HIV-positive and the woman was HIV-negative, using sperm washing resulted in a pregnancy rate of over 12% with all pregnant women continuing to test HIV-negative (Pankam et al., 2008). Sperm washing isolates HIV-1 free spermatozoa tested for the presence of HIV and different assisted reproductive techniques can be used, such as intrauterine insemination. No cases of seroconversion were shown in 4,000 cycles of sperm washing (Bujan et al., 2007; Barreiro et al., 2006 cited in Coll et al., 2008). (Gray III) (*serodiscordant, sperm washing, pregnancy, Thailand*)
  - ▶ A study in **Italy** from 2001 to 2003 with 43 couples with seropositive male and seronegative females where sperm samples were washed and used for fertilization resulted in a pregnancy rate of over 51%, with no seroconversion detected (Mencaglia et al., 2005). (Gray V) (*sperm washing, Italy*)

## Gaps in Programming—Pre-Conception

1. Women and their sexual partners need access to comprehensive pre-conception care so they can make informed decisions about pregnancy before conception.
2. Interventions are needed to support the autonomous decision-making of HIV-positive women who are caught between the contradictory pressures of family, community and health care providers.
3. Some HIV-positive men and women would consider adoption.
4. Women and their sexual partners need to know and understand how seroconversion can occur during pregnancy.

1. **Women and their sexual partners need access to comprehensive pre-conception care so they can make informed decisions about pregnancy before conception.** Studies found that HIV-positive women could not access pre-conception advice on safer pregnancy options, as health providers discouraged pregnancy. Studies found that significant numbers of pregnant women did not know any way to prevent vertical transmission.
  - ▶ Gap noted, for example, in **South Africa** (London et al., 2008); **China** (Luo and He, 2008); **globally** (Hirsch, 2007; Delvaux & Nöstlinger, 2007).
2. **Interventions are needed to support the autonomous decision-making of HIV-positive women who are caught between the contradictory pressures of family, community and health care providers.** Studies found that HIV-positive women and men need information and social support to make decisions that reflect their own preferences in the face of pressure to bear children. A review of the published literature from 1990 to 2008 found that the refusal of health workers to discuss reproductive options in a non-biased way negatively impacts HIV-positive women. Studies also found that HIV-positive men lacked information on preconception and felt they could not request this information from health providers.
  - ▶ Gap noted, for example, in **Vietnam** (Oosterjoff et al., 2008), **Brazil** (Paiva et al., 2003), and **South Africa** (Nduna and Farlane, 2009).
3. **Some HIV-positive men and women would consider adoption.** A study found that HIV-positive men and women would consider adopting a child as an alternative to having a biological child.
  - ▶ Gap noted, for example, in **South Africa** (Cooper et al., 2009).
4. **Women and their sexual partners need to know and understand how seroconversion can occur during pregnancy.** [See 9C-1. *Testing and Counseling*]

## 9C. Safe Motherhood and Prevention of Vertical Transmission: Antenatal Care

Good antenatal care is essential for safe motherhood. Clinical exams, rapid syphilis tests, tetanus toxoid, supplementation with iron and folic acid are all considered the standard of care for pregnant women (Villar et al., 2001). Of critical importance is to inform women, their partners, families and communities of the danger signs during pregnancy and ensure access to emergency obstetric care. Antenatal care is also an opportunity for HIV counseling and testing. Women who test HIV-negative still need information and support to remain HIV-negative. [See Chapter 3. *Prevention for Women*, Chapter 4. *Prevention for Key Affected Populations*, and Chapter 11. *Strengthening the Enabling Environment*] Women who test HIV-positive need to be informed of their treatment options, both for their own health and to prevent vertical transmission. Women who test HIV-positive also need information and counseling concerning infant feeding options. Improving quality of care in maternal health services can increase the likelihood that women will go to health facilities in case of obstetric emergencies, thus increasing the chances of positive maternal and infant health outcomes (Gay et al., 2003). Women living with HIV also need sexual and reproductive health services and treatment for critical co-infections. Further efforts are needed to screen and treat pregnant women for co-infections that potentially increase mortality for women and their infants. [See also Chapter 8. *Meeting the Sexual and Reproductive Health Needs of Women Living With HIV* and Chapter 10. *Preventing, Detecting and Treating Critical Co-Infections*]

Syphilis co-infection can be especially dangerous in pregnancy, particularly for HIV-positive pregnant women. There is some evidence that HIV-syphilis co-infection may increase the risk of perinatal HIV transmission. While numerous countries have policies to provide universal screening for syphilis for pregnant women, not enough women are actually screened and treated in practice. In 2007, WHO estimated that syphilis prevalence in pregnant women in Africa ranges from 4–15% (WHO, 2007d). As a result, infants are dying from syphilis despite access to ARVs for mothers and infants (Peeling et al., 2004). Universal screening and treatment for syphilis in pregnancy could prevent 492,000 syphilis-related stillbirths and perinatal deaths per year in sub-Saharan Africa (Saloojee et al., 2004). Syphilis testing and treatment in conjunction with HIV testing can prevent congenital syphilis and may reduce HIV transmission.

Antenatal care is also an opportunity to discuss with pregnant women and their partners the benefits of infant male circumcision, which may reduce HIV acquisition and transmission when the infant becomes sexually active. Male circumcision has now been shown in three randomized clinical trials to reduce the risk of HIV acquisition for men by 50–60% (Auvert et al., 2005; Bailey et al., 2007; and Gray et al., 2007). Male circumcision at birth as part of postnatal care could result, upon sexual initiation and for his lifetime, in a reduction in the risk of HIV acquisition and transmission (Weiss et al., 2009; Nagelkerke et al., 2007). [See also Chapter 3C. *Prevention for Women: Male Circumcision*]

## 9C-1. Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling

In 2007, only an estimated 18% of pregnant women were offered HIV tests (ITPC, 2009). “The purpose of antenatal VCT should be to help a woman prepare for a possible positive HIV diagnosis, to provide her with information about PMTCT options and to enable her to make informed decisions about continuing or ending a pregnancy if safe, legal abortion is available” (de Bruyn and Paxton, 2005: 145). In developing country settings, between eight and ten percent of women report having received PMTCT interventions (Pai and Klein, 2009).

---

“PMTCT services provide one of the few opportunities to identify women across the spectrum of HIV disease, including asymptomatic patients and those with advanced disease” (Abrams et al., 2007: S103).

---

### *HIV Testing for Pregnant Women Must Respect Their Rights*

Until recently, testing and counseling had been offered based on opt-in principles that relied on women to seek counseling and testing. For the past few years, most programs have been shifting to routine or “opt-out” testing in which clients are routinely tested in various health care settings unless they decide not to be tested. [See Chapter 6. *HIV Testing and Counseling for Women*] This practice must be carefully evaluated to ensure women’s rights are respected. “The rationale behind the switch to opt-out testing is that stigmatization will be decreased (that is, women do not feel they are singled out for HIV testing if everyone undergoes the test) and higher percentages of women are then tested” (de Bruyn, 2005: 4). Additional rationales for opt-out testing are that opt-out testing is less resource intensive to scale-up and thus can be made available to more women (WHO and UNAIDS, 2007) and also that there is a public health argument for testing as many women and men as possible so that appropriate prevention and care services can be provided with regard to status (de Cock et al., 2003). “A disadvantage of opt-out testing is that it may be routinely imposed and women may not realize they can refuse the test or dare to do so...” (de Bruyn, 2005: 4).

Women have often received HIV tests as part of PMTCT programs. While women are often faced with opt-out testing or even mandatory testing during antenatal care, men rarely access health care in situations where they would be subjected to opt-out or mandatory testing. “The ethics of routine testing has a conspicuous gender dimension...women and girls are more likely to present at formal health care services than are men and hence are more likely to come under a routine testing policy. Women and girls are also the most likely to face stigma, violence and abuse when their HIV-positive status becomes known....” (Rennie and Behets, 2006: 84). [See also Chapter 11B. *Strengthening the Enabling Environment: Addressing Violence Against Women*] In addition, voluntary consent is called into question when the first time women are offered testing is during labor and delivery (Center for Reproductive Rights, 2005). Yet numerous research studies conducted in Brazil, Mexico, Cameroon, Russia, Rwanda, Nigeria, Uganda, Zambia, Peru and India have demonstrated successful implementation of a rapid HIV testing

program in labor and delivery (Kissin et al., 2008; Rahangdale et al., 2007; Sagay et al., 2006 cited in Pai and Klein, 2009). The impact of rapid testing during labor and delivery for the HIV-positive woman has yet to be assessed, however (Jurgens et al., 2007a). [See also Chapter 6. *HIV Testing and Counseling for Women*]

While routine testing is showing some promising signs of being acceptable and feasible, it is important to ensure that routine testing does not discourage women from seeking needed medical care or cause unanticipated outcomes for women, such as increased violence. Opt-out testing, while showing an increase in the number of women who are tested during antenatal care, raises concerns about whether women living with HIV will avoid antenatal care services in order not to be tested (Drucell and Nolan, 2007). Some studies have shown that testing in violation of human rights standards discourages women from accessing services or may lead to increased violence against women (Turan et al., 2008a; Bwirire et al., 2008; Zabina et al., 2009; Turan et al., 2008b; PHR, 2007a; Center for Reproductive Rights and Federation of Women’s Lawyers, Kenya, 2007; HRW, 2003b).

“...Coping with HIV-related stigma...is especially challenging during pregnancy and postpartum, when women may be preoccupied not only with the physical and psychological effects of having HIV, but also with preventing HIV transmission to their infants and/or avoiding disclosure of their HIV status to their families and communities” (Brickley et al., 2008). However, within the context of HIV testing, counseling is “not simply a human rights imperative: it is a medical intervention that is vital to support pregnant women with prevention efforts, disclosure, living with a life-threatening virus and adherence to treatment” (Gruskin et al., 2008a: 29). Further evaluation of routine and provider-initiated testing is urgently needed to assess whether informed consent and confidentiality is adequately protected (Gruskin et al., 2008a).

### *HIV Counseling for Both Men and Women Is a Critical Component of Antenatal Care*

Counseling on safer sex during pregnancy should be an important part of HIV testing. “... Parents desire healthy children and are willing to modify their behavior to protect them from harm” (Tavengwa et al., 2007: 101). Male partners and/or husbands can influence whether a woman accesses HIV testing (Ghanotakis, 2010). It is therefore critical to involve the male partners of pregnant women—with women’s consent. However, many ANC clinics and maternity hospitals have no place (literally) for men; and health workers in maternal health clinics rarely have received training in addressing male partners. “In addition, many men believe that their wives’ HIV test results would mirror their own. Mass information campaigns should address this incorrect belief” (Msellati, 2009: 809).

For HIV-negative pregnant women, avoiding unsterilized needles, avoiding blood transfusions which have not been screened for HIV; and continued condom use and/or mutual monogamy with one HIV-negative sexual partner are ways remain HIV-negative during the course of pregnancy and the postpartum period. However, fear of violence and lack of ability to assert control, such as feeling forced to have sex, may make it even more difficult for pregnant women to request condom use, as condoms cannot be talked about in the context of contracep-

tion (Kershaw et al., 2006). “...Healthcare providers need to address the issue of postpartum sexual activity and contraception early after delivery or even late in the last trimester to provide women with the appropriate knowledge to allow them to make informed decisions regarding their reproductive futures” (Balkus et al., 2007: 28). Providers should also not place undue burdens on women who test positive. For example, in Ethiopia, women who test HIV-positive are told to inform their husbands to come to health services to get tested for HIV (CHANGE, 2009).

### *Confidentiality Must Be Maintained*

Confidentiality of all test results should be paramount, yet it is not always followed in practice. Stronger efforts are needed to ensure that provision of HIV test results of pregnant women to their male partners or anyone else should only be done with women’s expressed permission. Policies should detail the risks of testing and clarity for women who refuse to test. Also, policies should specify whether parental consent is required to test infants. Pregnant women must have the opportunity to learn their HIV status but the autonomy to decline HIV testing without penalty in the health care setting. Confidentiality of test results is critical (Maman et al., 2008c). Women who test HIV-positive should be able to access PMTCT services, with follow-up treatment for herself and her child. HIV testing and PMTCT services have been successfully provided to women in all kinds of setting, including in refugee camps (Rutta et al., 2008). Using community volunteers to provide HIV testing to pregnant women may increase the number of women tested, especially where access to clinics is a challenge, as in Zimbabwe (Shetty et al., 2005).

The following interventions are specifically related to HIV testing and counseling in the context of preventing mother to child transmission. Please see also *Chapter 6. HIV Testing and Counseling for Women* for additional evidence on what works in HIV testing for all women.

## What Works—*Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*

1. Routinely offered testing *that is voluntary and accompanied by counseling* is acceptable to most women.
2. Informed and appropriate counseling during ANC can lead to increased discussion between partners and increased protective behaviors such as condom use.
3. Involving partners, with women's consent, can result in increased testing and disclosure.

### *Promising Strategies:*

4. Integrating testing and treatment for syphilis with HIV testing for pregnant women will reduce congenital syphilis and may reduce perinatal transmission of HIV.
5. Where abortions are safe and legal, offering HIV testing to women early in pregnancy may increase access to safe abortion.
6. Counseling women during antenatal care regarding the circumcision of male infants at birth may reduce HIV acquisition and transmission when those male infants become sexually active young men.

## EVIDENCE

### 1. Routinely offered testing *that is voluntary and accompanied by counseling* is acceptable to most women.

- ▶ A survey on acceptance of HIV testing was conducted in **Hong Kong's** maternal and child health centers during a two-month period. The response rate was 98.2% and 2,669 valid questionnaires were analyzed. Seventy per cent (n=1,825) of the respondents indicated their acceptance of the test. A significant association was noted between clients' acceptance and access to HIV information by means of posters, pamphlets, videos and group talks. Perceived benefits and health care workers' recommendation were the main reported reasons for acceptance, whereas no or low perceived susceptibility was the main reason for refusal. Acceptance was also positively correlated with level of education and HIV knowledge (Lee et al., 2005). (Gray III) (*PMTCT, HIV testing, Hong Kong*)
- ▶ A questionnaire administered to 146 women at 10 PMTCT centers in **Zimbabwe** who were interviewed during the period they were waiting for their HIV test result found that 57% were aware of the routine offer of HIV testing at the health institution they were using, with more than 94% aware that they were having an HIV test among other

routine tests. Fifty percent of the women who accepted HIV testing directly after group education were not aware of the possibility of opting for individual pre-test counseling. Seven of the nine women who declined HIV testing did not feel that the offer of routine HIV testing would deter them from seeking ANC services. However, “it cannot be demonstrated from this study whether or not some women are not attending ANC services due to the implementation of routine offer of HIV testing, since this study was conducted among women who were already presenting at the health facilities” (Mugore et al., 2008:663). (Gray V) (*PMTCT, HIV testing, antenatal care, Zimbabwe*)

- ▶ “Routine but not compulsory” testing was instituted in **Botswana** after a presidential declaration in 2004. After routine testing started, the percentage of all HIV-infected women delivering in the regional hospital who knew their HIV status increased from 47% to 78% and the percentage receiving PMTCT interventions increased from 29% to 56%. ANC attendance and the percentage of HIV-positive women who disclosed their HIV status to others remained stable. Interviews indicated that ANC clients supported the policy (Creek et al., 2007). (Gray V) A study to evaluate the first 2.5 years found that routine HIV testing (RHT) has been widely accepted by the population. There has been a rapid scale-up of RHT. A total of 60,846 persons were tested through RHT in 2004 versus 157,894 in 2005 and 88,218 in the first half of 2006. Testing rates in the population through RHT were 40 per 1000 persons, 93 per 1000 persons, and 104 per 1000 persons, respectively. In 2005, 89% of those offered testing accepted, with 69% of those tested being female and 31% male. The proportion of men who tested HIV-positive was 34% versus 30% for women. The main reasons for testing in 2005 were patient’s wish (50%), pregnancy (25%), medical examination (7%), clinical suspicion (6%), and sexually transmitted infection (2%). Attendance at voluntary counseling and testing centers has increased parallel to the scale-up of RHT. RHT has been widely accepted by the population, and no adverse effects or instances have been reported. It has provided increased access to preventive services and earlier assessment for antiretroviral treatment (Steen et al., 2007). (Gray V) (*PMTCT, antenatal care, HIV testing, Botswana*)
- ▶ In May 2004, PMTCT services were established in the antenatal clinic (ANC) of a 200-bed hospital in rural **Uganda**; in December 2004, ANC PMTCT services became opt-out, and routine opt-out intrapartum counseling and testing was established in the maternity ward. This study compared acceptability, feasibility, and uptake of maternity and ANC PMTCT services between December 2004 and September 2005 and found that counseling and testing acceptance was 97% (3591/3741) among women and 97% (104/107) among accompanying men in the ANC and 86% (522/605) among women and 98% (176/180) among their male partners in the maternity. Thirty-four women were found to be HIV-positive through intrapartum testing, representing a 12% (34/278) increase in HIV infection detection. Of these, 14 received their result and nevirapine before delivery. The percentage of women discharged from the maternity ward with documented HIV status increased from 39% (480/1235) to 88% (1395/1594) over the period (Homsy et al., 2006). (Gray V) (*PMTCT, HIV testing, antenatal care, Uganda*)

- ▶ An exploratory cross-sectional survey was conducted in 6 PMTCT sites in rural **Zimbabwe** to assess the acceptability of opt-out HIV testing. Of 520 women sampled, 285 (55%) had been HIV tested during their last pregnancy. Among the 235 women not HIV tested in ANC, 79% would accept HIV testing if opt-out testing was introduced. Factors associated with accepting the opt-out approach were being less than 20 years old, having secondary education or more, living with a partner, and the existence of a PMTCT service where the untested women delivered. Thirty-seven women of 235 (16%) would decline routine HIV testing, mainly because of their fear of knowing their HIV status and the need to have their partner's consent. Among the 285 women already tested in ANC, 97% would accept the opt-out approach (Perez et al., 2006). (Gray V) (*PMTCT, HIV testing, antenatal care, Zimbabwe*)
- ▶ A study from 2007 to 2008 in **Mexico** investigated the provision of a validated facilitated consent to pregnant women, which considered the emotional impact of potentially testing HIV-positive and included counseling before rapid HIV testing, in antenatal care settings where routine rapid HIV testing is not common. Of the 1,293 HIV tests given during the study period, 92% of women stated that the facilitated consent was “clear and sufficient to accept or reject the test” (Ortíz Ibarra et al., 2008). (Abstract) (*antenatal care, HIV testing, Mexico*)

## 2. Informed and appropriate counseling during ANC can lead to increased discussion between partners and increased protective behaviors such as condom use.

- ▶ A study in **Côte d'Ivoire** from 2001 to 2005 with 306 HIV-positive, 352 HIV-negative, and 52 pregnant women who refused HIV testing, found that prenatal HIV counseling and testing led to increased discussions between partners regarding STIs and sexual risks, and increased condom use when sexual activity was resumed after delivery. After prenatal counseling and testing, HIV-positive women were enrolled in a PMTCT program and were followed for 2 years. Women who tested HIV-negative and untested women received reproductive health related follow-ups for 2 years. Prior to prenatal counseling and testing, two-thirds of HIV-negative and untested women reported having had discussions about STIs with male partners, while afterwards over 90 percent of women reported discussing STIs, suggesting that their partners be tested for HIV, and encouraging condom use in extramarital sexual relations. For HIV-positive women, discussions about STIs with partners increased from 28 percent to 65 percent, 72 percent suggested that their partners be tested for HIV, and 58 percent encouraged condom use in extramarital relations. Additionally, condom use increased from 36 to 59 percent of HIV-negative women, 52 to 57 percent of untested women, and 23 to 49 percent of HIV-positive women when sexual activity was resumed after delivery. However, data were collected from women only and therefore actual discussions with partners may be overrepresented (Desgrées-Du-Loû et al., 2009). (Gray III) (*pregnancy, counseling, HIV testing, communication, condom use, Côte d'Ivoire*)

- ▶ An evaluation of UNICEF-funded PMTCT programs in 11 developing countries in 2002 involving review of progress reports, interviews with PMTCT program managers, rapid assessments in **Rwanda** and **Zambia** and site visits in **Honduras** and **India** found that PMTCT programs did not discourage use of ANC but helped women to disclose their HIV testing experience and serostatus to their partners and family, thus fostering discussions and normalizing HIV testing and HIV care (Rutenberg et al., 2003). (Gray V) (*PMTCT, HIV testing, antenatal care, Rwanda, Zambia, Honduras, India*)
- ▶ Six hundred women from ten antenatal clinics in southern **Uganda** found that women who received pre-test counseling were more 1.84 times more likely to disclose their HIV status (Medley et al., 2008c). (Abstract) (*counseling, disclosure, Uganda*)

### 3. Involving partners, with women's consent, can result in increased testing and disclosure.

- ▶ A pre-test/post-test study in **India** between 2000 and 2003 in six antenatal care clinics found that counseling that included male partners of pregnant women had a positive impact on male involvement in maternity care and increased dual protection and condom knowledge and use. Of the six clinics, three were used as intervention sites and three as controls. A total of 2,836 women and 1,897 husbands attending the clinics for antenatal care participated in the pre-test survey, however, only 327 women and their husbands completed the intervention and post-test survey and 302 women and their husbands from the control group completed the post-test survey. Women and husbands at the intervention site were counseled at individual, couple, and same-sex group levels on a variety of reproductive health issues, including the prevention of STIs and correct condom use. Pregnant women were screened for syphilis and men identified as having urethral discharge and genital ulcers via syndromic management were treated. Twelve doctors and 12 nurse midwives were trained to provide counseling to both couples and individuals at the intervention sites. Women and husbands who attended the control clinics received the standard care for pregnant women, including nutritional information and tetanus vaccination, but no additional counseling was provided. Knowledge related to dual protection benefits of condom use increased among both males and females in the intervention group, however, gender disparities continued to pervade as 89% of the males exhibited dual protection knowledge compared to only 48% of the females. Use of family planning increased significantly during the six-to-nine months postpartum period among intervention participants when compared to controls, 59% versus 45% among women and 65% compared to 48% among men. Of the methods employed for family planning purposes, condoms were the most commonly used in both groups, as 66% of women in both groups and 71% of men in both groups reported using condoms. Additionally, intent to use condoms in the future was found to be higher among the intervention group than among controls. Men in general tended to have more knowledge related to STIs, 66% versus 32% of females, and knowledge and couple communication related to STIs was not found to have increased after the intervention. Lastly, couples who had attended counseling sessions at the intervention clinics

were more likely to discuss family planning with their partners than those attending clinics at the control sites, 84% compared to 64%, and intervention couples were also more likely to report making reproductive health related decisions together, as a couple, than were control couples, 91% versus 71% (Varkey et al., 2004). (Gray II) (*antenatal care, counseling, condoms, STIs, India*)

- ▶ A PMTCT program that included active community education and outreach to encourage couple counseling and testing was implemented in two antenatal clinics in Lusaka, **Zambia**. A subset of HIV-positive women was asked to report their experience of adverse social events 6 months after delivery. Nine percent (868) of 9,409 women counseled antenatally were counseled with their husband. Couple-counseled women were more likely to accept HIV testing (96%) than women counseled alone (79%). However uptake of nevirapine was not improved. Six months after delivery, 28% of 324 HIV-positive women reported at least one adverse social event (including physical violence, verbal abuse, divorce or separation). There were no significant differences in reported adverse social events between couple- and individual-counseled women (Semrau et al., 2005). (Gray III) (*PMTCT, couples, counseling, Zambia*)

### Promising Strategies:

#### 4. Integrating testing and treatment for syphilis with HIV testing for pregnant women will reduce congenital syphilis and may reduce perinatal transmission HIV.<sup>3</sup>

- ▶ A study from 2003 to 2005 in the **Ukraine** with 521 mother infant pairs with known infant HIV-positive serostatus found an association between maternal syphilis and perinatal transmission. Overall, 3.5% of pregnant women had serological test results that were positive for syphilis. The overall HIV perinatal transmission rate was 5.8% and was statistically significantly higher among women who were seropositive for syphilis. Having antenatal serological test results that were positive for syphilis was associated with a five-fold increased risk of MTCT univariably and a nearly 4.5-fold increased risk adjusting for ARV prophylaxis, premature delivery and elective cesarean delivery (Thorne et al., 2008). (Gray III) (*syphilis, PMTCT, Ukraine*)
- ▶ A study to determine the association between maternal syphilis and HIV mother-to-child transmission in a prospective cohort study of pregnant women admitted at Queen Elizabeth Central Hospital in **Malawi** found that maternal syphilis was associated with in utero and intrapartum and postpartum perinatal transmission of HIV. Women admitted in late third trimester were screened for HIV (by HIV rapid tests)

---

3 Note: While co-infection with syphilis is associated with increased risk of vertical transmission of HIV, it would be unethical to conduct any study that denied known treatment for syphilis to assess whether giving or withholding treatment increased risk of vertical transmission of HIV.

and syphilis (by rapid plasma regain test and *Treponema pallidum* hemagglutination assay). HIV-positive women and their infants received nevirapine, according to the HIVNET 012 protocol. They were followed up at 6 and 12 weeks postpartum. Infant HIV infection was diagnosed by DNA PCR. Of the 1,155 HIV-positive women enrolled, 1147 had syphilis test results, of whom 92 (8.0%) were infected with syphilis. Only 751 HIV-positive women delivered live singleton infants who were tested for HIV at birth. Of these, 65 (8.7%) were HIV-infected, suggesting in utero (IU) HIV MTCT. Of the 686 infants who were HIV-negative at birth, 507 were successfully followed up. Of these, 89 (17.6%) became HIV-positive, suggesting intrapartum/postpartum (IP/PP) HIV transmission. Maternal syphilis was associated with in utero HIV MTCT, after adjusting for maternal HIV-1 viral load and low birth weight (LBW). Furthermore, maternal syphilis was associated with IP/PP HIV MTCT, after adjusting for recent fever, breast infection, LBW and maternal HIV-1 viral load. Screening and early treatment of maternal syphilis during pregnancy may reduce pediatric HIV infections (Mwapasa et al., 2006). (Gray III) (*PMTCT, HIV testing, syphilis, Malawi*)

- ▶ Data from 177 VCT centers in 2006 found that in **Haiti**, 75,122 pregnant women were tested for both HIV and syphilis. A national scale up of this strategy will reach at least 85% of pregnant women. Routine syphilis testing found syphilis in 3,404 pregnant women (Severe et al., 2008). (Abstract) (*counseling, HIV testing, pregnancy, syphilis, Haiti*)

**5. Where abortion is safe and legal, offering HIV testing to women early in pregnancy may increase access to safe abortion.**

- ▶ A study in **Vietnam** based on 38 HIV-positive pregnant women and mothers and 53 health workers with routine testing performed at ANC services when women were seven to eight months pregnant found that all 38 women felt that the timing of the test at ANC services was too late in the pregnancy. As one HIV-positive woman put it: “I would not have had a child if I had known that I was positive” (Oosterhoff et al., 2008: 656). Three women who accessed VCT rather than routine testing via ANC tested early in pregnancy and two opted for abortion when the test was positive (Oosterhoff et al., 2008). (Gray V) (*antenatal care, HIV testing, PMTCT, abortion, Vietnam*)

**6. Counseling women during antenatal care regarding circumcision of male infants at birth may reduce HIV acquisition and transmission when those male infants become sexually active young men.** [See also Chapter 3C. *Prevention for Women: Male Circumcision*]

- ▶ Randomized, controlled trials have determined the level of protective effect of male circumcision on HIV for men. Male circumcision at birth as part of postnatal care could reduce, upon the infant’s sexual initiation and for his lifetime, a reduction in the risk of HIV acquisition and transmission. Male circumcision has now been shown in three randomized clinical trials to reduce the risk of HIV acquisition for men by 50 to 60%

(Auvert et al., 2005; Bailey et al., 2007; and Gray et al., 2007). (Gray I) (*male circumcision, transmission*)

- ▶ “...Circumcision prior to sexual debut [of male adolescents] will render the greatest lifetime protection” (Eaton and Kalichman, 2009:191). (Gray V) (*male circumcision*)

### Gaps in Programming—Testing and Counseling

1. Further interventions are needed to incorporate violence prevention, screening and counseling services into PMTCT testing and counseling.
2. Additional efforts are needed to improve information and counseling about HIV during ANC to ensure that pregnant woman and their sexual partners have adequate information.
3. Additional efforts are needed to ensure confidentiality in testing.
4. Increased support is needed for HIV serostatus disclosure, particularly at key times such as delivery, infant weaning, and at the resumption of sexual activity.
5. Further interventions are needed to provide couples counseling and testing to reduce seroconversion during pregnancy.
6. Multiple strategies are needed to promote male involvement in ways that meet pregnant women’s needs.
7. Further interventions are needed to reduce barriers to HIV testing.
8. Improved record keeping on HIV counseling, serostatus, and treatment is needed to improve referrals and linkages with other health care services.
9. HIV testing must be linked to access to treatment.

1. **Further interventions are needed to incorporate violence prevention, screening and counseling services into PMTCT testing and counseling.** [See also Chapter 11B. *Strengthening the Enabling Environment: Addressing Violence Against Women*] Studies found high rates of violence, sexual coercion and abuse among HIV-positive pregnant women, particularly when accessing HIV testing or during disclosure.

- ▶ Gap noted, for example, in **Nigeria** (Ezechi et al., 2009); **Zimbabwe** (Shetty et al., 2008a); **Malawi** (Bobrow et al., 2008); **Kenya** (Kiarie et al., 2006; Gaillard et al., 2002;) and **South Africa** (Dunkle et al., 2004).

2. **Additional efforts are needed to improve information and counseling about HIV during ANC to ensure that pregnant woman and their sexual partners have adequate information.** Studies found significant numbers of pregnant women received HIV tests with no counseling and reported that HIV testing was a mandatory part of their antenatal care. Studies also found that HIV-positive women feared transmitting HIV to their babies through casual contact. Studies found some providers assured women that treatment guaranteed that there would be no vertical transmission. In addition, studies found that some couples erroneously believed that sex during pregnancy causes miscarriages.
  - ▶ Gap noted, for example, in **India** (Sinha et al., 2008; Van Hollen, 2007; Rogers et al., 2006); **Uganda** (Medley et al., 2008a); **Vietnam** (Nguyen et al., 2008f; Brickley et al., 2008); **Kazakhstan** (Sandgren et al., 2008); **South Africa** (Groves et al., 2008); **Kenya** (Delva et al., 2006); **Thailand** (Teeraratkul et al., 2005); **India, Thailand, Philippines** and **Indonesia** (Paxton et al., 2004a); and **Nigeria** (Onah et al., 2002).
  
3. **Additional efforts are needed to ensure confidentiality in testing.** Studies found that women were tested without their consent and that providers did not protect women’s confidentiality.
  - ▶ Gap noted, for example, in **Vietnam** (Oosterhoff et al., 2008) and **Turkey** (Ersoy and Akpınar, 2008).
  
4. **Increased support is needed for HIV serostatus disclosure, particularly at key times such as delivery, infant weaning, and at the resumption of sexual activity.** Studies found that disclosure to partners was low and women reported needing additional support to disclose.
  - ▶ Gap noted, for example, in **Côte d’Ivoire** (Tonwe-Gold et al., 2009; Brou et al., 2007).
  
5. **Further interventions are needed to provide couples counseling and testing to reduce seroconversion during pregnancy.** Studies found that inadequate numbers of couples are counseled on safer sex during pregnancy and that despite national guidelines, repeat testing during pregnancy is not routinely done.
  - ▶ Gap noted, for example, in **South Africa** (Peltzer et al., 2009, Moodley et al., 2009); **India** (Vijayakumari et al., 2008); **Swaziland** (Keiffer et al., 2008); **Zimbabwe** (Tavengwa et al., 2007) and in **southern Africa** (Rutenberg et al., 2001).
  
6. **Multiple strategies are needed to promote male involvement in ways that meet pregnant women’s needs.** Studies found that some women found their partners’ involvement controlling and/or violent and other women wanted more autonomy in health decision-making. Studies also found men lacked information on vertical transmission and felt excluded from PMTCT programs.
  - ▶ Gap noted, for example, in **South Africa** (Maman et al., 2008b); **Tanzania** (Theuring et al., 2008); and **Uganda** (Medley et al., 2008c; Medley et al., 2008d).

7. **Further interventions are needed to reduce barriers to HIV testing.** Studies found that fear of partner notification, risk of domestic violence, the unreliability of rapid HIV tests, long waiting times at the clinic, costs for transport, lack of childcare and the need for partner consent were barriers to HIV testing. The impact of rapid testing during labor and delivery for HIV-positive women has yet to be assessed.
  - ▶ Gap noted, for example, in a **global** review of PMTCT (Pai and Klein, 2009); and **Uganda** (Homsy et al., 2007 cited in Pai and Klein, 2009).
8. **Improved record keeping on HIV counseling, serostatus, and treatment is needed to improve referrals and linkages with other health care services.** A study found that record keeping of HIV staging and CD4 counts was inadequate.
  - ▶ Gap noted, for example, in a review of maternal care practices in Africa (Rollins and Mphatswe, 2008).
9. **HIV testing must be linked to access to treatment.**
  - ▶ Gap noted, for example, in **Uganda** (Dahl et al., 2008).

## 9C-2. Safe Motherhood and Prevention of Vertical Transmission: Treatment

All women have a right to a safe pregnancy (Freedman et al., 2005), including women living with HIV. For pregnant women living with HIV there is no therapy or combination of therapies or medical procedures that can guarantee an HIV-negative infant (Anderson, 2005). However, there are proven strategies that improve the health of the mother during pregnancy and reduce the risk of mother-to-child transmission of HIV. The most important strategy is for the woman to access health care services where she can be evaluated for the use of anti-retroviral drugs, either for the *treatment* of her own health or for *prophylaxis* to reduce the risk of mother-to-child transmission of HIV during pregnancy. “Antenatal care must include ‘fast-tracking’ HIV-infected women into programmes providing holistic care, including treatment with HAART...[with] HIV care to be integrated into routine antenatal care, and not [maintained] as a separate programme” (Sebitloane and Mhlanga, 2008: 496 and 498). Women who are on a HAART regimen [for their own health] have the least risk of perinatal transmission, estimated at 1% (Stek, 2008). In addition, women on HAART [for their own health] have a much greater likelihood of an expanded lifespan, which results in a better quality of life for the woman herself and reduces the likelihood of an intergenerational effect for orphans and vulnerable children. [See also Chapter 12B. Care and Support: Orphans and Vulnerable Children]

In 2007, only 12% of pregnant women identified as being HIV-positive during antenatal care were assessed to determine whether they were eligible to receive antiretroviral therapy for their own health, and only 9% of those HIV-positive women who received PMTCT services received HAART (UNAIDS, 2009e). “The best way to ensure that infants are not born with HIV or acquire it during breastfeeding is to provide HIV-positive women the care they need

for their own disease” (ITPC, 2009: 11). The 900 new cases of HIV in babies in developing countries every day could be prevented (ITPC, 2009).<sup>4</sup> “...Each new pediatric HIV infection is considered a missed opportunity for prevention” (Abrams, 2007: 705).

### *Providers Should Consult the Most Recent Guidelines Regarding Medications’ Effect in Pregnancy*

Currently, there is no evidence of a significant increased risk of birth defects associated with the appropriate antiretroviral treatment before conception or during the first trimester (Antiretroviral Pregnancy Registry Steering Committee, 2007 cited in Coll et al., 2008). Concerns remain about the use of efavirenz during the first trimester, however, (Panel on Antiretroviral Guidelines for Adults and Adolescents, 2009) and health care providers should evaluate the most recent evidence when considering its use. A review of treatment options found that prophylaxis with co-trimoxazole is still advisable for persons with CD4 counts under 200, even if they are on HAART. Experts advise that once viral load is undetectable, co-trimoxazole is no longer required. While co-trimoxazole is potentially teratogenic, WHO recommends its use throughout pregnancy because the risk of life-threatening infection among women with low CD4 counts or symptomatic HIV infection may outweigh other risks (Watts and Mofenson, 2006). However, co-trimoxazole “should not be used as a substitute for the availability of HAART regimens for pregnant women with advanced disease but rather as an adjunct” (Watts and Mofenson, 2006: 1480). Health care providers should also check the most up-to-date literature on nevirapine resistance when using nevirapine for PMTCT (Panel on Antiretroviral Guidelines for Adults and Adolescents, 2009).

### *Nevirapine Resistance Is a Concern in Future Treatment Options*

The WHO states “if a woman receives AZT during pregnancy, daily nevirapine is recommended for her child from birth until the end of the breastfeeding period” (WHO, 2009b). While nevirapine may increase the numbers of infants with HIV-free survival, treatment with nevirapine may prejudice future treatment for the HIV-positive infant (Lockman et al., 2007; Coffie et al., 2008). For women who have received nevirapine already for PMTCT, and then access HAART, there are some concerns that prior use of nevirapine may hinder treatment. A study with 114 women in the U.S. found resistance rates of up to 43% in women who had pregnancy-limited antiretroviral treatment (Paredes et al., 2010). A study of 872 women in Zambia found that HAART was less effective among women who had been exposed to single dose nevirapine (Kuhn et al., 2009b). As of November 2009, the WHO no longer recommends single dose nevirapine for pregnant women living with HIV

---

“At least if they had put me on ART I could take care of my baby up to the second year and be sure by the time I die the baby would be able to at least live with others easily. I have tried to talk to [the doctors] but till now I haven’t started the medicine.”

—HIV-positive woman in a PMTCT program in Malawi (Bwirire et al., 2008: 1197)

---

4 Note: UNAIDS statistics for 2009 are even higher—about 1,178 per day (UNAIDS, 2009d).

as a result of the potential to prejudice treatment options for mothers and transmit nevirapine resistance to their infants (Kiptoo et al., 2008).

### *Starting ARVs Early in Pregnancy Can Improve Pregnant Women's Health and Reduce Vertical Transmission*

In November 2009, the WHO released new recommendations for the use of ARVs in pregnant women. These guidelines recommend *lifelong* antiretroviral drug regimens for women who need ARVs to protect their own health (based on severe or advanced clinical disease or with the CD4 count at or below 350 cells/mm<sup>3</sup>, regardless of symptoms) and *short-term* prophylactic regimens to decrease the risk of HIV transmission to the baby during pregnancy, labor and delivery and throughout the breastfeeding period (based on CD4 cell counts above 350 or for women who do not require ARVs for their own health). Short-term prophylactic regimens delivered to the baby during delivery and the breastfeeding period (should the mother choose to breastfeed) are also recommended and will be discussed in the Delivery and Postpartum sections of this document. Of note, the recommendation for initiating ARV treatment for pregnant women has been raised from a CD4 count of <200 cells/mm<sup>3</sup> to a CD4 count of <350 cells/mm<sup>3</sup>, regardless of clinical staging of disease (WHO, 2009b). For women who do not need ARV treatment for their own health, prophylaxis initiation to prevent mother-to-child transmission is now recommended at 14 weeks gestation instead of 28 weeks gestation (WHO, 2009b). The planned effect of these recommendations is to start more women on ARVs sooner, thus improving the health of HIV-positive pregnant women and decreasing the risk of mother-to-child transmission of HIV (WHO, 2009b).

### *Questions Remain About ARVs and Pregnancy*

As stated above, according to these recent WHO guidelines (WHO, 2009b), women with CD4 counts below 350 should receive HAART for their own treatment needs. However, while consensus has been reached with the WHO November, 2009 recommendations that those with a CD4 count below 350 should initiate HAART, no conclusive studies have been conducted concerning the optimal time to initiate treatment for those people with HIV whose CD4 counts are above 350. [See also Chapter 7. Treatment] When a woman is on HAART with CD4 counts below 350, HAART will improve her own health and drastically reduce vertical transmission. When a woman has CD4 counts above 350, current recommendations are to have the woman go on ARVs during pregnancy, at labor and delivery or postpartum for the duration of breastfeeding. It is unknown at this time whether women who have CD4 counts above 350 and who go on HAART to prevent perinatal transmission should continue with HAART following pregnancy or breastfeeding or should stop HAART and resume HAART when their CD4 counts go below 350.

While it is clear that those who go on ARV therapy for their own treatment needs should not interrupt treatment (Fauci, 2009a, SMART Study Group, 2006), treatment interruption for women who are on HAART simply to prevent perinatal transmission rather than for their

own health needs has never been evaluated. The new WHO guidelines represent the current consensus on best international practice for the use of ARVs in pregnant women in developing country settings for both the maintenance of the woman's own health and the prevention of mother-to-child transmission of HIV (WHO, 2009b). Development of these guidelines proceeded according to the WHO GRADE procedure and included costing analyses of the different options under review (WHO, 2009b). Of course, many important questions remain under consideration, including the long-term effects on the health of women who initiate ARV therapy as prophylaxis to prevent mother-to-child transmission and then stop treatment (Panel on Antiretroviral Guidelines for Adults and Adolescents, 2009). A study funded by NIH that started in January 2010 with results expected in 2015 should answer this vital question. The PROMISE Study (Promoting Maternal-Infant Survival Everywhere) is a multi-national clinical trial in 18 countries that is being conducted by the International Maternal Pediatric Adolescent AIDS Clinical Trials Group. It will examine the long-term effects on the health of women who initiate ARV therapy as prophylaxis to prevent vertical transmission and then stop treatment in addition to comparing the effectiveness of different drug combinations for the treatment of PMTCT (NIAID Web Bulletin, January 21, 2010).

WHO recommends pregnant women who access HAART with CD4 counts above 350 (i.e., for PMTCT prophylaxis) should continue "through the end of the breastfeeding period" (WHO, 2009b: 14); implying that women can stop HAART at the end of breastfeeding if their CD4 count remains above 350. Until the results from the PROMISE study are available, the question about what this might mean for the woman's future treatment options remains.

### *Treatment Regimens for Preventing Vertical Transmission Vary Globally*

It should be noted that the development of ARV regimens to treat pregnant women and prevent vertical transmission is evolving and implementation varies around the world. For instance, in Europe, the initiation of ARV therapy in pregnant women proceeds according to the same CD4 count measurements as are used to initiate therapy within the general population, with the goal of full suppression of HIV by the third trimester of pregnancy (European AIDS Clinical Society, 2009). By contrast, in the United States, ARV therapy is now recommended for all pregnant women, regardless of their CD4 counts (Panel on Antiretroviral Guidelines for Adults and Adolescents, 2009).

It is important to note that the evidence base in this section does not yet reflect implementation of the November 2009 WHO guidelines. At the time of this writing, the final WHO guidelines, slated for publication in June 2010, remain pending (WHO, 2009b). The evidence presented in this section should thus be considered in light of the new WHO guidelines and pending research in the field.

## What Works—*Safe Motherhood and Prevention of Vertical Transmission: Treatment*

1. Antiretroviral treatment regimens for pregnant women living with HIV can improve the health of the mother when used as treatment and can reduce the risk of mother-to-child transmission when used as prophylaxis.
2. For women who are pregnant and not eligible for HAART for their own health, short-course ARV therapy used for prophylaxis can reduce nevirapine resistance.
3. Extending an HIV-positive woman's life increases the long-term survival of her infant.
4. National scale-up of HAART in pregnancy improves maternal and infant outcomes.

### *Promising Strategies:*

5. Integrating ARV therapy into antenatal care, rather than referring women separately for HIV treatment, may reduce time to treatment initiation for pregnant women living with HIV.
6. PMTCT-Plus (family-focused) HIV care can increase the numbers of women and their male partners who access testing and treatment.

## EVIDENCE

1. **Antiretroviral treatment regimens for pregnant women living with HIV can improve the health of the mother when used as *treatment* and can reduce the risk of mother-to-child transmission when used as *prophylaxis*.** [See also 9E. *Postpartum*]
  - ▶ A systematic review of the literature on the relationship between pregnancy and HIV disease progression in the context of HAART with six research studies found that "...the general consensus remains that the potential side effects of HAART use for HIV-positive women during pregnancy appear to be minimal, but further research is required" (MacCarthy et al., 2009: S67). However, studies suggest that pregnant HIV-positive women on HAART have the lowest risk of HIV disease progression, compared with pregnant HIV-positive women on other forms of treatment (MacCarthy et al., 2009). (Gray I) (*HAART, pregnancy*)
  - ▶ A 2007 Cochrane review on antiretrovirals used to prevent perinatal transmission of HIV found that antiretroviral treatment during the perinatal period (antenatal and peripartum) significantly reduced the risk of HIV transmission in comparison with placebo. For zidovudine, the length of treatment was significantly associated with risk of HIV transmission. Longer treatments during the antenatal period appear to significantly lower infant risk of HIV acquisition. Moreover, for mothers, a short-course of zidovu-

dine and lamivudine during pregnancy, labor, and postpartum along with a single dose of nevirapine during labor is especially effective in reducing perinatal transmission. For infants of HIV-positive mothers who have not received antiretroviral prophylaxis, treatment with a single dose of nevirapine along with one week of zidovudine reduced the risk of HIV acquisition. No significant adverse events were identified for either mothers or their infants after antiretroviral use to prevent perinatal transmission (Volmink et al., 2007). (Gray I) (*PMTCT, treatment*)

- ▶ A study from the **USA** that analyzed data from 2,543 HIV-positive women attending clinics at various sites correlating HAART use during pregnancy with maternal and pregnancy outcomes found that the benefits of antiretroviral treatment outweighed the risks. Maternal outcomes assessed included hematologic, gastrointestinal, neurologic, renal and dermatologic complications; gestational diabetes; lactic acidosis; and death. Logistic regression analyses controlling for multiple covariates revealed HAART to be independently associated with few maternal complications (Tuomala et al., 2005). (Gray I) (*treatment, HAART, PMTCT, United States*)
- ▶ Secondary data analysis from a completed randomized trial assessing nevirapine versus zidovudine in reducing PMTCT in **Uganda** found that maternal viral load was the best predictor of both early and late perinatal transmission. Treatment with HAART lowers maternal viral load. Of 610 infants who were evaluated for HIV acquisition, 99 were infected in the early transmission period (first positive HIV RNA PCR obtained before 56 days of age) and 23 were infected in the late transmission period (after 56 days of age). In the multivariate model, six to eight weeks postpartum maternal log<sub>10</sub>viral load, with a hazard ratio of 3.66, was the strongest predictor of HIV transmission. Pre-entry maternal log<sub>10</sub> viral load was also significantly associated with early transmission, hazard ratio of 2.11. (Mmiro et al., 2009). (Gray III) (*treatment, HAART, PMTCT, Uganda*)
- ▶ A study from **Nigeria** successfully demonstrated the transition from nevirapine for PMTCT to HAART for both PPT and improved maternal health. With HAART, rates following HAART (3.6%) were lower than PPT rates using ZDV plus nevirapine (5.2%) or nevirapine only (7.1%) in 1,138 HIV-exposed babies. Almost half of the women delivered at home or in peripheral health facilities (Sagay et al., 2008). (Gray III) (*PMTCT, HAART, Nigeria*)
- ▶ A 2004–2007 study in **South Africa** followed 302 women, who initiated HAART at an antenatal ARV clinic, and found a perinatal transmission rate of 5%. Women who received more than seven weeks of HAART during pregnancy had a perinatal transmission rate of 0.3%. The study analyzed 689 women who had not previously received treatment for HIV and began treatment with HAART while pregnant. These women were followed weekly for eight weeks until stable. HIV status was determined by HIV-1 DNA testing. The study also routinely screened for syphilis. Women were excluded if they conceived while initiating HAART. About 300 women were diagnosed with HIV during

the current pregnancy. The study also found that 23% of women were aware of their HIV status before conception and did not seek medical care until the third trimester. Of 455 women providing data on delivery, 56.9% delivered vaginally, 25.7% underwent cesarean sections for reasons not related to HIV and 17.4% had emergency cesarean sections. Of 244 women who provided follow-up data, 80% experienced an increase in CD4 cell count and of 211 women who provided data on viral load, 80.5% experienced a decrease in viral load over 15 weeks. All infants born HIV-positive were born to women who received seven or fewer weeks of HAART. “Recent data suggest that pregnancy is associated with a lower risk of HIV disease progression, and experience with the ANC ARV cohort supports this finding” (Tai et al., 2007 as cited in Black et al., 2008: 279). This study was constrained by a national policy restricting viral load testing to twice a year. Among women who did have viral load testing, 75.6% had an undetectable viral load (Black et al., 2008). (Gray III) (*treatment, HAART, pregnancy, South Africa*)

- ▶ A study assessing perinatal transmission in **Botswana** from 2006 to 2007 found an HIV transmission rate of approximately 3.6% for women receiving antiretrovirals either for prophylaxis for PMTCT only or as indicated for the mother’s health. Pregnant women with CD4 counts above 200/μl received zidovudine starting at 28 weeks of gestation until labor along with a single dose of nevirapine at the onset of labor. Women with CD4 counts below 200/μl initiated HAART before or during pregnancy. Uptake of either short-term treatment or HAART was 90%. Dried blood spot HIV testing was completed for 10,516 children born to HIV-positive mothers during the study period. Mothers who initiated HAART before pregnancy were the least likely to transmit HIV to their infant as opposed to women who initiated HAART during pregnancy, women who received a short course of zidovudine and a single dose of nevirapine, women who received only zidovudine, women who received only single dose nevirapine, and women who received no treatment. The added benefits of a single dose of nevirapine for mothers who had received zidovudine for more than four weeks was found to be negligible, although for mothers receiving no treatment a single dose nevirapine reduced MTCT by 40% (Tlale et al., 2008). (Gray III) (*HAART, PMTCT, Botswana*)
- ▶ A study from 1999 to 2005 of 551 infants born to HIV-positive women seen at GHESKIO, **Haiti**, found that prior to HAART availability in 2003, infant mortality was 23 per 100 live births per year. Following the introduction of HAART for HIV-positive women, infant mortality fell to 7 per 100 live births in 2005. In the cohort of 399 women given exclusively single drug prophylaxis, the perinatal transmission rate was 10%. In the 60 women who received HAART the perinatal transmission rate was 1.9%. (Noel et al., 2008). (Gray III) (*HAART, PMTCT, Haiti*)
- ▶ A prospective cohort study from 2002 to 2006 enrolling HIV-positive pregnant women in **Latin America and Caribbean countries** found that MTCT rates were very low, most women had viral loads below 1000 copies/mL, almost all women were receiving anti-retroviral treatment either for prophylaxis or for the mother’s health, and many women

chose elective cesarean section to further reduce the risk of MTCT. Of 770 mother-infant pairs included, 87 percent of women had viral loads below 1000 copies/mL, 99 percent of women received one or more antiretrovirals during pregnancy, and 41 percent delivered through elective cesarean section. Less than one percent of infants were diagnosed as HIV-positive at the end of the study period (Read et al., 2007). (Gray III) (*treatment, cesarean section, PMTCT, Latin America, Caribbean*)

- ▶ A study from the **United States** from 1997 to 2004 with 759 HIV-positive women (139 pregnant women and 620 non-pregnant women) receiving HIV care found that in comparison to non-pregnant women, pregnant women had a lower risk of HIV disease progression (defined as an AIDS defining event or death). All pregnant women were treated with either HAART (86%) or non-HAART ART (14%). In comparison, 68% of non-pregnant women were treated with HAART, 9% with non-HAART ART and 23% received no treatment. At the end of the study period 5% of pregnant vs. 7% of non-pregnant women experienced an AIDS-defining event only, 1% of pregnant vs. 11% of non-pregnant women died and 2% of pregnant vs. 7% of non-pregnant women experienced both an AIDS-defining event and death. Overall 8% of pregnant women vs. 24% of non-pregnant women experienced an AIDS-defining event or death. Other predictors of disease progression included a baseline CD4 count of greater than 200 cells/mm<sup>3</sup>, a baseline HIV-1 RNA level of greater than 10,000 copies/mL, maternal age, HAART duration, non-HAART ART duration and durable virologic suppression. The effect of pregnancy on slower disease progression was still significant after controlling for these previously listed clinical variables. Finally, women with more than one pregnancy tended to have a lower risk of disease progression than women with only one pregnancy; however, this association was not statistically significant (Tai et al., 2007). (Gray III) (*pregnancy, HAART, United States*)
- ▶ A study from **Côte d'Ivoire** that enrolled HIV-positive pregnant women between 2003 and 2005 in an MTCT-Plus program found that antiretroviral treatment for pregnant women, both indicated for the mother's health as well as solely for PMTCT purposes, was effective and safe. Women with CD4 counts below 200 cells/mm<sup>3</sup> were considered eligible for HAART for their own health and received a treatment combination of mainly zidovudine (ZDV), lamivudine (3TC), and nevirapine (NVP). Women not eligible for HAART for their own health received a short course of ARVs, mainly ZDV and 3TC from 32 weeks of pregnancy until 3 days postpartum and a single dose of NVP during labor; ZDV from 28 weeks of pregnancy; single dose NVP; or ZDV and single dose NVP. All infants in the sample received ZDV syrup for 7 days after birth and a single dose of NVP 3 days after birth regardless of mother's ARV regimen. Of the 261 HIV-infected women identified and enrolled in the study, 57% (143) received short-course ARVs and 43% (107) received HAART. Overall, the HIV status of 97.4% (225) children was determined with 12 confirmed HIV infections. The probability of peripartum HIV infection was 2.2% for children born to mothers using HAART and 3.1% for children born to mothers using short-course ARVs. The only factor found to be significant in peripartum

HIV acquisition was low birth weight, while infant feeding practice, gender, maternal ARV regimen, CD4 count and age were not significant. (Tonwe-Gold et al., 2007). (Gray III) (*PMTCT-Plus, HAART, PMTCT, Côte d'Ivoire*)

- ▶ A 2002 study in **Nigeria** found that among the 32 women who were given HAART, transmission of HIV to infants was 9.1%. Among the 22 women who had single dose nevirapine in labor there was a transmission rate of over 33%. The best outcome was among those that had HAART, an elective C-section and did not breastfeed; none of the babies were HIV-positive at 18 months. “It is recommended that the single dose nevirapine be abandoned in favour of combination treatment... The single dose nevirapine ...may lead to the spread of a nevirapine-resistant strain” (Chama et al., 2007: 134 and 136). (Gray III) (*HAART, PMTCT, treatment, Nigeria*)
- ▶ A study in **Mozambique** from 2002 to 2005 of 985 HIV-positive pregnant women found that HAART was more widely accepted than single-dose nevirapine in earlier studies, with 80% completing a treatment protocol of HAART until six months postpartum and beyond. Maternal mortality was 0.8%, with vertical transmission rates of 1.4% at six months, equivalent to those developed countries (Marazzi et al., 2007). (Gray III) (*HAART, treatment, Mozambique*)
- ▶ A study in **Jamaica** with over 69,995 pregnant women presenting for antenatal care between 2005 and 2007 found that the use of HAART decreased perinatal transmission from 6% to 1.6% in 3 urban areas and to 4.75% island-wide (Christie et al., 2008). (Gray V) (*antenatal care, HAART, PMTCT, Jamaica*)

2. For women who are pregnant and not eligible for HAART for their own health, short-course ARV therapy used for prophylaxis can reduce nevirapine resistance.

- ▶ A 2009 study from **Thailand** found that one month of zidovudine (ZDV 300 mg twice daily) and didanosine (ddI 400 mg once daily) following a single dose of nevirapine (NVP) during labor prevented almost all NNRTI resistance. Two hundred and twenty ARV-naïve HIV-positive pregnant women with CD4 counts greater than 250 cells/mm<sup>3</sup> receiving postpartum ZDV treatment during the third trimester, single dose NVP during labor, and 1 month of ZDV/ddI were matched with women (with similar CD4 counts) receiving ZDV treatment during the third trimester and single dose NVP during labor (but no postpartum treatment). Resistance mutations were found in 1.8% of women who received the 1 month postpartum ZDV/ddI and in 20.7% of the women who did not receive postpartum treatment (Lallemant et al., 2009). (Gray III) (*PMTCT, treatment, Thailand*)
- ▶ A study from **Thailand** that enrolled 169 HIV-positive pregnant women (28 to 38 weeks gestation) from 2006 to 2008 found that postpartum antiretroviral treatment for at least 7 days after a single dose of intrapartum nevirapine (NVP) significantly reduced the development of NVP resistance. Women included in the study had CD4 counts of greater than 250 cells/mm<sup>3</sup>, may or may not have received zidovudine (ZDV) during

their current pregnancy or a past pregnancy, and were not intending to receive ART within 8 weeks postpartum. Overall, 169 women received either ZDV, didanosine (ddI), and lopinavir/ritonavir (LPR/r) for 7 days postpartum; ZDV and ddI for 30 days postpartum; or ZDV, ddI, and LPV/r for 30 days postpartum (after receiving intrapartum single dose NVP). These 3 treatment groups were compared to a historic control group from a 2001 to 2003 study of 119 women who had received prenatal ZDV treatment and intrapartum single dose NVP, but no postpartum treatment regimen. In comparison to the control group, women receiving any of the three postpartum treatments had a significantly lower risk of developing NVP resistance (Van Dyke et al., 2009). (Gray III) (*PMTCT, pregnancy, treatment, Thailand*)

- ▶ A study enrolling HIV-positive pregnant women not requiring HAART for their own health in **Côte D'Ivoire**, **Cambodia** and **South Africa** from 2006 to 2007 found that a combination of tenofovir disoproxil fumarate and emtricitabine taken along with single-dose nevirapine at delivery and for 7 days postpartum was effective in preventing nevirapine resistance and was well tolerated. All study participants also received antenatal zidovudine. Of 38 women included in the study no resistance mutations for any antiretroviral were detected one month after delivery and no cases of MTCT were found. Nine serious adverse events were documented in women and eleven in infants, including four infant deaths, although these were determined unlikely to be related to antiretroviral exposure (TEMAA ANRS 12109 Study Group et al., 2009). (Gray III) (*PMTCT, HAART, treatment, Côte d'Ivoire, Cambodia, South Africa*)
- ▶ A study in **South Africa** between 2005 and 2007 showed that prevention of perinatal transmission of HIV through combined use of ZDV from 34 weeks of pregnancy and a single dose of NVP during delivery reduced NVP resistance rates reported by previous studies. Seventy-six pregnant women not yet qualified for antiretroviral treatment (CD4 count above 200/μl and no AIDS defining illness) were included in this study, with 13 (17.1%) presenting NVP resistance mutations approximately 6 weeks after delivery (van Zyl et al., 2008). (Gray III) (*PMTCT, treatment, South Africa*)

### 3. Extending an HIV-positive woman's life increases the long-term survival of her infant.

- ▶ A review of seven randomized MTCT intervention trials looked at the effect of maternal health, infant HIV infection, feeding practices and age at acquisition of infection on the rate of child mortality among 3,468 African children born to HIV-positive women. Child mortality was associated with maternal death, CD4 cell counts <200 and infant infection and varied by region (east, west and southern Africa), with overall rate of more than 50% of vertically infected children dying by age 2 (Newell et al., 2004). (Gray II) (*PMTCT, child mortality, feeding practices*)
- ▶ A retrospective cohort study with more than ten years of follow-up in **Malawi** found that mortality in children less than five years was much higher in children born to HIV-positive mothers than in those born to HIV-negative mothers. Among those with

HIV-positive mothers, mortality was 27% as infants, 46% for those under five years, and 49% for those under ten years of age. For those with HIV-negative mothers, mortality was 11% as infants, 16% under the age of five, and 17% under the age of ten (Crampin et al., 2003). (Gray III) (*PMTCT, child mortality, Malawi*)

- ▶ Children left motherless are 3 to 10 times more likely to die within two years than children who live with both parents (UNFPA, 2000a). (Gray IV) (*orphans, child mortality*)

#### 4. National scale-up of HAART in pregnancy improves maternal and infant outcomes.

- ▶ A retrospective review of clinical records of 571 HIV-positive pregnant women in antenatal care in **Jamaica** between 2002 and 2006 found that national scale up of HAART improved maternal and infant outcomes. Acceptance of HAART increased: from 2002–2004, HAART was used by 2 to 3% of pregnant women; by 2006, 62% of HIV-positive women accessed HAART during pregnancy. From 2002 to 2005, zidovudine and/or nevirapine were used. For all four years, 24 maternal deaths occurred. Of these, 23 or 96% occurred in those who took zidovudine/nevirapine, with only one death or 4% occurring in those who accessed HAART. By bringing viral load to an undetectable level, HAART has minimized the “chance of perinatal transmission to under 2% in Kingston and under 5% islandwide” (Johnson et al., 2008: 221). Between 2002 and 2005, only 1% received HAART despite 8% of patients having been clinically assessed as warranting HAART. In 2008, “we offer four-drug HAART.... to all HIV-infected women who are diagnosed early in pregnancy, with island-wide uptake consistently approaching 90% regardless of the woman’s individual disease stage” (Johnson et al., 2008: 221). Recent island-wide upgrade of lab facilities allowing wide availability of CD4 counts and viral loads has “already minimized peripartum deaths in pregnant women with HIV infection” (Johnson et al., 2008:220). (Gray III) (*HAART, treatment, PMTCT, Jamaica*)
- ▶ A review of PMTCT programs in **Ukraine** found substantial improvements in MTCT on a national level. MTCT rates decreased from 15.2% in 2001 to 7% in 2006. By January 2008, 3,356 mother-child pairs had received PMTCT services. Among women receiving no ARV prophylaxis, the PPT rate was 26.7%, decreasing to 15.7% for women who received single dose nevirapine, 7% for women receiving zidovudine; 9.2% for women who received both zidovudine and single dose nevirapine and 3.9% among women who accessed HAART. Maternal HIV clinical disease stage (WHO clinical stages 1 and 2) as compared to WHO clinical stages 3 and 4 were not significantly associated with PMTCT. PMTCT rates more than halved between 2001 and 2006, with a PMTCT rate of one in 14 in 2006. Use of HAART is planned for all HIV-positive women in Ukraine’s next PMTCT program. Most women received their first HIV diagnosis in pregnancy (Thorne et al., 2009). (Gray III) (*PMTCT, treatment, HAART, Ukraine*)

## Promising Strategies:

### 5. Integrating ARV therapy into antenatal care, rather than referring women separately for HIV treatment, may reduce time to treatment initiation for pregnant women living with HIV. [See also Chapter 13. Structuring Health Services to Meet Women's Needs]

- ▶ An evaluation in **Zambia** that compared integration of antiretroviral therapy in antenatal care to referral to ART care found that where antiretroviral therapy was integrated with antenatal care, women were more than twice as likely to be enrolled while pregnant and within 60 days of HIV diagnosis and to have initiated ART while pregnant. Between 2007 and 2008, 13,917 women started antenatal care more than 60 days before the intervention rollout and constituted the control cohort; 17,619 women started antenatal care after ART was integrated into ANC and constituted the intervention cohort. Of the 1,566 patients found eligible for ART, 376 out of 846 (44.4%) enrolled while pregnant and within 60 days of HIV diagnosis as compared with 181 of 716 (25.3%) who were referred for ART. 278 out of 846 (32.9%) of women who accessed ART in integrated services in ANC initiated ART while pregnant compared to 103 of 716 (14.4%) of those who were referred for ART. Women found to be HIV-positive through antenatal testing had a specimen routinely sent for a CD4 cell count. Separate ART facilities were located on the same premises but physically separate and separately staffed (Killam et al., 2009). (Gray III) (*treatment, PMTCT, antenatal care, Zambia*)
- ▶ A study of 872 women in **Zambia** found that HAART was less effective among women who had been exposed to single dose nevirapine. HIV-positive women who had received single dose nevirapine between 2001 and 2005 who could be contacted were evaluated for eligibility for HAART if they had CD4 counts under 200 or viral counts under 35 and evidence of WHO clinical disease stage 3” (Kuhn et al., 2009b). . Mortality in women who met ART eligibility criteria was high with 23.7% mortality by 24 months in the era before ART became available. Of 161 single dose nevirapine exposed women who were still on HAART after six months, 70.8% achieved a viral load less than 400 copies per milliliter and 40.4% achieved a viral load less than 50 copies per milliliter. Of eight women exposed to single dose nevirapine within six months of starting HAART, only three achieved a viral load of less than 400 copies per milliliter by six months after therapy compared with 59.1% of 22 women who started HAART within six to 12 months after single dose nevirapine and, 72.1% of 61 who started HAART within 12 to 24 months, and 77.1% of 70 who started more than 24 months after exposure. “With HIV treatment programs now in place, women should be screened for ART during pregnancy” (Kuhn et al., 2009b: 135). “If ART is available, pregnant women should be prioritized and started on therapy if eligible as a matter of urgency... These results emphasize the importance of establishing appropriate referrals and coordination between services so that pregnant HIV-infected women can be triaged for ART if appropriate” (Kuhn et al., 2009b: 136). (Gray III) (*HAART, PMTCT, Zambia*)

- ▶ Training a key obstetrician on antiretroviral treatment at a medical center in **Tanzania** resulted in 25 women needing HAART gaining timely access to treatment (Ginsburg et al., 2007). (Gray V) (*providers, training programs, HAART, Tanzania*)
- ▶ In a study at Coronation Women and Children Hospital, **South Africa**, data were gathered from HIV-positive women attending antenatal care from June 2004 to July 2005 to evaluate linking antenatal with antiretroviral treatment (ARV) services. After a patient record review, interventions were implemented to strengthen service linkages and integrate ARV treatment within antenatal care. Laboratory investigations were streamlined, including CD4 cell count testing at the first antenatal visit. MTCT risk for women initiating ARV treatment was compared with that of women-infant pairs receiving single-dose nevirapine (sd-NVP). In total, 164 pregnant women initiated ARV treatment and 863 received sd-NVP. After changes to service delivery, time-to-treatment initiation was reduced from a median of 56 days to 37 days. The risk of MTCT for women receiving ARV treatment was lower than for those given sd-NVP (van der Merwe et al., 2006). (Gray V) (*PMTCT, treatment, antenatal care, South Africa*)

#### 6. PMTCT-Plus (family-focused) HIV care can increase the numbers of women and their male partners who access testing and treatment.

- ▶ A study from **Côte d'Ivoire** evaluating an MTCT-plus program from 2003 to 2005 found a significant increase in antiretroviral treatment initiation and high rates of retention in care for women and their partners. Of the 605 women enrolled during the study period, fewer than 2% of women and 9% of their partners were receiving antiretroviral treatment prior to enrollment in the program, in comparison to 41.5% of women and 65% of their partners after enrollment at the close of the study period. Retention rates were also high: only 2.5% of women and 5.5% of partners initiating ART were lost to follow-up, while 2% of women and 0% of partners not eligible for ART were lost to follow-up (Tonwe-Gold et al., 2009). (Gray III) (*PMTCT-Plus, treatment, Côte d'Ivoire*)
- ▶ A study in rural **Uganda** providing PMTCT-Plus resulted in vertical HIV transmission rate dropping from over 27% to 8%; a HAART adherence rate of more than 95% for 80% of clients and an overall 36-month mortality rate of 8%. The program reached 16,000 pregnant women, 1,454 children and 683 men with VCT and HIV services. Services consisted of patient monitoring using WHO clinical staging, generic antiretroviral drugs and rapid HIV testing. Social services included nutrition interventions, loans and home based water chlorination. All services were incorporated into reproductive health services (Lukoda and Gibson, 2008). (Abstract) (*PMTCT-plus, HAART, PMTCT, HIV testing, Uganda*)

## Gaps in Programming—Treatment

1. Interventions are needed to increase knowledge of PMTCT-Plus programs among women and the community and to reduce stigma and discrimination directed toward HIV-positive mothers.
2. Interventions are needed to inform women IDUs of harm reduction early in pregnancy.
3. Well functioning laboratory systems are needed to measure viral load via PCR to assess effectiveness of treatment.
4. Interventions are needed to address gender inequity related to uptake and adherence of ART and ARV prophylaxis.

1. **Interventions are needed to increase community knowledge of PMTCT-Plus programs and to reduce stigma and discrimination directed toward HIV-positive mothers.** [See also Chapter 11F. *Strengthening the Enabling Environment: Reducing Stigma and Discrimination*] Studies found that single dose nevirapine for HIV-positive mothers to prevent vertical transmission which is currently contraindicated by WHO is still widely used. Studies found that providers do not expect pregnant women living with HIV to be sexually active and do not have adequate training or counseling skills. Providers and community members blamed women for being HIV-positive and for becoming pregnant.
  - ▶ Gap noted, for example, in **South Africa** (Sprague, 2009), **Botswana** (Kebaabetswe, 2007) and **Zimbabwe** (Feldman and Masopha, 2003).
2. **Interventions are needed to inform women injection drug users of harm reduction early in pregnancy.** [See also Chapter 4B. *Prevention for Key Affected Populations: Women Drug Users and Female Partners of Male IDUs*] A study of PMTCT programs found that women IDUs were the least likely to receive treatment and only to be tested for HIV during labor. No linkages were found between PMTCT programs and harm reduction programs. Women IDUs fear accessing health services for fear of losing custody of their children. Another study found that continuous methadone treatment for female IDUs during pregnancy is associated with earlier antenatal care and improved neonatal outcomes.
  - ▶ Gap noted, for example, in **Ukraine** (Thorne et al., 2009); **Australia** (Burns et al., 2006); and for female IDUs in **numerous countries** (Pinkham and Malinowska-Sempruch, 2008; HRW, 2005 cited in Pinkham and Malinowska-Sempruch, 2008).
3. **Well functioning laboratory systems are needed to measure viral load via PCR to assess effectiveness of treatment.** A study noted “In Africa, access to viral load assessment is extremely limited, and patients must wait until immunologic or clinical deterioration is

manifested before being switched to new drugs, which reduces future treatment options and increases the risk of transmission.”

► Gap noted generally in Africa (Ford et al., 2009b: 1809).

4. **Interventions are needed to address gender inequality related to uptake and adherence of ART and ARV prophylaxis.** [See Chapter 7. Treatment]

## 9D. Safe Motherhood and Prevention of Vertical Transmission: Delivery

There is little evaluated evidence available regarding delivery options for HIV-positive women, though research has shown that by substantially lowering viral load, HAART can diminish the advantage of a cesarean section in reducing perinatal transmission (Sagay et al., 2008; Sharma and Spearman, 2008). Cesarean sections are not always available or safe in many developing country settings. In situations where a safe cesarean section can be provided however, further research is needed to determine whether HIV-positive women suffer more adverse events due to the procedure. Further research is also needed on whether elective cesarean sections provide PMTCT benefits for HIV-positive pregnant women who have viral loads lower than 1,000

copies/mL (Anderson and Cu-Uvin, 2009). While cesarean sections may not be the best option for the delivery for HIV-positive women in resource poor settings, they remain necessary surgical procedures in some cases to reduce the maternal mortality associated with difficult deliveries.

In vaginal deliveries, routine episiotomies have been shown to be particularly risky for HIV-positive women. A study in South Africa of 241 HIV-positive women compared to 427 HIV-negative women who gave birth and were evaluated at four intervals (within 72 hours post delivery, and at

one, two, and six weeks) for clinical signs of postpartum infection, found that episiotomy was associated with a two-fold increased risk of postpartum infections among the HIV-positive women. Among HIV-positive women with low CD4 counts, the risk of postpartum infection associated with episiotomy was even higher. Because the majority of postpartum infections were detected at the one-week review, it is important to have a skilled attendant examine the woman postpartum within the week following delivery (Sebitloane et al., 2009).

The mode of delivery does not seem to affect HIV disease progression. A study from 1990 to 2004 in the United States found no difference in HIV-related disease progression after delivery for HIV-1-positive women delivering through elective cesarean section (before membrane rupture), non-elective cesarean section (after membrane rupture), or vaginally. Of the 1,491 births where mode of delivery was documented, 1,087 were vaginal, 183 were elective

---

“I had to clean myself alone.  
They did not clean the baby.”

—HIV-positive woman,  
postpartum, Dominican Republic  
(Human Rights Watch, 2004j: 30)

---

cesarean, and 221 were non-elective cesarean and the mode of delivery was not associated with viral load increase or CD4 count decrease within 18 months after delivery or progression to AIDS or death within an average of 2.7 years after delivery (Navas-Nacher et al., 2006).

Globally many HIV-positive women experience stigma and discrimination during labor and delivery. Health care providers need training to reduce this stigma and discrimination against HIV-positive women in the delivery setting. They also need access to appropriate personal protective equipment (PPE) such as gloves, gowns, needleless systems and eye shields so that they can protect their own health as they care for their patients (WHO, 2009f). [See Chapter 13. Structuring Health Services to Meet Women's Needs] Health care providers must ensure HIV-positive women's confidentiality regarding HIV serostatus. HIV-positive women, as all women, need support and information about their choices in childbirth.

As previously mentioned in the introduction to the treatment section above, the WHO released new guidelines in November 2009 for the use of ARVs in pregnant women that expands treatment to women with CD4 counts below 350 cells/mm<sup>3</sup>, rather than below 200 cells/mm<sup>3</sup> and provides for earlier ARV prophylaxis at 14 weeks gestation, rather than 28 weeks gestation (WHO 2009b). The consequence, once countries choose and scale up their medication regimens, is that more women should receive ARV treatment or prophylaxis, which should result in lower viral loads at delivery. With adequate training and adequate access to PPE, this should decrease the occupational risk exposure to HIV by health care providers and minimize the stigma and discrimination directed toward HIV-positive women that is rooted in health care provider fear of HIV acquisition. At present, research is very limited in this area. Implementing high quality, non-stigmatizing maternal health services may encourage more women living with HIV to give birth in safer settings.

### **What Works—*Safe Motherhood and Prevention of Vertical Transmission: Delivery***

#### *Promising Strategies:*

1. The use of antiretroviral drug regimens for either treatment of the mother's health or prophylaxis to prevent mother-to-child transmission of HIV may reduce the advantage of cesarean over vaginal deliveries.

## **EVIDENCE**

### **Promising Strategies:**

1. The use of antiretroviral drug regimens for either treatment of the mother's health or prophylaxis to prevent mother-to-child transmission of HIV may reduce the advantage of cesarean over vaginal deliveries.

- ▶ A study in **Nigeria** of 1,138 babies exposed to HIV found that with HAART, PMTCT rates following C-section (3.6%) was not different from vaginal delivery (3.53%) (Sagay et al., 2008). (Gray IV) (*PMTCT, HAART, cesarean section, delivery, Nigeria*)
- ▶ Because the risk of perinatal transmission of HIV is directly proportional to maternal viral loads, for women who have either very low or undetectable viral loads, there may be no additional benefit to cesarean section delivery. “For those [women] on highly active antiretroviral therapy who have undetectable or low viral loads, the added benefit of cesarean delivery is not established and is probably negligible” (Sharma and Spearman, 2008: 414). (Gray V) (*PMTCT, cesarean section, delivery HAART*)

### Gaps in Programming—Delivery

1. Efforts are needed to ensure HIV-positive women have information on birthing options and the right to make choices based on that information.
2. Interventions are needed to ensure that stigma from health care workers does not discourage HIV-positive women from giving birth in safer settings.
3. Efforts are needed to ensure that health care workers protect the confidentiality of HIV-positive women’s serostatus.
4. Interventions are needed to provide HIV testing and counseling during labor and delivery that respects informed consent.
5. Health care providers must have access to personal protective equipment such as gowns, gloves, needle-less systems and eye protection to decrease the risk of occupational exposure.

1. **Efforts are needed to ensure HIV-positive women have information on birthing options and the right to make choices based on that information.** Studies found that HIV-positive women were not given information on birthing options.  
Gap noted, for example, in **Ukraine** and **Brazil** (Yaremenko et al., 2004).
2. **Interventions are needed to ensure that stigma from health care workers does not discourage HIV-positive women from giving birth in safer settings.** [See also Chapter 11F. *Strengthening the Enabling Environment: Reducing Stigma and Discrimination*] Studies found that HIV-positive women experienced discrimination by providers in ANC services or did not attend ANC services due to fear of mistreatment by health providers.
  - ▶ Gap noted, for example, in **Thailand** (Teeraratkul et al., 2005), **Cote d’Ivoire** (Painter et al., 2004) and **Vietnam** (Hong et al., 2004).

3. **Efforts are needed to ensure that health care workers protect the confidentiality of HIV-positive women’s serostatus.** A study found that health workers violated women’s confidentiality.
  - ▶ Gap noted, for example, in **Ukraine** (Yaremenko et al., 2004).
4. **Interventions are needed to provide HIV testing and counseling during labor and delivery that respects informed consent.** [See Chapter 6. *HIV Testing and Counseling for Women and 9C-1. Testing and Counseling*]
5. **Health care providers must have access to gowns, gloves, needle-less systems and eye protection to decrease the risk of occupational exposure to HIV.** [See Chapter 13. *Structuring Health Services to Meet Women’s Needs*]

## 9E. Safe Motherhood and Prevention of Vertical Transmission: Postpartum

Postpartum interventions to prevent vertical transmission of HIV include protecting the health of the mother with ARV treatment and providing ARV prophylaxis to the mother and/or the baby to reduce HIV transmission via breastfeeding. Contraception counseling for women in order to space their next pregnancy or prevent an unintended pregnancy is also a critical—though often overlooked—component of postpartum intervention planning in PMTCT for HIV-positive women (Wilcher et al. 2008).

The benefits of ARV treatment for women living with HIV have been previously discussed. ARV treatment for infants and children can also provide excellent prospects for survival into adulthood. However, without antiretroviral treatment, approximately half of children with perinatal infection die before two years of age (Newell et al., 2004, cited in Abrams, 2007). “International approaches for preventing MTCT of HIV now focus on child survival, not just HIV transmission, as the appropriate outcome to measure success of PMTCT programs. Ultimately, the goal is a live and healthy, HIV-negative child and an alive and healthy mother to care for that child” (Jackson et al., 2009: 226).

---

“Scientific messages...need to be clarified. Women are told both that ‘Breastfeeding is a mode of HIV transmission’ and ‘Exclusive breastfeeding is a mode of prevention’”  
(Desclaux and Alfieri, 2009: 825).

---

### *Four Interventions to Reduce Postnatal Transmission*

What works best to prevent postnatal transmission via breastfeeding has been the subject of much scrutiny. A 2009 Cochrane review, based on six randomized control trials and one intervention cohort study (data from 1980–2008) found four interventions effective in reducing

postnatal HIV transmission. These interventions included: 1) decreasing the duration of breastfeeding through complete avoidance or early cessation; 2) lowering maternal viral load in breast milk through the use of maternal antiretrovirals or treating breast milk with heat or chemicals to deactivate the HIV virus; 3) providing mothers with adequate education and counseling so that they understand how to breastfeed properly and the importance of exclusive breastfeeding when exclusive replacement feeding is not feasible, and how to treat breast abnormalities such as mastitis (which increases the risk of transmission); and 4) improving infant's defense against HIV transmission through extended antiretroviral prophylaxis during breastfeeding (Horvath et al., 2009). "Identified risk factors for transmission during breastfeeding include increased severity of maternal disease, mastitis and breast abscess, mixed infant feeding, maternal seroconversion during lactation, lower maternal CD4 cell count, and higher maternal HIV viral load" (Mmiro et al, 2009: 32).

### *Formula Feeding May Increase Infant Mortality Where There is No Access to Clean Water*

Infant formula feeding may avert transmission of HIV via breastfeeding. However, there are more than one billion people globally without adequate access to clean water, leading to over 1.8 million child deaths from diarrhea and other diseases caused by unclean water and poor sanitation. In settings prevalent in most of the developing world where there is no access to safe, clean drinking water, HIV-positive women who use infant formula may see their baby, who was born HIV-negative, die from diarrheal diseases if fed formula. "Several studies confirm that the benefits of shortening breastfeeding are offset by adverse outcomes in those infants who escape infection" (Kuhn et al., 2009a: 83). Globally, breastfeeding leads to about 300,000 HIV-positive infants every year, while at the same time, UNICEF estimates that not breastfeeding and having infants formula fed with contaminated water leads to approximately one and a half million child deaths per year (Fletcher et al., 2008). Additionally, concerns have been raised that promoting infant formula as a best practice to prevent vertical transmission may have negative consequences by decreasing breastfeeding of infants.

For women who do not have access to ARVs for either treatment or MTCT prophylaxis and who do not have access to clean water to make formula feeding safe, health providers have been advising breastfeeding. Many studies have shown that mixed feeding increases the risk of HIV transmission from the HIV-positive mother to her infant. Experts thus advise that it is better for an HIV-positive mother to exclusively breastfeed than to breastfeed and add any additional nutrition in the way of food or water prior to six months (Kuhn et al., 2009a). After six months, for HIV-positive mothers who do not have access to clean water, infant survival is increased by continued breastfeeding and adding additional nutrients for the child. Breastfeeding beyond six months, however, may increase the risk of HIV infection of the infant to 9.68% by the time the infant is two years old (Taha et al., 2007). Experts advise that infants who are HIV-positive should be breastfed. However, in most cases, the choice of feeding is often decided before the mother knows her infant's serostatus.

“There is no doubt that there are small groups in resource-constrained countries with basic and essential services that allow the hygienic preparation of formula milks. However, for the child population as a whole, the unrestrained promotion of formula is generally harmful... exclusive breastfeeding, which is threatened by the HIV epidemic, remains an unfailing anchor of child survival” (Coutsoudis et al., 2008: 210). Feeding choices can be laden with stigma as well. HIV-positive women may face heavy stigma from partners, families and communities if they formula feed their infants, yet if they do not formula feed, they may fear HIV transmission to their infants.

### *New Guidelines About Infant Feeding Still Leave Unanswered Questions*

The WHO rolled out a new policy on infant feeding in November 2009 (WHO, 2009a: [http://whqlibdoc.who.int/publications/2009/9789241598873\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241598873_eng.pdf)), which elaborates on an earlier WHO policy for infant formula to be used for HIV-positive women when it is “affordable, feasible, acceptable, safe and sustainable” (WHO, 2006a). The newly issued recommendations from WHO now recommend that “mothers known to be HIV-infected (and whose infants are HIV-uninfected or of unknown HIV status) should exclusively breastfeed their infants for the first six months of life, introducing appropriate complimentary foods thereafter, and continue breastfeeding for the first 12 months of life. Breastfeeding should then only stop once a nutritionally adequate and safe diet without breastfeeding can be provided” (WHO, 2009a: 15). HIV-positive women should also know that breastfeeding does not harm their own health (Taha et al., 2006, Allen et al., 2007a, Lockman et al., 2009, Wilfert and Fowler, 2007). The November 2009 WHO guidelines state that if infant formula is given to prevent perinatal transmission, the following conditions are needed: safe water and sanitation assured at the household level and in the community; the mother or other caregiver can reliably provide sufficient infant formula milk to support normal growth and development of the infant; the mother or caregiver can prepare it cleanly and frequently enough so that it is safe and carries a low risk of diarrhea and malnutrition; the mother can, in the first six months, exclusively give infant formula milk; and the family is supportive of this practice; and the mother or caregiver can access health care that offers comprehensive child health services (WHO, 2009b: 19).

The WHO also recommends that if mothers are started late in pregnancy on ART, or have not achieved full viral suppression, that infants be given daily AZT or NVP from birth until six weeks of age (WHO, 2009b). However, the impact on future treatment options should an infant become HIV-positive while on this regimen are unclear. Studies show that infant prophylaxis can decrease breast milk transmission. However, “...it is difficult to translate these research findings into policy for resource-limited countries. No consensus has been reached yet about the duration of prophylaxis and the antiretroviral drugs to use” (Mnyani and McIntyre, 2009: 73).

## *Infant Feeding Research Offers Complex and Contradictory Advice*

In the absence of HAART or safe conditions for infant feeding, questions remain on how long HIV-positive women should breastfeed to minimize the risk of HIV transmission but reduce the risk of their infant dying from diarrheal disease.

While WHO recommends breastfeeding to avert infant deaths due to diarrheal disease, breastfeeding beyond six months increases the risk of HIV transmission to the infant. One study analyzed the results of a clinical trial from 2001–2003 in Malawi, Tanzania and Zambia that followed infants born to HIV-positive mothers over 12 months and found that of 1,979 infants, 404 (20.4%) acquired HIV. Breastfeeding longer than six months increased risk of HIV acquisition by infants. Late postnatal transmission was associated with lower CD4 cell count and higher viral load at baseline. The analysis used data from the HIV Prevention Trials Network Protocol, which was a randomized controlled trial. The trial provided counseling on breastfeeding only with no information related to replacement feeding or other alternative and all women received nevirapine (Chasela et al., 2008).

Infant feeding studies offer complex and sometimes contradictory advice on the best feeding practices and the optimal time to wean for both averting HIV transmission and reducing infant mortality (Palombi et al., 2007; Kagaayi et al., 2008; Kuhn et al., 2009c; Kuhn et al., 2010; Taha et al., 2007; Becquet et al., 2008; Sarr et al., 2008; Kuhn et al., 2008; Thior et al., 2006; Leroy et al., 2008 cited in Gray and Saloojee, 2008; Becquet et al., 2007; Rollins et al., 2008). However, it is clear that for women who lack access to ARVs, the CD4 count is important in the likelihood of HIV transmission to the infant (Kuhn et al., 2009c, Kuhn et al., 2010). Ultimately, HAART for the mothers improves the likelihood that infants will not acquire HIV via breastfeeding (Kuhn et al., 2009c).

Studies show that mixed feeding (when a mother both breastfeeds and provides any other food, in addition to breast milk), particularly prior to the infant being four to six months of age, can put the infant at a higher risk of acquiring HIV. Studies describe the increased statistical risk of the infant acquiring HIV when mixed feeding is used, but do not describe the mechanism. It may be that the immature gut mucosa in an infant can be damaged by the introduction of other foods and nonhuman milk, thus leading to increased permeability enabling HIV viral entry (Charurat et al., 2009) or it may be that when a mother does not breastfeed regularly she can develop mastitis, a painful inflammation of the breast. Mastitis may not always be severe enough to compel a woman to receive medical care, however, studies have shown that HIV-positive women with even subclinical cases of mastitis have a higher viral load in the breast milk of the affected breast (Nussenblatt et al., 2006, Kasonka et al., 2006, Kantarci et al., 2007). Further research is needed.

“While the international guidelines of exclusive breastfeeding for a six month period seem to offer the least worst strategy for reducing mother-to-child transmission of HIV during infancy, while conferring some immunity through breastfeeding post six months....[this] translates into a complicated painful moral dilemma for HIV-positive mothers...” (Fletcher et al., 2008: 307). How to reduce transmission postnatally remains challenging, as HIV transmission can occur during breastfeeding by a woman living with HIV to the infant, but infant

formula feeding increases the risk of the infant dying of diarrheal disease. Women living with HIV also face pressures from their partners, families and communities to breastfeed. In many countries, formula feeding is associated with HIV and women who formula feed face stigma. For example, in Botswana, free ARVs and infant formula are widely available, as is safe drinking water; yet, more than half of women in a study did not formula feed their babies due to stigma (Shapiro et al., 2003). PMTCT programs may also inadvertently increase stigma against women living with HIV by having separate HIV facilities, home visits for HIV-positive women, or providing infant formula (Thorsen et al., 2008). For women living with HIV who have infants who are HIV-positive, breastfeeding is best, but women are often unable to know their infant's serostatus prior to deciding whether to breastfeed or not.

Further research is urgently needed to clarify what works best in infant feeding to prevent perinatal transmission. "Prevention of mother-to-child HIV transmission during breastfeeding remains one of the greatest challenges facing scientists, clinicians and women in the developing world... While awaiting further studies... promoting exclusive breastfeeding with safer weaning and assuring ART for pregnant and postpartum women with advanced HIV will likely prevent the majority of needless maternal and infant deaths" (Kuhn et al., 2009a: 90–91).

### **What Works—*Safe Motherhood and Prevention of Vertical Transmission: Postpartum***

1. ARVs, when used for treatment or prophylaxis, and can reduce mother-to-child HIV transmission to infants.
2. Early postpartum visits can result in increased condom use, contraceptive use, HIV testing and treatment.

#### *Promising Strategies:*

3. Provision of clean water, fuel and formula to HIV-positive mothers who wish to practice exclusive formula feeding can result in low postnatal rates of HIV transmission to infants.
4. Exclusive breastfeeding results in lower rates of HIV transmission to the infant than mixed feeding.
5. Postnatal home visits by trained lay counselors may reduce mixed feeding.
6. Conducting HIV testing and counseling for women who bring their children for immunization can increase the number of women accessing testing and treatment services.
7. Community support groups can be highly beneficial for HIV-positive pregnant women and mothers.

## EVIDENCE

### 1. ARVs, when used for treatment or prophylaxis, and can reduce mother-to-child HIV transmission to infants. [See also 9C-2. Treatment]

- ▶ A randomized controlled trial from 2005–2008 in **Burkina Faso, Kenya and South Africa** assessed both mothers' health and mother-to-child transmission among HIV-positive women whose CD4 count was between 200 and 500. The study found that triple-antiretroviral treatment initiated during pregnancy and continued until six months postpartum reduced the risk of transmission to infants and improved HIV-free survival of infants compared to standard short-course antiretroviral therapy. At 12 months, 6.7% of the 402 infants whose mothers received triple-course antiretroviral treatment had died compared to 10.2% of the 403 infants whose mothers received short-course antiretroviral treatment. This effect was especially strong in women with CD4 counts between 200 and 350. At 12 months, the rate of transmission from mother to infant for triple-antiretroviral therapy was 5.5% compared to 9.5% for those who received short-course antiretroviral treatment. The infants whose mothers received triple-course antiretroviral therapy experienced a 42% risk reduction in HIV infections and a 37% risk reduction of death at 12 months, for a combined 36% risk reduction of either HIV infection or death. The study also found that triple-antiretroviral therapy had low toxicity for mothers and infants. All infants received single-dose nevirapine plus zidovudine in the first 72 hours and all mothers received counseling on replacement feeding or exclusive breastfeeding with weaning by six months. Formula was provided free of cost (Kesho-Bora Study Group, 2009). (Gray I) (*treatment, PMTCT, Burkina Faso, Kenya, South Africa*)
- ▶ A study in **Botswana** (no date given) found a positive association between maternal viral load (in both plasma and breast milk) and mother-to-child transmission after one month in breastfed infants. 1,200 HIV-positive women at 4 sites were enrolled in the study and randomized to either exclusively breastfeed for 6 months in combination with infant zidovudine treatment or to exclusively formula feed. Mothers received antenatal zidovudine starting at 34 weeks of pregnancy along with intrapartum zidovudine and either single-dose nevirapine or a placebo at delivery. During the study HAART became available and women with CD4 counts below 200 cells/mm<sup>3</sup> or AIDS defining illnesses were eligible for treatment either antenatally or postnatally. Infants received single-dose of nevirapine or a placebo at birth along with one month of zidovudine prophylaxis for formula fed infants and six months for breastfed infants. After 17 months the study protocol was changed so that all infants received single-dose nevirapine at birth. Of 1,116 infants alive and HIV-negative at birth, 1.1% of formula fed and 1.3% of breastfed infants tested HIV-positive after one month. Of 547 breastfed infants HIV-negative at one month, 4.4% tested HIV-positive before 2 years of age. Only 4 formula-fed infants tested HIV-positive after one month but before 2 years

of age. For breastfed infants, the only predictors of mother-to-child transmission after one month of age were high maternal viral load and low maternal CD4 count. Infant prophylaxis with zidovudine was not a significant predictor of transmission. No transmission was observed in breastfeeding mothers who had started treatment with HAART before delivery. Similarly, no transmission was observed in breastfeeding mothers who had viral loads of less than 3,500 copies/mL. Maternal treatment with single-dose nevirapine at delivery did not predict mother-to-child transmission (Shapiro et al., 2009). (Gray II) (*PMTCT, breastfeeding, formula feeding, treatment, Botswana*)

- ▶ The Post-Exposure Prophylaxis of Infants (PEPI) trial in **Malawi** found that extended infant prophylaxis with nevirapine or with nevirapine and zidovudine for the first 14 weeks of life significantly reduced breast-feeding acquired HIV-1 infection in 9-month-old infants. Between 2004 and 2007, 3016 breastfeeding infants were randomly assigned to one of three different drug regimens. The control group received single-dose nevirapine plus one week of zidovudine, the second group received the control regimen plus daily extended prophylaxis with nevirapine (extended nevirapine group) and the third group received the control regime plus nevirapine and zidovudine (extended dual prophylaxis group). At nine months (the primary end point in the study), the estimated rate of HIV-1 infection in the control group was 10.6%. The extended nevirapine group had an infection rate of 5.2% and the extended dual prophylaxis group had a rate of 6.4%. There were no significant differences between the two extended prophylaxis groups although the extended dual prophylaxis group had a significant increase in the number of adverse events which were thought related to a study drug. This study demonstrated a protective efficacy of more than 60% for the two extended prophylaxis groups at 14 weeks. Cumulative risk of post-natal infection between birth and 14 weeks was 8.4% in the control group and 2.8% in the extended prophylaxis groups. This net difference of approximately 5% continued at 24 months. (Kumwenda et al., 2008) (Gray II) (*breastfeeding, treatment, PMTCT, Malawi*)
- ▶ The Six Week Extended-Dose Nevirapine (SWEN) study combined study data from sites in **Ethiopia, India** and **Uganda** to assess whether daily nevirapine given to breastfed infants through six weeks of age would decrease HIV transmission from breastfeeding. HIV-positive women who were breastfeeding their infants were randomized to receive either single-dose nevirapine (during labor for the mother and after birth for the baby), or six week extended dose nevirapine (during labor for the mother and after birth for the baby) plus daily nevirapine doses for the baby from day 8 to 42. The primary goal of the study was to assess HIV-infection rates at six months of age for infants who were HIV PCR negative at birth. The study concluded that a six week regimen of daily nevirapine might be associated with a reduction in the risk of HIV transmission at six weeks of age but the lack of a significant reduction of HIV transmission at the study end point

of six months of age suggests that a longer course of daily infant nevirapine to prevent HIV transmission via breast milk might be more effective.<sup>5</sup> (Six Week Extended-Dose Nevirapine (SWEN) Study Team, 2008) (Gray II) (*breastfeeding, treatment, PMTCT, Ethiopia, India, Uganda*)

- ▶ A 2001–2003 study in **Tanzania** assessing 398 infants of HIV-positive women intending to breastfeed who were treated with zidovudine and lamivudine at antenatal clinics, found a 3.8% transmission rate of HIV from mother-to-child at week six and a 4.9% transmission rate after six months. The cumulative rate of HIV infection or death for infants was 8.5% at six months. Women were treated with zidovudine or lamivudine from 36 weeks gestation to one week post-delivery. Infants were treated with zidovudine and lamivudine for the first week of life and then lamivudine throughout six months of breastfeeding. Follow-up appointments included infant feeding counseling and occurred at weeks 1, 3 and 6 and months 3, 6, 9, 12, 15, 18, 21 and 24. Women were counseled to breastfeed exclusively and wean by six months. The infants were breastfed for a median of 18 weeks. Mothers reported 95% breastfeeding at six weeks, 86% after 12 weeks and 18% after 26 weeks. A total of 19 children became HIV-positive, 15 were considered early transmissions and 4 were considered late transmissions. CD4+ cell count and viral load were significantly associated with mother-to-child transmission. No infants suffered serious adverse outcomes due to antiretroviral treatment. The comparison group for this study was a historical study of the same cohort where mothers received the same antiretroviral regimen but infants were not treated throughout breastfeeding. In this earlier study, mothers reported 85% breastfeeding at six weeks, 77% at 12 weeks and 64% at 26 weeks. This study revealed a 5.4% transmission rate at six weeks and 11.9% transmission rate at six months. The cumulative risk for HIV acquisition or death was 8.7% at six weeks and 15.5% at six months, about 50% higher than the current study (Kilewo et al., 2008). (Gray III) (*treatment, PMTCT, breastfeeding, Tanzania*)
- ▶ A study in **Mozambique** from 2005–2007 followed 313 HIV-positive mothers on HAART, who were counseled to breastfeed exclusively for six months and found that HAART reduced the risk of mother-to-child transmission by 93%. There were a total of 8 cases of HIV transmission, 4 of which were considered late postnatal transmission. Women with repeat pregnancies, who had previously received antenatal care and HAART through six months of breastfeeding, did not transmit HIV to their infants. HIV testing of infants was performed at 1, 6 and 12 months. Antiretroviral treatment began at 15

---

5 Note: The three co-principal investigators of this study from India published a critique of this study write up in *The Lancet* in the same publication issue. These investigators disagree with the statistical analyses used in this study, express concern about the 40% of infants who experienced grade III or IV side effects during treatment and conclude that the recommendation to continue nevirapine beyond six weeks is “inappropriate.” The investigators suggest that a more prudent strategy is to “follow WHO/UNICEF guidelines for developed countries and to make formula feeding safe, sustainable, acceptable, and affordable for mothers in developing countries.” (Six Week Extended-Dose Nevirapine (SWEN) Study Team, 2008: 287).

weeks of gestation and continued until six months after delivery. HAART was continued beyond six months if the mothers had CD4 cell counts that remained below 350. In combination with HAART, nutritional supplements to mother and infant, patient counseling to increase adherence to breastfeeding and a strong network of support within the community led to the marked reduction of maternal and infant deaths (Marazzi et al., 2009). (Gray IV) (*HAART, treatment, PMTCT, breastfeeding, Mozambique*)

- ▶ A study enrolling HIV-positive pregnant women receiving a single dose of nevirapine for preventing perinatal transmission of HIV during labor from 2003–2004 in **Uganda** found that nevirapine was detectable in breast milk, maternal plasma, and infant plasma for 2–3 weeks after a single dose of maternal nevirapine. Overall, 62 women were included in the study. Sixty-one women received a single dose of nevirapine at least 1.5 hours before delivery, and 53 women chose to breastfeed. All infants received a single dose of nevirapine syrup within 72 hours of birth. Samples of breast milk and plasma from both mothers and infants were taken 1, 2, and 6 weeks after maternal nevirapine treatment. Infant plasma levels of nevirapine at delivery were correlated with the timing of maternal nevirapine intake. Infant nevirapine levels were the highest approximately 4 hours after maternal nevirapine intake, after which infant treatment with nevirapine only slightly increased infant nevirapine plasma concentrations. Furthermore, nevirapine transferred from maternal plasma to breast milk rapidly, and nevirapine in breast milk was detectable before infants initiated breastfeeding. The long-term duration of nevirapine in breast milk was determined to be protective against postnatal transmission due to the effective suppression of HIV in breast milk for up to 3 weeks after maternal single dose nevirapine intake. However, the long-term duration of nevirapine also increases the risk for nevirapine resistance mutation development, and the acquisition of a resistant virus for infants. Because the risk of nevirapine resistance decreases over time, infants are most at risk for acquiring a resistant virus during the initial breastfeeding period. Extended antiretroviral treatment with zidovudine/lamivudine should therefore be considered to reduce the risk of nevirapine resistance (Kunz et al., 2009). (Gray IV) (*PMTCT, treatment, breastfeeding, Uganda*) [*See introduction of 9C-2. Treatment for discussion of nevirapine resistance*]
- ▶ Lower maternal CD4 count was associated with a significantly higher risk of transmission through breastfeeding (Mofeson et al., 1999 cited in Abrams et al., 2007), therefore HAART, by increasing CD4 counts can reduce transmission of HIV during breastfeeding (Abrams et al., 2007). (Gray V) (*CD4 counts, breastfeeding, HAART, PMTCT*)
- ▶ The Breastfeeding, Antiretroviral and Nutrition (BAN) Study is a randomized trial in **Malawi** that evaluated rates of post-natal HIV-1 transmission among mother infant pairs who received single dose nevirapine intrapartum and one week of twice-daily zidovudine/lamivudine followed by randomization into three ARV treatment groups. The dosing above served as the control group. Among 2637 mother-infant pairs, in utero transmission was estimated at 4.9% (measured at one week). Estimated risk of HIV

transmission by 28 weeks among those infants who were negative at 1 week was: 6.4% in the control group, 3% in the second group receiving zidovudine, lamivudine, lopinar and ritonavir (MHAART) and 1.8% in the third group, in which infants received daily nevirapine (INVP). The estimated risk of HIV transmission or death at 28 weeks (breast-feeding stopped at 24 weeks) was 7.6% in the control group, 4.7% in the MHAART group and 2.9% in the INVP group. These results were statistically significant although the study was not powered to compare the two treatment groups. There was a trend favoring INVP prophylaxis (Chasela, et al., 2009) (Abstract) (breastfeeding, treatment, PMTCT, Malawi)

## 2. Early postpartum visits can result in increased condom use, contraceptive use, HIV testing and treatment.

- ▶ A quasi-experimental pre-post test study conducted from 2006 through 2007 of maternal health care interventions in **Swaziland** that provided care for all pregnant women, including HIV-positive women at several intervals (within the first six hours after delivery; an exam once per day postpartum while the woman was in the health facility; providing assessment, care and counseling, along with a specific appointment for the first postnatal visit upon being discharged from the facility and providing a postnatal visit at one week postpartum and a second visit at four to six weeks postpartum) increased contraceptive use and counseling on condom use. Over 60% of maternal deaths occur within 48 hours after childbirth (Lewis, 2004 cited in Mazia et al., 2009), yet in Swaziland, mothers are usually discharged within 12 hours of delivery. The conventional recommendation for the first postnatal visit is at four to six weeks, by which time most of the postpartum deaths have already taken place. The study collected data on 114 HIV-positive women at the start of the study and from 136 HIV-positive women to evaluate the impact a year later. The intervention increased early postnatal visits by twenty-fold. Providers increased counseling of HIV-positive women on the need to regularly monitor CD4 counts for the mother from 41% to 74%. Following the intervention, 93% of mothers were assured of privacy. While at baseline, the provider asked the woman her preferred family planning only 32% of the time, by the end of the intervention, 82% did so. While at baseline, only 28% of clients received their preferred family planning method, at the end of the intervention, 70% did so. While at baseline, providers only counseled on condom use 16% of the time, by the end of the intervention, 25% did so. The percent of women on HAART increased from 4% to 15% and the mother tested for her CD4 count since giving birth increased from 4% to 26%. There was also a statistically significant increase in the proportion of postpartum women (88 to 98%) and their partners (from 28% to 56%) getting tested for HIV. Since the postnatal visit within one week of delivery did not exist anywhere in the country at the pre-intervention phase, conclusions following the introduction of the new timing of postnatal care could be assessed. Actual condom use was not measured (Mazia et al., 2009). (Gray III) (PMTCT, family planning, counseling, HIV testing, Swaziland)

- ▶ A study in **Côte d'Ivoire** with 546 HIV-positive women and 393 HIV-negative women who were tested for HIV prenatally and followed up for two years following delivery and were provided contraception as desired at each postpartum visit, resulting in high rates of contraception use after delivery and low pregnancy incidence. HIV-positive women had fewer unwanted pregnancies than HIV-negative women. At each postpartum visit, women received family planning counseling and free contraception. Between 6 and 24 months, proportion of women using modern contraception varied from 52 to 65% among HIV-positive women. Among HIV-positive women, pregnancy incidence for 100 women years at risk was 5.70 and unwanted pregnancy incidence was 1.07 (Brou et al., 2009). (Gray III) (*pregnancy, contraception, Côte d'Ivoire*)
- ▶ A pre-post test design with 356 postpartum women and 53 health care workers that instituted a one week post-delivery postpartum visit along with provider training in **Swaziland** from 2006 to 2007 found that the proportion of HIV-positive postpartum women not wanting another child increased from 77% to 83%. Provider training increased the woman being asked about her preferred contraceptive method, from 32% to 82% and receiving her preferred method, from 28% to 70%. Male partners who tested for HIV increased from 28% to 56% (Warren et al., 2008). (Gray III) (*contraception, HIV testing, Swaziland*)
- ▶ A study of 319 HIV-positive pregnant women who were followed postpartum for one year in a perinatal HIV transmission study in **Kenya** and were referred to local clinics for contraceptive counseling and management resulted in high rates of contraceptive use and dual method use, with 72% initiating hormonal contraceptive use and 61% of 231 hormonal contraceptive users reporting condom use in addition to hormonal contraceptives. Prior to this project, which had linked antenatal care with family planning, only 50% of the currently using 231 hormonal contraceptive users had a history of previous hormonal contraceptive use. Prior to this project, only 6 or 3% had used condoms. Of those using contraception, 44% used DMPA, 31% used oral contraception and 25% switching methods at follow up. Women were counseled antenatally to initiate contraception postpartum and dual contraception was encouraged. No particular method of contraception was given priority. Hormonal methods were the most popular contraceptive method, possibly because they are female controlled and available. Women who opted of formula feed their infants were counseled to initiate contraception four weeks after delivery, whereas those who opted to breastfeed were counseled to initiate contraception six weeks after delivery. Breastfeeding women who wanted oral contraception received progesterone only pills and non-breastfeeding women received combined oral contraceptive pills. DPMA was available for both breastfeeding and non-breastfeeding women. Median time to initiation of sexual activity was two months following delivery, ranging between one and 11 months, with 77% of women resuming sexual activity within three months of delivery. Partner notification and condom use were similar between those using and not using other forms of contraception besides condoms. (Balkus et al., 2007). Other studies that did not provide contraceptive counseling in antenatal care

found much lower rates of contraceptive use post partum (Nebrie et al., 2001; Desgrées-Du-Loû et al., 2002 cited in Balkus et al., 2007). (Gray III) (*pregnancy, contraception, condom use, Kenya*)

### Promising Strategies:

#### 3. Provision of clean water, fuel and formula to HIV-positive mothers who wish to practice exclusive formula feeding can result in low postnatal rates of HIV transmission to infants.

- ▶ A study from **Kenya** enrolling HIV-positive mothers and their infants from 2006 to 2007 found that an integrated water safety and PMTCT program was effective in preventing MTCT in infants after 6 weeks of age. Women enrolled in the PMTCT program received HAART, either for prophylaxis or for the mother's health, infant feeding counseling, safe water education, free infant formula for women choosing not to breastfeed, chlorine-based water disinfectant, a water storage container, and home visits by a community resource person. Of 144 mother-infant pairs included, 133 infants were tested for HIV at 6 weeks, 3 of whom tested positive. None of the 73 infants tested at 6 months of age were HIV-positive (Lane et al., 2008). (Gray III) (*PMTCT, infant feeding, Kenya*)
- ▶ A review of clinical records from **Rwanda** enrolling HIV-positive mothers and their infants between 2005 and 2007 into an integrated PMTCT program combining clean water and formula provision, HIV and hygiene education, and healthcare services found low rates of postnatal HIV transmission and infant mortality after one year of follow-up. Replacement feeding was also monitored. Of 1,360 mother-infant pairs, 133 infants were enrolled at birth (without prior breastfeeding) and eligible for one year of follow-up. Two infants tested HIV-positive at birth and 4 died before one year. At one year of age, 92 infants were tested for HIV all of whom were HIV-negative (Rugira et al., 2008). (Gray V) (*PMTCT, infant feeding, Rwanda*)

#### 4. Exclusive breastfeeding results in lower rates of HIV transmission to the infant than mixed feeding.

- ▶ A study in **Zimbabwe** from 1997 to 2000 of 2,060 infants born to HIV-positive mothers found that solid foods or animal milks given to infants prior to three months of age was associated with a fourfold greater risk of postnatal transmission of HIV at six months compared with exclusive breastfeeding. The protective effects of early exclusive breastfeeding were still significant at 18 months with a 61% reduction in postnatal transmission compared with mixed breastfeeding. Thus, the more strictly HIV-positive mothers are able to breastfeed exclusively, the lower the risks of HIV or death for their infants. More than two-thirds of all postnatal transmission of HIV occurred after six months. This is consistent with other studies from West Africa, South Africa and Tanzania and supports early cessation of breastfeeding among HIV-positive women. Lastly, women with CD4 counts less than 200 cells/ul were five times more likely to transmit HIV

during breastfeeding compared with women with CD4 cell counts over 500 cells/ul, confirming the findings of other studies that postnatal transmission of HIV is highly correlated with immune suppression in the mother (Illiff et al., 2005). (Gray II) (*breastfeeding, PMTCT, infant feeding, Zimbabwe*)

- ▶ A study in **Nigeria**, which screened pregnant women for HIV-1 between 2004 and 2006, found that risk factors for mother-to-child transmission of HIV-1 differed by infant age. Infants at highest risk of acquiring HIV were those who had mothers with CD4 counts less than 200 and who received mixed feeding. The study analyzed 391 mothers and 371 infants, using follow-up visits 1 week after delivery and 1, 3, 6, and 12 months after delivery. A single-dose of nevirapine was given to each mother during delivery and to her infant within 48 hours of delivery. Women who chose replacement feeding were provided a 6-month supply of formula free of charge, as well as training and counseling on formula preparation, sterilization, and storage processes. Mothers who chose exclusive breastfeeding were provided counseling on the importance of weaning before 4–6 months. Exclusive breastfeeding was defined as only breast milk up until 6 months, with no other liquids or solids; replacement feeding as the use of formula only with no breast milk; and mixed feeding as a combination of breast milk and nonhuman milk or other solids before 6 months of age. For infants who were exclusively breastfed, 8.1% tested HIV-positive by 6-months of age compared to 9.5% of infants exclusively formula fed, and 29.2% of infants who received mixed feeding. After delivery, 71.7% of mothers chose replacement feeding while 28.3% chose to exclusively breastfeed. At 6-month follow-up, 71.1% of mothers who initially chose to breastfeed reported maintaining exclusive breastfeeding, 80.2% of mothers who initially chose formula feeding reported exclusive replacement feeding, and 82 mothers reported using mixed feeding. During the study period, 50 infants became infected with HIV-1, 34% in utero, 30% intrapartum or early postnatally, and 36% postnatally, with an overall transmission rate of 13.5%. For infants infected in utero, risk factors included maternal CD4 count of less than 200 and high maternal viral load. For infants infected during the intrapartum or early postnatal period, risk factors included high maternal viral load, gestational age of less than 37 weeks, and prolonged membrane rupture during delivery. Infants infected during the intrapartum or early postnatal period were at higher risk if they received mixed feeding compared to infants who were exclusively formula or breast-fed (12% compared to 2.2%). For infants infected during the postnatal period, mixed feeding and low birth weight increased the risk of HIV transmission. The risk of transmission for infants who were exclusively breastfed increased from 1.4% during the intrapartum/early postnatal period to 4.2% postnatally. The rate of transmission during all three infant-age periods for infants who were exclusively formula fed was similar. For mothers who initially chose to replacement feed but then switch to mixed feeding, stigma, pressure from family members, and no partner support were reported as reasons for not maintaining exclusive formula feeding (Charurat et al., 2009). (Gray III) (*PMTCT, breastfeeding, infant feeding, mixed feeding, Nigeria*)

- ▶ A 2001–2005 **South African** intervention cohort study of 1,372 women and infants which examined the effect of breastfeeding by HIV-positive mothers found that exclusive breastfeeding leads to significantly lower rates of HIV transmission and higher rates of survival than does mixed feeding. “Infants who received formula milk in addition to breast milk, before or after 14 weeks of age, were nearly twice as likely” and “infants who were breastfed but also received solids were nearly 11 times” as likely to become infected than infants who were exclusively breastfed (Coovadia et al., 2007: 1113). HIV-positive women were provided during antenatal care, nevirapine, infant-feeding counseling, and no cost commercial infant formula. After delivery, clinic nurses and counselors provided mothers with breastfeeding and replacement feeding support, with infant-feeding counselors visiting mothers three to four times within the first two weeks after birth and once every two weeks until six months after birth. Independent field monitors who visited mothers once a week assessed infant feeding practices. The study defined “exclusive breastfeeding” as feeding a child with breast milk, providing no solid food, and not giving non-human milk or water for more than three days total. After delivery, 1,132 mothers began exclusive breastfeeding, and the median duration of breastfeeding of infants for whom HIV test results were available was 159 days. Of the mothers who decided to exclusively breastfeed, 82% exclusively breastfed for at least 6 weeks, 67% exclusively breastfed for at least three months, and 40% exclusively breastfed for 6 months. The study found that 22% of exclusively breastfed infants died or became HIV-infected, resulting in an overall Kaplan-Meier estimated HIV-free survival rate of 75.4% at six months. The risk of HIV transmission was associated with low maternal CD4-cell counts. The study found that the health of mothers was strongly correlated with PMTCT. “Infants exclusively breastfed by women with CD4-cell counts less than 200  $\mu$ L were twice as likely to become infected and almost four times more likely to die before 6 months of age than were infants exclusively breastfed by women with CD4-cell counts above 500  $\mu$ L” (Coovadia et al., 2007: 1115). (Gray III) (*breastfeeding, formula feeding, mixed feeding, PMTCT, South Africa*)
- ▶ A study from **Zambia** (2001 to 2004) enrolling HIV-positive pregnant women from PMTCT programs, found that infants born to HIV-positive mothers who were exclusively breastfed up until at least 4 months were at least 50 percent less likely to acquire HIV through breastfeeding than infants fed any non-breast milk substances in addition to breast milk. Furthermore, the study found no difference in the rates of HIV transmission between infants weaned at 4 months and those who continued breastfeeding past 6 months. Overall, 734 infants who tested HIV-negative at 6 weeks of age and were still breastfeeding at 6 months of age were included in the study. Mothers were randomized into an intervention group in which women were counseled to exclusively breastfeed for 4 months and then wean abruptly, and a control group in which women were counseled to breastfeed for at least 6 months and then introduce complimentary foods while maintaining breastfeeding. At 4 months, 83.5 percent of mothers reported exclusively breastfeeding. The risk of acquiring HIV before 4 months of age was over

3 times higher for infants who were non-exclusively breastfed compared to those who received only breast milk. A maternal CD4 count of below 350 was a strong predictor of HIV transmission before 4 months of age, but a significant reduction in HIV transmission related to exclusive breastfeeding remained after controlling for CD4 count. For exclusively breastfed infants, the risk of acquiring HIV was greatest in the first 4 months and then declined thereafter. The rate of HIV transmission for non-exclusively breastfed infants was 2.4 percent per month compared to less than 1 percent per month for exclusively breastfed infants (Kuhn et al., 2007). (Gray III) (*PMTCT, breastfeeding, infant feeding, Zambia*)

#### 5. Postnatal home visits by trained lay counselors may reduce mixed feeding.

- ▶ A 2001–2003 study that followed HIV-positive and HIV-negative pregnant women attending antenatal clinics in **South Africa** found that postnatal home visits offering infant feeding counseling significantly improved adherence to either exclusive breastfeeding or exclusive replacement feeding. The study followed 1,253 HIV-positive and 1,238 HIV-negative pregnant women who attended nine different clinics. Adherence was significantly associated with the number of antenatal feeding counseling home visits for both options. A breastfeeding counselor performed one antenatal home visit for every woman to discuss feeding options and three additional visits were available to those who chose to breastfeed. For women who chose to replacement feed, a specialist visited the home to teach methods of safe replacement feeding. The study also collected data on access to clean water, a refrigerator, fuel for boiling water and regular income for the mother, and found that only 3% of HIV-positive pregnant women had access to all four resources and 32.1% had access to all but regular income. “Of those who intended to replacement feed...few had the necessary resources to prepare infant formula safely” (Bland et al., 2007: 292). Infant formula became available in 2002 for HIV-positive pregnant women (Bland et al., 2007). (Gray II) (*breastfeeding, formula feeding, counseling, South Africa*)

#### 6. Conducting HIV testing and counseling for women who bring their children for immunization can increase the number of women accessing testing and treatment services. [See also Chapter 6. HIV Testing and Counseling for Women and Chapter 13. Structuring Health Services to Meet Women’s Needs]

- ▶ A study from 1999 to 2000 that provided VCT for women attending maternal and child health clinics for their first postpartum or well-baby visit in **Botswana** found that 937 or 54% of 1,735 postpartum women accepted VCT. 30% of those who accepted VCT were HIV-positive (Thior et al. 2007). (Gray III) (*HIV testing, health facilities, immunization, Botswana*)
- ▶ In **Ethiopia**, while low numbers of women have institutional deliveries, more than 70% of children are immunized. A study found that of 1,430 women who brought

their children to be immunized, 94% had not had an HIV test during antenatal care or delivery. When offered HIV testing at the clinic where their child was immunized, 80% accepted, of whom 5% were HIV-positive. All HIV-positive women and their children were enrolled in HIV care to receive antiretroviral treatment (Melaku et al., 2008). (Gray IV) (*HIV testing, health facilities, immunization, Ethiopia*)

- ▶ In a project in **South Africa**, maternal CD4 cell count was determined every six months during the infant's immunization visit, with rapid referral for HAART for mothers with CD4 cell counts of less than 200/mm<sup>3</sup> (Barker et al., 2007a). (Gray V) (*treatment, health facilities, immunization, HAART, South Africa*)

7. **Community support groups can be highly beneficial for HIV-positive pregnant women and mothers.** [See Chapter 12A. *Care and Support: Women and Girls*]

### Gaps in Programming—Postpartum

1. HIV-positive mothers, fathers, grandmother and the larger community need clear, consistent, non-contradictory and nonjudgmental counseling on infant feeding practices. Health care providers need training based on accurate information.
2. Further efforts are needed to identify and treat mastitis in order to reduce HIV transmission in HIV-positive women who are breastfeeding.
3. Accurate testing techniques for infants may inform infant feeding.
4. Stigma reduction interventions are needed so that HIV-positive women can choose replacement feeding, breastfeeding and weaning schedules.
5. Additional efforts are needed to provide postpartum women with contraception information and methods so they may space or prevent their next pregnancy.
6. Further efforts are needed to educate families about HIV transmission so that infants are not abandoned.
7. WHO/UNICEF recommendations on the meaning of “acceptable, sustainable, safe and feasible” should be clarified so it can be translated effectively in programmatic settings.

1. **HIV-positive mothers, fathers, grandmothers and the larger community need clear, consistent, non-contradictory and nonjudgmental counseling on infant feeding practices. Health care providers need training based on accurate information.** Studies found that health care providers gave HIV-positive women conflicting information and that simplified structured

counseling tools are needed. Studies found that women reported that providers accused them of killing their infants if they breastfed. Women lack access to infant formula but have been told by providers that it is the only way for their infant to survive. Women were told that breastfeeding is a mode of HIV transmission and exclusive breastfeeding is a mode of prevention. Women fear HIV more than diarrheal disease, even though more deaths occur from diarrheal disease. Women were not given choices. Women did not give providers accurate information on how they were feeding their infant for fear of being denied health care. Women lacked autonomy to decide infant feeding, which was decided by male partners or grandmothers.

- ▶ Gap noted, for example, in **Burkina Faso, Cambodia and Cameroon** (Desclaux and Alfieri, 2009), **Malawi, Kenya and Zambia** (Chopra et al., 2009), **Malawi** (Kerr et al., 2008), **Lesotho** (Towle and Lende, 2008), **Botswana, Kenya, Malawi and Uganda** (Chopra and Rollins, 2008 and Coutosidis et al., 2002 cited in Chopra and Rollins, 2008), and **Cameroon** (Kakute et al., 2005).
2. **Further efforts are needed to identify and treat mastitis in order to reduce HIV transmission in HIV-positive women who are breastfeeding.** Studies found that maternal HIV infection was correlated with mastitis and the potential for vertical transmission, but treatment for mastitis did not reduce the HIV viral load in breastmilk.
    - ▶ Gap noted, for example, in **Zambia** (Kasonka et al., 2006), **Tanzania** (Kantarci et al., 2007) and **Malawi** (Nussenblatt et al., 2006).
  3. **Accurate testing techniques for infants may inform infant feeding.** Studies note that rapid scale up of early infant diagnosis is needed in low-resource settings in order to access treatment and care as soon as possible. [For WHO guidance on HIV testing in infants see: [http://www.who.int/hiv/topics/vct/toolkit/additional\\_resources/children/en](http://www.who.int/hiv/topics/vct/toolkit/additional_resources/children/en)]
    - ▶ Gap noted, for example, in **Tanzania** (Finnegan et al., 2009: 216); **Kenya** (Inwani et al., 2009: 492); **South Africa** (Rollins et al., 2009:1855); **Vietnam** (Sohn et al., 2009); **West Africa** (Msellati, 2009:809).
  4. **Stigma reduction interventions are needed so that HIV-positive women can choose replacement feeding, breastfeeding and weaning schedules.** Studies found that HIV-positive women feared that if they used infant formula or abruptly weaned, they would be stigmatized for their HIV-positive serostatus.
    - ▶ Gap noted, for example, in **Malawi**, (Chinkonde et al., 2009), **Ethiopia** (Gaga et al., 2008), **Malawi** (Thorsen et al., 2008 and Banda et al., 2008), and **South Africa** (Doherty et al., 2006).
  5. **Additional efforts are needed to provide postpartum women with contraception information and methods so they may space or prevent their next pregnancy.** [See also Chapter

8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV] Studies found that women were not given contraceptive counseling or contraceptives postpartum and that transport costs restricted their ability to gain access to their contraceptive method of choice. Studies also found an unmet need for postpartum contraception among HIV-positive women. Studies found that sexuality and condom use need to be addressed when sexual activity resumes postpartum. Family planning services are most often not provided postpartum in PMTCT programs.

▶ Gap noted, for example, in **South Africa** (Moodley et al., 2008a), **Kenya** (Chersich et al., 2008b), **Côte d’Ivoire** (Brou et al., 2008), **Kenya and Zambia** (Thea et al., 2006).

6. **Further efforts are needed to educate families about HIV transmission so that infants are not abandoned.** A study found that families forced HIV-positive women to abandon their infants due to erroneous fears that the infants could transmit HIV.

▶ Gap noted, for example, in **Russia** (Zabina et al., 2009).

7. **WHO/UNICEF recommendations on the meaning of “acceptable, sustainable, safe and feasible” should be clarified so it can be translated effectively in programmatic settings.** A study found that confusing and contradictory advice was given by providers on when to feed with infant formula.

▶ Gap noted, for example, in **South Africa**, (Doherty et al., 2006).

# Preventing, Detecting and Treating Critical Co-Infections

- A. Tuberculosis
- B. Malaria
- C. Hepatitis

Certain infections, when combined with HIV, can be significantly more severe and lead to early death for HIV-positive people. Tuberculosis has become the leading cause of death for those living with HIV. Malaria can have serious impacts on pregnant women and hepatitis/HIV co-infection can limit the effectiveness of both HIV and hepatitis treatments. These three diseases, when present as co-infections with HIV, warrant further discussion regarding their prevention, detection and treatment.<sup>1</sup>

---

<sup>1</sup> As noted in *Chapter 2. Methodology*, this chapter, particularly the section on malaria, was not as thoroughly reviewed as other topics in the compendium. Consultation with co-infection experts should complement the information in this chapter. Some references to groups working on co-infections are provided in this chapter.

## 10A. Preventing, Detecting and Treating Critical Co-Infections: Tuberculosis

Tuberculosis (TB) is the leading cause of death among people with HIV globally, accounting for almost 25% of all HIV deaths in 2008 (WHO, 2009i). The risk of acquiring TB is 20 to 37 times greater among people living with HIV than in the general population.

---

“TB continues to be the leading cause of death among people living with HIV” (UNAIDS, 2009e: 3).

---

In some countries in sub-Saharan Africa, up to 80% of people living with TB are also living with HIV. Sub-Saharan Africa continues to account for the majority of people living with HIV and TB in the world with about 78% of the estimated total people living with HIV and TB in 2008. South East Asia, mainly India, accounts for 13% of the remaining cases.

### *HIV Infection Fuels TB Epidemics*

Rates of HIV and TB co-infection have increased dramatically in a short span of time. There has been a doubling of TB cases associated with the HIV epidemic in sub-Saharan Africa (Heymann et al., 1999). When the HIV epidemic is in an expansive phase, HIV and TB co-infection rates also increase rapidly. For example, HIV seroprevalence among TB cases in Chiang Mai, Thailand increased from 5% in 1989 to 40% in 1992, along with the rapidly growing HIV epidemic (Payanandana et al., 1995 cited in Raviglione et al., 1996; Kharsany et al. 2006). However, at this time, in countries such as India or China where there is a high level of TB, there is less TB/HIV co-infection (WHO, 2009i). “The risk of TB increases with advancing immunodeficiency, so as the HIV epidemic in a community matures, the burden of HIV-associated TB may be expected to increase, even after the prevalence of HIV infection has stabilized” (Lawn et al., 2006: 1046).

### *TB Is a Serious Risk for Those Living with HIV*

Not everyone exposed to TB has active disease. A person with latent TB infection, or LTBI, has been infected with the TB bacillus but has an immune system sufficiently intact to control the infection and will not permit the bacillus to cause disease. A person with LTBI is *not* ill and is *not* infectious. TB becomes a much more serious problem for someone with HIV. When a person infected with the TB bacillus cannot control the infection because of a compromised immune system, the bacillus is able to multiply so that there are millions of TB bacilli that then cause disease. A person with active TB disease becomes sick and is considered infectious to others.

HIV-positive individuals who are latently infected with TB are between 2 to 10 times more likely to progress to active TB disease than their HIV-negative counterparts (Murray, 1990 quoted in Holmes et al, 1998). People whose immune systems have deteriorated due to advanced HIV disease are at greatly increased risk of developing active TB disease from a previously contained

latent infection. Some immunocompromised people may not be able to contain a new TB infection and will immediately progress to active disease upon exposure to TB. Additionally people with HIV are more likely to develop extrapulmonary TB (TB outside of the lungs) that may involve multiple organs and is harder to diagnose (Zvandasara et al., 2006).

TB infection also accelerates HIV progression. “HIV-weakened immune systems are at increased risk of TB disease, while active TB disease elevates HIV RNA and accelerates HIV progression” (Marco, 2002).

### *Treatment Adherence Is Critical to Curing TB and Reducing the Spread of Drug-Resistant Strains*

Adherence to the full course of treatment—six months for first-line treatment—is essential to cure TB and avert the development of multidrug-resistant TB (MDR-TB) and extensively drug-resistant TB (XDR-TB). MDR-TB (where the disease has developed resistance to the two most common and powerful first-line TB drugs, isoniazid and rifampicin) requires between 18–24 months of often complicated and expensive combination therapy. Of the 9.4 million incident TB cases in 2008, an estimated half a million were multi-drug resistant TB (WHO, 2009i). XDR-TB is resistant to first and second-line drugs and significant efforts are often needed to identify a therapeutic regimen that works and to manage side effects. By November 2009, 57 countries had reported at least one case of XDR-TB (WHO, 2009i). The WHO has recently updated the tuberculosis treatment guidelines, confirming its prior recommendation of drug susceptibility testing (DST) at the start of all therapy for previously treated patients in order to find and treat MDR-TB; it also addresses the prevention of *acquired* MDR-TB, where new TB patients have isoniazid-resistant TB when they begin treatment (WHO, 2010b).

For people who are living with HIV, MDR-TB or XDR-TB co-infection results in high levels of early mortality. A retrospective observational study in Tugela Ferry, South Africa of 272 MDR-TB and 382 XDR-TB cases, of which 90% and 98% respectively were HIV co-infected, found that mortality at one year was 71% for MDR-TB and 83% for XDR-TB patients. The majority of deaths occurred within the first thirty days of sputum collection, with mortality rates worsening with greater degrees of drug resistance (Gandhi et al, 2009).

It is important to note that drug-resistant TB can be transmitted. “Overcrowded, poorly ventilated clinics that bring together large numbers of HIV-infected persons, some with active TB, will be a recipe for disaster” (IOM, 2005: 107). Therefore in health care facilities where people with HIV and/or TB access screening, treatment and support, and where TB transmission may be most efficient, measures should be taken to reduce the risk of primary transmission of TB, both drug-resistant and susceptible. Rapid drug susceptibility testing, prompt initiation of effective TB treatment and implementation of infection control measures such as separation of TB suspects, improving patient flow and increasing ventilation may reduce the risk of TB transmission in health care settings.

## *There Are Gendered Dynamics in TB Prevalence, Detection*

Globally, more men than women are affected by tuberculosis disease. However, the numbers of women co-infected with TB and HIV are increasing (Adhikari, 2009; Gupta, 2009; Druce and Nolan, 2007; Nissapatorn et al., 2006). In countries with HIV prevalence higher than 1%, relatively equal numbers of men and women are diagnosed with TB.

The World Health Organization's case notification rates indicate that eight times as many men as women were diagnosed with TB in 2007 (WHO, 2009i). The reasons for the higher global TB notification rates in men are not well understood and could result from a variety of biological or environmental factors such as the likelihood of producing a positive sputum sample, delays in health-seeking behavior, gendered dynamics within the family, stigma and access to care: women are less likely to produce positive sputum samples and more likely to have extrapulmonary TB and/or be co-infected with HIV (Lawson et al., 2008; Karim et al., 2008; Sreeramareddy et al., 2008).

Preliminary data suggest that the implementation of the revised WHO case definition of smear-positive TB was associated with significant increases in case detection among women in Kenya (Ramsey et al., 2009). The revised guidance lowers the number of bacilli in a sample and reduces the number of smear-positive results from two to one required be classified as a TB case. Evidence from a Vietnamese study also suggests that women are slower to progress to smear-positive disease despite similar time from symptom onset to diagnosis as men (Thorson et al., 2007). Additionally, some studies have shown that physicians are less likely to conduct TB exams on women than men (Begun et al., 2001 cited in Theobald et al., 2006). Further research is needed on differences in testing and disease manifestation in women and men.

## *Co-Infection is Particularly Deadly for Women During Their Childbearing Years*

Women bear the greatest burden of HIV during their childbearing years, and similarly, the greatest burden of TB during those years as well. It is estimated that 15% of maternal deaths are among women co-infected with TB and HIV (Adhikari, 2009; Klotz et al., 2007; Mofenson and Laughton, 2007; Zwang et al., 2007; Ramogale et al., 2007; Gupta, 2009). The development of TB disease is associated with a four-fold increase in AIDS-related deaths among women co-infected with TB and HIV (Lopez-Gatell et al., 2007). A study in South Africa found young women to be at particular risk. Epidemiologic changes in TB notifications and the prevalence of HIV infection from 1996 to 2004 in a peri-urban community in South Africa of 13,000 found that annual TB notification rates among adolescents increased from zero cases between 1996–1997 to 436 cases per 100,000 in 2003–2004, with TB cases predominantly among female adolescents (Lawn et al., 2006).

The U.S. CDC states that TB treatment for pregnant women should be the same as for nonpregnant women, but with special considerations for particular medications' effect on both the woman and the fetus (CDC, 2009a, <http://www.aidsinfo.nih.gov/Guidelines/GuidelineDetail.aspx?MenuItem=Guidelines&Search=Off&GuidelineID=211&ClassID=4>). "Pregnant women on ART who have a diagnosis of active TB should have their ARV regimens adjusted as needed to accommodate their TB drugs. For women whose diagnosis includes

concurrent active TB and HIV infection during pregnancy, TB therapy should be initiated immediately and ART should be initiated as soon as possible thereafter, usually according to the principles described for nonpregnant adults” (CDC, 2009a).

Because of the increased risk of maternal and infant mortality associated with TB and HIV co-infection during pregnancy and postpartum, there is an urgent need to implement TB screening as part of routine antenatal and postpartum care as well as treatment for latent and active TB for women (Mofenson and Laughton, 2007). Maternal and child health and HIV/AIDS prevention programs that include TB education and screening make these services more accessible to women of childbearing age.

### *Active Case Finding Is Necessary to Increase TB Detection*

Only about half of TB suspects seek out TB screening, and it is estimated that about half of these cases are misdiagnosed (Ayles, 2009). “Many of the TB control strategies like passive case finding [as opposed to active case finding where health workers actively screen people for TB symptoms] and directly observed therapy (DOTS), that are used today were developed in the pre-HIV era, and “[do] not take into account the profound impact of HIV on tuberculosis incidence” (Reid et al., 2006: 485). This situation is compounded by the fact that TB is more difficult to diagnose in people with HIV-related immune suppression.

Active case finding increases TB detection, particularly in sub-Saharan Africa, where HIV is driving the epidemic. For example, instituting an antiretroviral therapy program in a health center in a mountainous region of Lesotho resulted in a 10-fold increase in the detection of TB among patients with and without HIV (Furin et al., 2007). In the Thyolo district in Malawi, TB/HIV community volunteers screened for TB symptoms and found that households where someone had a chronic cough had an annual TB incidence rate eight times higher than the general population (Zachariah et al., 2006b).

However, as noted previously, TB symptoms may be different in people living with HIV, which can complicate diagnosis. A prospective cohort study with 1,768 HIV-positive patients from eight clinics in Cambodia, Vietnam and Thailand found that TB screening that includes questions about a combination of TB symptoms such as fatigue, fever and weight loss was significantly more effective in ruling out TB than asking about cough alone (Cain et al., 2010).

### *HAART Can Reduce the Incidence of TB*

Highly-active antiretroviral therapy has been shown to reduce the incidence of tuberculosis (Lawn et al., 2005; Wood, 2009). A multi-center cohort study in Spain compared TB incidence in pre-HAART and HAART eras and found that the risk of developing TB was 70% lower in the HAART era than in the pre-HAART era (Muga et al., 2007). Since the initiation of HAART, TB incidence among people on HAART in the Gugulethu township in South Africa has decreased significantly while TB incidence has remained stable among HIV-negative and HIV-positive individuals not on HAART (Wood, 2009). Likewise, TB mortality rates among HIV-positive people have been brought down to comparable levels to HIV-negative individuals (Wood, 2009). A study in Ethiopia that assessed the effect of HAART on patient mortality and

TB incidence rates under routine clinical care conditions in 2003 found that HAART resulted in a 65% decline in mortality and the TB incidence rate was lower in the HAART group (Jerene et al., 2006). A study in Thailand also found that antiretroviral treatment was significantly associated with reduction in deaths among those on HAART prior to initiating TB treatment (Akksilp et al., 2007).

### *Isoniazid Preventive Therapy, With or Without HAART, Can Reduce the Incidence of TB*

A number of randomized controlled trials have shown that isoniazid preventive therapy (IPT) can reduce the incidence of active TB disease in people living with HIV (Pape et al., 1993; Hawken et al., 1997; Whalen et al., 1997; Mwinga et al., 1998; Halsey et al., 1998; Gordin et al., 2000 cited in Ayles and Muyoyeta, 2006). A Cochrane review of 11 trials involving 8,130 randomized participants showed that IPT reduced the risk of active TB by 33% (Ayles and Muyoyeta, 2006). A recent randomized, double-blind placebo controlled trial in Botswana found that IPT taken for 36 months was more effective than a 6-month course in significantly reducing risk of TB incidence in people with HIV (Samandari, 2009). IPT can also significantly reduce death among people on antiretroviral therapy, compared to those not on IPT. A retrospective analysis evaluated the impact of IPT on mortality of 3,258 HIV-positive miners in South Africa who initiated IPT and found that the mortality rate was significantly lower, with a 53% reduction in mortality among those on IPT than among those who did not receive IPT (Innes et al., 2010).

### *HAART and IPT Used in Conjunction Can Be More Effective than HAART Alone in Reducing the Incidence of TB*

HAART used in conjunction with IPT can significantly reduce the incidence of TB compared with HAART alone or IPT alone. A retrospective medical record review of 11,026 HIV-positive patients who were accessing medical care at 29 public clinics in Rio de Janeiro, Brazil from September 2003 until September 2005 found that isoniazid preventive therapy offered in conjunction with expanded access to HAART may improve TB control among people with HIV in high burden settings. The study was conducted to determine the rates of TB in patients who received no HAART or IPT; only HAART; only IPT; or both HAART and IPT. The overall incidence rate of TB incidence was 2.28 cases/100 person-years. The TB incidence among patients receiving both IPT and HAART was 0.8 cases/100 person years, with a 76% reduction in risk for developing TB in this group (Golub et al., 2007).

### *Cross-Referral of TB and HIV Screening and More Integrated Treatment and Services Can Increase Uptake for Both*

Links between TB and HIV treatment must be strengthened (Makombe et al., 2006; Harries et al., 2009a). Efforts are needed to ensure that those with TB know their HIV status and vice versa. Co-trimoxazole, a broad-spectrum antimicrobial agent that is recommended as primary prevention against opportunistic infections in people living with HIV, can also reduce the

mortality of HIV-positive people recently diagnosed with TB (WHO, 2006c). In 2007, only sixteen percent of people with notified TB knew their HIV status, resulting in low rates of access to co-trimoxazole prophylaxis and antiretroviral therapy for people living with HIV and TB (UNAIDS, 2009e). A pilot cross-referral initiative instituted between VCT centers and treatment facilities in four districts of Maharashtra, India, found that from 2003 to 2004, 3% of VCT patients were diagnosed with TB and 24% of TB patients were found to be HIV-positive (Central TB Division, TB India, 2007 cited in Shetty et al., 2008b). Once a patient has been diagnosed with TB, HIV testing and counseling should be offered if the HIV status is unknown or was previously reported as negative (Harries et al., 2009a: 7). A study of three health care settings in Kinshasa, Democratic Republic of Congo found that provider-initiated HIV counseling and testing among TB patients resulted in greater uptake of HIV testing (Van Rie et al., 2008). Likewise it is important that people living with HIV be regularly screened for TB and to have access to timely and accurate diagnosis so that the appropriate treatment is administered for TB and HIV.

“Because dual infection with HIV and tuberculosis poses a life-threatening diagnostic and therapeutic dilemma... HIV programs must include capabilities for diagnosis, treatment, and prophylaxis of tuberculosis. Tuberculosis treatment programs should be supported as an important point of entry for HIV testing and consideration for HAART. It is critical to overall treatment success that these coexisting epidemics be addressed in parallel” (IOM, 2005: 6). It is estimated that half a million people with HIV/AIDS could be reached through existing TB programs (Kim, 2004 cited in IOM, 2005: 103).

WHO has developed the *Interim Policy on Collaborative TB/HIV Activities* (WHO, 2004b, [http://whqlibdoc.who.int/hq/2004/who\\_htm\\_tb\\_2004.330.pdf](http://whqlibdoc.who.int/hq/2004/who_htm_tb_2004.330.pdf)) that recommends twelve activities that can be taken up by the health sector, civil society and governments to address the overlapping epidemics. At a minimum, programs must be scaled up that:

- ▶ Offer HIV testing and counseling to all TB patients;
- ▶ Screen all people living with HIV for TB disease;
- ▶ Provide TB treatment or preventive therapy to all co-infected people;
- ▶ Provide co-trimoxazole and antiretroviral treatment to all TB patients with HIV; and
- ▶ Ensure TB infection control in all health care facilities and high HIV prevalence settings.

Despite overwhelming evidence, many public sector health programs have failed to implement the activities that address reducing the burden of TB and HIV in populations affected by both diseases (Dong et al., 2007; WHO, 2009i). In many countries, the national TB program and the national AIDS control program run as parallel systems without a mechanism to link to one another (Reid et al., 2006; Williams et al., 2008). HIV programs play a vital role in identifying those with TB and interrupting transmission through active TB case finding and implementing infection control measures (Reid et al., 2006). Unfortunately, “delays with the scale-up of antiretroviral treatment have exacerbated the tuberculosis epidemic...and thousands of preventable deaths” (Chopra et al., 2009c: 3).

There is very little sex-disaggregated data on TB/HIV that is not pregnancy-related. As a result, there are a number of research and program gaps related to what works for women who are living with both HIV and TB.

### **What Works—Preventing, Detecting and Treating Critical Co-Infections: Tuberculosis**

1. IPT, as well as HAART, can reduce the incidence of TB.

#### *Promising Strategies:*

2. Screening for TB during routine antenatal care in high HIV prevalent settings results in increased TB detection rates in women and is acceptable to most women, though stigma may be a barrier.
3. Infection control of TB within health care settings can reduce the incidence of TB among health care workers, particularly nurses.

## **EVIDENCE**

### **1. IPT, as well as HAART, can reduce the incidence of TB.**

- ▶ A number of randomized controlled trials have shown that isoniazid preventive therapy (IPT) to reduce the incidence of active TB disease in people living with HIV (Pape et al., 1993; Hawken et al., 1997; Whalen et al., 1997; Mwinga et al., 1998; Halsey et al., 1998; Gordin et al., 2000 cited in Ayles and Muyoyeta, 2006). (Gray I) (*TB, treatment*)
- ▶ A Cochrane review of 11 trials involving 8,130 randomized participants showed that IPT reduced the risk of active TB by 33% (Ayles and Muyoyeta, 2006). (Gray I) (*TB, treatment*)
- ▶ A recent randomized, double-blind placebo controlled trial in **Botswana** found that isoniazid preventive therapy (IPT) taken for 36 months was more effective than a 6-month course in significantly reducing risk of TB incidence in people with HIV (Samandari, 2009). (Gray II) (*TB, treatment, Botswana*)
- ▶ A retrospective analysis evaluated the impact of IPT on mortality of 3,258 HIV-positive miners in **South Africa** who initiated IPT and found that the mortality rate was significantly lower, with a 53% reduction in mortality among those on IPT than among those who did not receive IPT (Innes et al., 2010). (Gray III) (*TB, treatment, South Africa*)
- ▶ A study in **Ethiopia** that assessed the effect of HAAART on patient mortality and TB incidence rates under routine clinical care conditions in 2003 found that HAART resulted

in a 65% decline in mortality and the TB incidence rate was lower in the HAART group. HAART improved survival and decreased TB incidence to a level similar to that achieved in developed countries during the early years of HAART. In August 2003, the hospital started providing HAART to patients. All HIV-positive patients who visited the clinic since January 2003 were followed and treated for opportunistic infections. Patients who were followed from January 2003 to August 2003 were the “pre-HAART cohort” and patients followed from August 2003 to August 2005 were the “HAART cohort.” The last day of pre-HAART followed was April 1, 2004. After April 1, 2004 all patients of this hospital who met the Ethiopian HAART treatment guidelines had access to HAART at this hospital. Pre-HAART patients who joined the HAART group contributed person-time to both cohorts at different periods. A cohort of 90 men and 95 women, or a total of 185 patients were followed prior to accessing HAART. A cohort of 102 men and 78 women, for a total cohort of 180 patients were followed in the HAART cohort. At the end of the pre-HAART period, 10 patients (5.4%) were lost to follow-up; 8 (4.3%) were transferred to another health institution; 47 (25.4%) died and 120 (64.9%) were under regular follow-up. The pre-HAART mortality rate was 58.1 per 100 person-years of observation. TB incidence rate with HAART was reduced by almost 90%. Community agents visited patients on a monthly basis in the patient’s home. Community agents received training and had completed secondary school. Community agents reported the patient’s status to the hospital following each visit to the patient’s home (Jerene et al., 2006). (Gray III) (*TB, treatment, Ethiopia*)

- ▶ A multi-center cohort study in **Spain** of 2,238 HIV-seroconverters compared TB incidence in pre-HAART and HAART eras and found that the risk of developing TB was 70% lower in the HAART era than in the pre-HAART era (Muga et al., 2007). (Gray IV) (*TB, treatment, Spain*)
- ▶ Among a cohort of 346 patients receiving HAART in Cape Town, **South Africa** TB incidence was highest among patients with CD4 counts under 100 and those with WHO clinical stage 3 or 4 disease. Risk for TB was independently associated with CD4 count, and WHO stage 3 or 4 disease. Incidence of TB continued to decrease during the first 5 years of HAART (Lawn et al., 2005). (Gray IV) (*TB, treatment, South Africa*)
- ▶ From February 2003 through January 2004, 2,342 patients were registered for TB treatment in Ubon-ratchathani, **Thailand**. Of these, 225 (10%) were confirmed as HIV-positive prior to their TB diagnosis, and of the remaining 2,117 patients, 680 agreed to be tested for HIV, and 104/680 (15%) were found to be HIV-positive. The 329 (14%) TB patients with confirmed HIV diagnoses were followed prospectively to assess the impact of HAART on TB treatment outcomes. Among the 290 TB patients with known outcomes, 71 were on HAART and 219 were not. Death during TB treatment occurred in 7% (5 of 71) on HAART and 43% (94 of the 219) not on HAART. Antiretroviral therapy was associated with a significant reduction in deaths among those on HAART prior to initiating TB treatment (Akksilp et al., 2007). (Gray IV) (*TB, HIV testing, treatment, Thailand*)

## Promising Strategies:

2. **Screening for TB during routine antenatal care in high HIV prevalent settings results in increased TB detection rates in women and is acceptable to most women, though stigma may be a barrier.**
  - ▶ Pregnant HIV-positive women who have active TB are at higher risk for mortality. “There is a strong evidence base for screening pregnant HIV-infected women for TB as part of antenatal care. Intensified case finding for TB can reduce morbidity and mortality and prevent transmission of TB in families, the community, and health care settings. Delaying the diagnosis of active TB significantly increases the proportion of infected contacts” (DeLuca et al., 2009: 197). “Although there is a wealth of evidence suggesting that screening for active TB during routine antenatal care would be a beneficial intervention, especially in places with efficient PMTCT program, no country programs have implemented this strategy as part of best practices” (DeLuca et al., 2009: 198). (Gray III) *(TB, screening, antenatal care)*
  - ▶ At two PMTCT program clinics in Soweto, **South Africa**, 370 HIV-positive pregnant women were screened for TB symptoms by lay counselors during post-test counseling sessions. Eight women were found to have previously undiagnosed, smear-negative TB disease. Active screening for TB symptoms is feasible. (Kali et al., 2006). (Gray IV) *(PMTCT, TB, South Africa)*
  - ▶ Clients accessing antenatal clients, TB patients, and medical providers from five health facilities in Kasungu District, **Malawi** were interviewed to assess the acceptability of TB screening and TB treatment. Most clients found screening acceptable but expressed concern about HIV stigma. All of the service providers agreed that TB screening was important but expressed concern about the increased workload (Sangala et al., 2006). (Gray IV) *(TB, screening, treatment, stigma, Malawi)*
3. **Infection control of TB within health care settings can reduce the incidence of TB among health care workers, particularly nurses.** [See Chapter 13. *Structuring Health Services to Meet Women’s Needs*]

### Gaps in Programming—Tuberculosis

1. Efforts are needed to reduce TB-related stigma for women.
2. A combination of infection control strategies may significantly reduce the rate of TB transmission, including drug-resistant TB, in high-risk, low-resourced health care settings.

1. **Efforts are needed to reduce TB-related stigma for women.** A study found that in Malawi, TB-related stigma was closely linked with HIV; in Colombia women faced work-related stigma; and in India and Bangladesh, women were concerned about the impact of TB on marital prospects and social isolation.
  - ▶ Gap noted, for example, in **Bangladesh, India, Malawi and Colombia** (Somma et al., 2008).
2. **A combination of infection control strategies may significantly reduce the rate of TB transmission, including drug-resistant TB, in high-risk, low-resourced health care settings.** [See Chapter 13. Structuring Health Services to Meet Women's Needs]

## 10B. Preventing, Detecting and Treating Critical Co-Infections: Malaria

Malaria and HIV co-infection is a critical public health problem that may fuel the spread of both diseases in countries where both diseases are endemic.

Malaria seems to be more common and more severe for people living with HIV (Kublin et al., 2005; Hoffman et al., 1999; Mermin et al., 2006; French et al., 2001; Francesconi et al., 2001; Grimwade et al., 2004; and Ladner et al., 2003 cited in Mermin et al., 2006). Men and women living with HIV with CD4 counts below 300 have both a higher risk of experiencing early treatment failure for malaria and a recurrence of malaria symptoms than HIV-positive people with CD4 counts over 300 or HIV-negative people (Van geertruyden et al., 2006).

Clinical malaria has also been associated with an increase in HIV viral load and a fall in CD4 cell count, potentially worsening the clinical outlook for people living with HIV. Repeated and transient increases in HIV viral load resulting from co-infection can amplify HIV prevalence, suggesting that malaria may be an important factor in the rapid spread of HIV infection in sub-Saharan Africa (Abu-Raddad et al., 2006 cited in Sepulveda et al., 2007).

In areas where malaria occurs, malaria prevention should be part of basic HIV care (Whitworth et al., 2005 cited in Mermin et al., 2006).

---

“Approximately one million pregnancies per year are complicated by co-infection of malaria and HIV in sub-Saharan Africa” (WHO, 2004 cited in Uneke and Ogbonna, 2009).

---

### *Malaria and HIV Co-Infection is of Special Concern to Pregnant Women*

Malaria during pregnancy can result in maternal death, anemia, miscarriage and premature birth, as well as other adverse effects for the infant. The first pregnancies are the most critical, as women develop pregnancy-specific immunity against placental parasites over successive

pregnancies as a consequence of repeated exposure (Fried et al., 1998 cited in Gamble et al., 2007).

However, increasing evidence suggests that women who are living with HIV have the same low immunity to malaria in subsequent pregnancies as they do in their first pregnancy and are twice as susceptible to clinical malaria, which can increase the risk of adverse outcomes (Van Eijk et al., 2003 cited in Brentlinger et al., 2006). For example, co-infection increases women's risk of developing severe anemia. It can also restrict fetal growth, reduce the transfer of maternal immunities to other infectious diseases from mother to child, and cause pre-term delivery and low birth weight.

There is recent evidence that shows a link between HIV and malaria co-infection in pregnant women and low birth weight newborns. At the same time, low birth weight infants have been shown to have significantly higher risks of mother-to-child transmission of HIV compared with infants of normal birth weight. However, studies evaluating the impact of HIV and malaria co-infection on mother-to-child transmission have revealed mixed results, with some showing greater risk, and others reporting no change (Ter Kuile et al., 2004; Kublin et al., 2005 cited in Brentlinger et al., 2006; Desai et al., 2007; WHO, 2005; UNICEF, 2003a; WHO, 2008c; UNICEF, 2009).

Significant gaps remain in how to treat HIV-positive women who are sick with malaria, especially during pregnancy. "Studies of the synergy or antagonism between antiretrovirals and antimalarials are ...essential to ensure effective and safe malaria case management...and HIV treatment for pregnant women" (Ward et al., 2008: 141). Further evidence on malaria and pregnancy is available at: [www.mip-consortium.org](http://www.mip-consortium.org).

### *The Interactions Between HIV and Malaria Are Not Well Understood*

"Although the consequences of co-infection with HIV and malaria parasites are not fully understood, available evidence suggests that the infections act synergistically and together result in worse outcomes" (Skinner-Adams et al., 2008: 264). "Despite the wide prevalence of malaria and HIV in many parts of the tropics, knowledge of how these two important diseases interact is still hampered by lack of knowledge in many key areas...drug interactions form only a very small part of the potentially massive number of ways in which HIV and malaria interact to the detriment of human health" (Khoo et al., 2005).

### *Countries with Unstable Rates of Malaria Transmission Require Special Attention*

In areas where malaria occurs at regular intervals, those who survive repeated malarial infections acquire partial immunity by the age of five and carry it into their adult lives. Adults in areas with regular malaria usually experience mild infections. However in areas where malaria occurs at irregular rates (regions with unstable malaria transmission), immunity is not acquired and malaria can more easily result in death. Countries with high HIV prevalence and unstable malaria transmission include: Botswana, Namibia, South Africa, Swaziland and Zimbabwe (Idemyor, 2007). In a study of an area of South Africa with unstable malaria transmission, HIV-positive adults with malaria were significantly more likely to die (Grimwade et

al., 2004 cited in Slutsker and Marston, 2007). “Unfortunately, the link between the current prevention and control programs for HIV is weak... All those involved in control activities for malaria and HIV... should approach the control of these two diseases in a more integrated way” (Van geertruyden and D’Alessandro, 2007: 467).

### *Bednets and Indoor Spraying Can Dramatically Reduce Malaria Transmission*

Effective interventions exist which can dramatically reduce the prevalence and incidence of malaria among both women living with HIV and women who are HIV-negative. A critical intervention is insecticide-treated bednets (ITNs). To be effective, ITNs should be distributed to whole communities in order to achieve area-wide reductions in malaria transmission. As of 2006, the number of ITNs produced was sufficient to protect just 26% of the population at risk in Africa (WHO, 2008b). Long-lasting insecticidal nets have been developed in response to low re-treatment rates of conventional ITNs. These are pre-treated nets that require no further re-treatment during their expected lifespan of three to five years. Use of long-lasting insecticidal nets reduces both human exposure—most of the insecticide is hidden in the net and not bioavailable—and the risk of environmental contamination (Yartey, 2006).

The method and timing of providing bednets should be considered. ITNs distributed through outpatient HIV care programs can result in greater use. A rural community-based outpatient HIV care program in Uganda found that among 131 people who stated they received at least one net, 98% stated they still had the program-provided net and 91% reported having slept under the ITN the night prior to the survey and 88% reported sleeping under the ITN seven days a week (Cohee et al., 2008). However, ITNs distributed only to people living with HIV may become stigmatizing. In addition, because approximately 65% of African women do not present for antenatal care until the second or third trimester, distributing ITNs through antenatal care programs may not be effective, as malaria parasites may be well established by the time the woman presents for antenatal care (Brentlinger et al., 2006).

Indoor residual spraying is another vector control option that involves the application of a liquid insecticide. Insects absorb a lethal dose when they come in contact with the sprayed surfaces. The effectiveness of indoor residual spraying depends on coverage in the community and the level of acceptance. The World Health Organization recommends 12 insecticides for the use of indoor residual spraying, including DDT. DDT is one of the most widely used pesticides as it is the most affordable (Robson, 2009). However, resistance is developing to DDT and new pesticides are needed for indoor residual spraying (Feacham, 2009; Robson, 2009).

In addition, a review of 494 peer reviewed studies from 2005 to 2008 on the health impacts of DDT found that “...exposure to DDT and its breakdown product DDE may be associated with adverse health outcomes such as breast cancer, diabetes, decreased semen quality, spontaneous abortion and impaired neurodevelopment in children” (Eskenazi et al., 2009). A recent study of DDT and breast cancer found that pre-pubertal and pubertal years are critical periods of exposure to DDT that may result in increased risk for breast cancer, requiring longitudinal studies of many years (Cohn et al., 2007 cited in Eskenazi et al., 2009). Studies found that indoor residual spraying results in high DDT exposure in humans, including pregnant women and fetuses (Eskenazi et al., 2009). However, no data were found on use of indoor residual

spraying for HIV-positive women who are at risk for malaria and on the impact of DDT on immunocompromised women. “Additional research is needed to understand the effects of DDT/E on the immune system and associated diseases, especially since DDT is used in areas where there are often high rates of HIV” (Eskanzi et al., 2009: 25). ITNs are as effective as indoor residual spraying (Yartey, 2006), as long as ITNs are used consistently and appropriately (Robson, 2009).

### *Intermittent Preventive Treatment (IPT) Is an Important Strategy in Reducing Malaria in Pregnant Women*

A Cochrane review of six trials involving 2,495 pregnant women having their first or second babies found that antimalarial medications given routinely to women in their first or second pregnancy reduced parasite prevalence and placental malaria. The treatment also had positive effects on birth weight and possibly on perinatal death. Treatment must be balanced, however, against drug adverse effects, and against risks of the malaria parasite developing resistance to these drugs (Garner and Gülmezoglu, 2006). More research is also needed on the potential interactions of IPT and antiretroviral medications, particularly during pregnancy (Uneke and Ogbonna, 2009).

#### **What Works—Preventing, Detecting and Treating Critical Co-Infections: Malaria**

1. Co-trimoxazole prophylaxis, antiretroviral therapy and ITNs can reduce the incidence of malaria in women living with HIV by 95%.
2. Monthly doses of Intermittent Preventive Treatment (IPT) of malaria with sulfadoxine-pyrimethamine (SP) is effective in preventing malaria among pregnant HIV-positive women (but should not be combined with co-trimoxazole).

#### *Promising Strategies:*

3. PCR has a higher sensitivity to detect malaria co-infection in HIV-positive and HIV-negative pregnant women.

## **EVIDENCE**

1. **Co-trimoxazole prophylaxis, antiretroviral therapy and ITNs can substantially reduce the incidence of malaria in women living with HIV.**
  - ▶ A meta-analysis of studies assessing the impact of use of insecticide treated bednets (ITNs) on pregnant women found that use of ITNs compared to no use reduced placental parasitemia (malaria parasites in the placenta) by 23% and miscarriages and

stillbirths by 33%. Three cluster-randomized and two individually randomized trials, four from **Africa** with 6,418 pregnant women and one from **Thailand** with 223 pregnant women, were included in the meta-analysis. Some women in the cluster-randomized trials became pregnant after ITNs were distributed and were therefore protected throughout pregnancy, when the risk of malaria parasitemia is greatest. ITNs used by the whole community results in area-wide reductions in malaria transmission (Gamble et al., 2007). (Gray I) (*bednets, malaria, Africa, Thailand*)

- ▶ A prospective cohort study in **Uganda** funded by PEPFAR found that co-trimoxazole prophylaxis, antiretroviral therapy and insecticide treated bednets substantially reduced the frequency of malaria in adults with HIV. Of 466 people living with HIV aged 18 and over, 75% were women, of whom 56 died and 11 were lost to follow-up and none received an intervention. Of the 399 remaining who started co-trimoxazole, 138 survived and were clinically eligible for antiretroviral therapy and received both co-trimoxazole and antiretroviral therapy. In addition to these 138 who received both co-trimoxazole and antiretroviral therapy, an additional 897 additional people also received both co-trimoxazole and antiretroviral therapy. Of these 1,035 people who received co-trimoxazole and antiretroviral therapy, 45 died and five moved or were lost to follow-up. The remaining 985 people also received insecticide treated bednets, including four people who started co-trimoxazole, antiretroviral therapy and received ITNs simultaneously. CD4 counts were taken when first enrolled and at regular intervals. Antiretroviral therapy was delivered to homes in prepackaged pillboxes and pills were counted at each visit. According to pill counts, 98% took at least 95% of the prescribed antiretroviral therapy. Two insecticide treated bednets were given to all households with instructions for use. Median follow up before co-trimoxazole was 154 days; during co-trimoxazole and antiretroviral therapy 126 days; and during co-trimoxazole, antiretroviral therapy and ITNs, 560 days. 120,750 home visits were done. Compared with no intervention, co-trimoxazole prophylaxis was associated with a 76% lower malaria rate (9.0 versus 50.8 episodes per 100 person-years); antiretroviral therapy and co-trimoxazole with a 92% lower malaria rate; and co-trimoxazole, antiretroviral therapy and ITNs with a 95% lower malaria rate (50.8 episodes per 100 person years to 2.1 episodes per 100 person years among people living with HIV) than during the time with no intervention of co-trimoxazole (Mermin et al., 2006). (Gray III) (*treatment, bednets, malaria, Uganda*)
- ▶ Starting in 2006, the government of **Rwanda** scaled up preventive and curative malaria interventions, increasing access to Artemisinin Combination Therapies (ACT) and delivering 1.6 million ITNs in one week with an additional 1.6 million ITNs distributed by April 2009 through ANC and community health workers, reducing deaths from malaria by 60%. Because everyone in the household received an ITN, pregnant women were ensured access to ITNs. Approximately 60% of pregnant women in 2007 slept under ITNs. Nine of ten private pharmacies now carry ACT. Between 2001 and 2005 only a few hundred thousand ITNs were distributed with negligible impact (Karema, 2009). (Gray V) (*malaria, bednets, Rwanda*)

- ▶ A study that analyzed medical records for three years, from 2005 to 2007, in **Uganda**, found that HIV-positive patients who were on antiretroviral therapy had lower malaria prevalence. Prevalence of malaria for HIV-positive patients on antiretroviral therapy during the three-year period was 12% (12,929) as compared to 44% prevalence among HIV-positive patients not on antiretroviral therapy (47,109). The average number of times a patient on antiretroviral therapy presented with malaria significantly reduced by 23 times compared to the number of times HIV-positive patients not on antiretroviral therapy (Taslina and Mulongo, 2008). (Gray V) (*treatment, malaria, Uganda*)
2. **Monthly doses of Intermittent Preventive Treatment (IPT) of malaria with sulfadoxine-pyrimethamine (SP) is effective in preventing malaria among pregnant HIV-positive women (but should not be combined with co-trimoxazole).**
- ▶ A study in **Malawi** from 2002 to 2005 compared monthly doses of Sulfadoxine-Pyrimethamine (SP) Intermittent Preventive Treatment (IPTp) from initiation to delivery with a 2-dose treatment of SP, at initiation and 28 weeks, to prevent placental malaria in 195 HIV-positive and in 303 HIV-negative pregnant women. The study found that monthly dosage proved more effective for HIV-positive women with only 7.8% having placental malaria at delivery compared to 21.5% of women who underwent the 2-dose regimen. Reduction in relative risk was similar for HIV-positive and HIV-negative women: for HIV-negative women, 2.3% receiving monthly SP and 6.3% receiving 2-dose SP had placental malaria, though the difference was not significant. Adverse drug reactions were reported in less than 1% of women. During the study combination antiretroviral therapy was not routinely available in Malawi (Filler et al., 2006). (Gray III) (*treatment, malaria, Malawi*)

### Promising Strategies:

3. **PCR has a higher sensitivity to detect malaria co-infection in HIV-positive and HIV-negative pregnant women.**
- ▶ A hospital-based study in **Kenya** followed 157 women ages 15-40 with vaginal deliveries and found placental malaria in 17.2% of infants and congenital malaria in 0% of infants by microscopy, while PCR detected 33.1% and 10.8%, respectively (Perrault et al., 2009). (Gray IV) (*PCR, malaria, pregnancy, Kenya*)

## Gaps in Programming—Malaria

1. Further studies are needed to determine whether standard intermittent preventive treatment (IPT) and antiretroviral therapy regimens are medically and operationally compatible in pregnancy and to determine safe and effective protocols for management of concurrent HIV and malarial infections in pregnant and non-pregnant HIV-positive women.
2. Alternate efficacious drugs for intermittent preventive treatment are needed due to resistance to SP.
3. Additional efforts are needed to offer VCT to women presenting at health care settings with malaria symptoms to identify HIV disease before the development of more serious complications.
4. Further research is needed on infant transmission risks of malaria and/or HIV in pregnant women who have malaria-HIV co-infection.
5. Young women, in particular, need access to services and treatment for HIV and malaria during the perinatal period because they are more likely to be pregnant for the first time.

1. **Further studies are needed to determine whether standard intermittent preventive treatment (IPT) and antiretroviral therapy regimens are medically and operationally compatible in pregnancy and to determine safe and effective protocols for management of concurrent HIV and malarial infections in pregnant and non-pregnant HIV-positive women.**
  - ▶ Gap noted generally (Ter Kuile email, July 2, 2009, Uneke and Ogbonna, 2009, Meshnick et al., 2006 cited in Uneke and Ogbonna, 2009, Brentlinger et al., 2007, Ward et al., 2008, Slutsker and Marston, 2007, Brentlinger et al., 2006).
2. **Alternate efficacious drugs for intermittent preventive treatment are needed due to resistance to SP.**
  - ▶ Gap noted generally (Newman et al., 2003 and EANMAT, 2003 cited in Brentlinger et al., 2006, Ter Kuile, email, July 2, 2009, Slutsker, email, July 2, 2009).
3. **Additional efforts are needed to offer VCT to women presenting at health care settings with malaria symptoms to identify HIV disease before the development of more serious complications.**
  - ▶ Gap noted, for example, in **Uganda** (Kamya et al., 2006).

4. **Further research is needed on infant transmission risks of malaria and/or HIV in pregnant women who have malaria-HIV co-infection.**

- ▶ Gap noted, for example, in **Kenya** (Perrault et al., 2009, van Eijk et al., 2007, Ayisi et al., 2004); **Malawi, Tanzania and Zambia** (Msamanga et al., 2009); **Uganda** (Brahmbhatt et al., 2008a, Brahmbhatt et al., 2008b); and generally (Ayisi et al., 2003 cited in Uneke and Ogbonna, 2009, Naniche et al., 2008).

5. **Young women, in particular, need access to services and treatment for HIV and malaria during the perinatal period because they are more likely to be pregnant for the first time.**

- ▶ Gap noted, for example, in **Kenya** (Ter Kuile et al., 2003 cited in Brabin and Brabin, 2005; Brabin and Brabin, 2005).

## 10C. Preventing, Detecting and Treating Critical Co-Infections: Hepatitis

“Hepatitis” is an inflammation of the liver, most often caused by a virus. The most common types of viruses are hepatitis A, hepatitis B, hepatitis C, hepatitis D and hepatitis E. “Hepatitis A and E are typically caused by ingestion of contaminated food or water and are not known

---

“Co-infection with the hepatitis viruses and HIV is likely to become a major health care catastrophe in the coming years” (Kottlilil et al., 2005: 424).

---

to cause chronic liver disease. A vaccine exists for hepatitis A and a meta-analysis of eight studies from 1994 to 2004 shows that the vaccine can be effective in HIV-positive people (Shire et al., 2006 cited in Vergidis et al., 2009). Hepatitis B, C, and D usually occur as a result of parenteral contact with infected body fluids (e.g. from blood transfusions or invasive medical procedures using contaminated equipment). Hepatitis B is also transmitted by sexual contact” (WHO, 2010c). Hepatitis B and hepatitis C are important

co-infections for HIV and D is a co-infection with hepatitis B. Approximately a million deaths per year are due to hepatitis B and hepatitis C viruses. Hepatitis E should be studied in HIV co-infected people but no studies have been done to date (Kottlilil et al., 2005; Kottlilil, 2009). Almost no research focusing specifically on HIV and hepatitis co-infection among women in developing countries has been done.

### *HIV Can Reduce the Body’s Response to Hepatitis B Vaccination*

Hepatitis B can be prevented through timely vaccination, ideally within 24 hours after birth. WHO recommends that all infants should receive the first dose of hepatitis B vaccine less than 24 hours after birth, followed by two to three doses to complete the series. Since 2007, more than 88% of member states have introduced hepatitis B vaccine. However, hepatitis B birth-

dose global coverage was just 27% in 2007 (Wiersma, 2009). Key countries where infants are not vaccinated are India, Nigeria, China, Indonesia, Ethiopia and Pakistan.

HIV-positive infants, children and adults can also be vaccinated for hepatitis B, but HIV-positive individuals are less likely to respond to vaccination against hepatitis B (Kottlilil et al., 2005). A study from 2003 to 2005 in Thailand with 1,535 IDUs (90% male), of whom 24 were HIV-positive found that IDUs with HIV were more than six times as likely to not respond to the hepatitis B vaccine, with only 14 responding to the three dose vaccine (Sunthornchart et al., 2008).

It is also critical that all blood is screened for hepatitis B as well as HIV. Once a person has the chronic form of hepatitis B, they can be treated but not cured. Treatment for both HIV and hepatitis B reduces the risk of transmission of both hepatitis B and HIV. Importantly, treatment for hepatitis B is less effective in those who are co-infected with HIV (Kottlilil, 2009). Hepatitis B can be transmitted through sharing needles or sexual contact with a person with hepatitis B. Hepatitis B can also be transmitted through perinatal transmission, with these infants being particularly hard to treat.

### *Hepatitis C and HIV Co-Infection can Limit Treatment Options*

Infection with hepatitis C virus causes liver inflammation and scarring. HIV co-infection leads to worsening of liver disease associated with hepatitis C. Many medications used in ARV therapy are cleared through the liver. Thus, co-infection with hepatitis C can complicate ARV therapy for people living with HIV.

Hepatitis C can be averted by using condoms, by never sharing needles and by safe injection practices, including both in illicit drug use as well as injections in medical settings such as when infants are immunized. No preventive vaccine exists for hepatitis C. Globally, more than 90% of new hepatitis C infections are attributed to injection drug use, but few IDUs receive treatment (Hoover, 2009). Many people with hepatitis C, particularly IDUs, who are traditionally marginalized and underserved, are unaware that they are infected. Hepatitis C can be sexually transmitted, although transmission between heterosexual couples is rare. Hepatitis C can also be transmitted through unsterilized medical, dental, tattoo equipment and the sharing of razors (Hoover, 2009). The mother-to-infant transmission of hepatitis C is about 4–7%. Maternal co-infection with HIV increases the rate of hepatitis C transmission 4–5 fold, but the actual time and mode of transmission are not known (Roberts and Yeung, 2002). An elective C-section is only recommended for women with hepatitis C/HIV co-infection (Kottlilil, 2010).

Treatment literacy on hepatitis C and hepatitis C/HIV co-infection is needed both for those at high risk and health providers (Hoover, 2009). A 2000 to 2002 pilot study in China of needle exchange programs indicated that scaling up needle exchange programs can lower rates of hepatitis C and HIV. Participants in the intervention communities were almost three times less likely to have shared needles in the past month than those in the control communities, with significantly lower rates of infection both for HIV and hepatitis C. The results of the trials were used to develop national policy guidelines in 2002 and needle exchange programs were included in the second five-year action plan. The needle exchange program was scaled up in 2006 from 93 sites to 729 by the end of the year (Wu et al., 2007c).

PCR tests are used to detect hepatitis C but the disease is diagnosed when positive antibody test results are confirmed by HCV RNA (viral load) testing. PCR tests require high-quality laboratory facilities and trained technicians. Where PCR tests are not available, TMA tests may be used (Hoover, 2009). Liver biopsies may be used to assess liver damage but they are expensive, can be painful, and there is a risk for complications which, on rare occasions, can be life-threatening. Recent advances in technology for non-invasive testing include FibroScan, which uses sound waves to assess liver damage.

Much more research is needed regarding women, specifically, and hepatitis and HIV co-infection. For more in-depth coverage of hepatitis infections, please refer to Treatment Action Group (Swan and Raymond, 2004) at <http://www.treatmentactiongroup.org/publication.aspx?id=3306&terms=hepatitis+c+hiv>.

### **Gaps in Programming—Hepatitis**

1. More effective diagnostics, treatment and treatment literacy programs are needed for hepatitis C.

1. **More effective diagnostics, treatment and treatment literacy programs are needed for hepatitis C.**

- ▶ Gap noted generally (Swan and Raymond, 2004: 340 and Hoover, 2009).

## Strengthening the Enabling Environment

- A. Transforming Gender Norms
- B. Addressing Violence Against Women
- C. Transforming Legal Norms to Empower Women, including Marriage, Inheritance and Property Rights
- D. Promoting Women’s Employment, Income and Livelihood Opportunities
- E. Advancing Education
- F. Reducing Stigma and Discrimination
- G. Promoting Women’s Leadership

For HIV/AIDS interventions for women and girls to succeed, factors outside the health services need to be addressed. These environmental factors—gender norms that guide how girls and boys grow to be women and men, legal norms that confer or withhold rights for women and girls, access to education, income, levels of toleration for violence against women, experience of HIV/AIDS and gender stigma and discrimination—determine whether any HIV intervention will truly help women and girls. Creating a supportive and enabling environment for females and males to live in equity and for women and girls to be supported by equitable gender norms and legal rights is critical to reduce vulnerability to HIV infection and to ensure interventions to prevent, treat or care for those with HIV will have their intended effect.

---

“The choice between food or shelter and safer sex is not a free one, since almost everyone will choose daily survival over the comparatively abstract risk of HIV”  
(Pinkham et al., 2008: 169).

---

Strengthening the enabling environment must be done at a structural level (Rao Gupta et al., 2008). Structural interventions need a multi-pronged strategy, as well as political will and commitment at all levels, as evident, for example, in Uganda in the 1990s where “an array of preventive policies and strategies, mounted by different agencies, with strong partnerships between the media, government, NGOs, sex workers, people living with HIV/AIDS and international and local public health agencies, endorsed at the highest political level...the need for broader, integrated programmes in which all components are mutually reinforcing” (Wellings et al., 2006: 39).

Yet, structural interventions are challenging to evaluate. [See Chapter 2. Methodology] Given the discussion in the methodology section about determinants of HIV infection and the pathways through which interventions must work, it is clear that enhancing the enabling environment is important but that structural interventions, as described in this chapter, are more difficult to correlate with HIV infection. Proving “what works,” is challenging. For example, the pathway from changing gender norms to women being able to refuse sex or insist on condom use is indirect and can be influenced by many other factors. In the case of the enabling environment, it would not be possible to conduct a study using randomized control trial methodology, therefore the level of evidence, as measured by the Gray Scale, tends to be lower. Studies tend to be cross sectional, without control groups. Nevertheless, the environment in which women and girls live and work plays an enormous role in women’s vulnerability to HIV. Strengthening a supportive environment for women and girls is integral to their ability to overcome the challenges women face in prevention, treatment and care of HIV.

## Building Social Capital is Central to Strengthening the Enabling Environment

Much has been written on the relationship between HIV/AIDS and social capital, characterized by Putnam (1993: 167) as “features of social organization, such as trust, norms and networks that can improve the efficiency of society by facilitating co-ordinated actions.” The notion that networks, relationships and a sense of belonging matter is at the core of work on social capital and HIV. Building social capital is central to strengthening the enabling environment. A review of the importance of NGO involvement in responding to the AIDS epidemic in Uganda concluded that “well-developed social capital leads to social inclusion, it helps in information flow, [and] reduces stress” (Jamil and Murhsa, 2004: 26). Through fostering support systems of groups of people living with HIV and AIDS, NGOs in Uganda and other countries have helped build social capital. In the United States, increased social capital has been found to be associated with lower HIV rates (Holtgrave and Crosby, 2003). Research in Namibia on the effect of involvement in social support on prevention behavior found “support for the link between social capital and greater HIV-related efficacies,” or the notion that one could act to protect against HIV (Smith and Rimal, 2008: 142). The IMAGE program in South Africa

combining microfinance and training on gender and HIV, which is discussed in more detail in this chapter, provides an example of an intervention to strengthen social capital by creating a support network among the women involved (Pronyk et al., 2006).

The following interventions and supporting evidence demonstrate a number of ways to strengthen the enabling environment for women and girls and tackle the underlying roots of women's greater vulnerabilities to HIV and AIDS. Each topic is introduced in more detail in the sections outlined below. Although many of the interventions in this chapter are “promising,” a number could be scaled up to achieve a larger effect.

## 11A. *Strengthening the Enabling Environment: Transforming Gender Norms*

“The global HIV pandemic in its current form cannot be effectively arrested without fundamental transformation of gender norms” (Dunkle and Jewkes, 2007: 173). The social issues women face that make them particularly vulnerable to HIV are related to gender norms that privilege men over women in most societies. Women are particularly harmed by discriminatory gender norms, although evidence is mounting that gender norms harm both women's and men's health (WHO, 2007a). For both women and men, gender norms are codified through public policy in a range of issues (Barker et al., 2010). Gender norms, including those that influence sexual and power relations, influence all program areas related to HIV/AIDS, from prevention of HIV for girls, to treatment, care and support.

### *Traditional Gender Norms Lead to Behaviors That Put Women at Risk for HIV*

Women are less likely to have access to resources and more likely to depend on men for financial survival for themselves and their children. Such dependence makes it difficult for women to negotiate sex or safer sex with their partners. Women's mobility is often curtailed. For many women, a central survival strategy for themselves and their children involves having more than one partner. For example, a study in Haiti showed that to balance the multiple demands of family and economic survival, single mothers enter into a series of sexual relationships in order to obtain food and housing for themselves and their children (Fitzgerald et al., 2000). A study in Tanzania found that 70 percent of sexually active girls reported granting sexual favors to meet their basic daily needs (Maganja et al., 2007).

In sexual relationships, women often lack power to protect themselves. A survey of 812 young women in Vientiane, Lao People's Democratic Republic, along with 18 focus group discussions and 13 in-depth interviews found that young women lacked power to negotiate both sexual activity and condom use, with 25% reporting coerced sex and 30% of sexually active women having multiple partners in 2007 (Songbandith et al., 2008). Cross-sectional data from 135 sexually active female students at a university in South Africa found that the women's perceptions of HIV risk were related to a feeling of lack of control over risk due

---

“Reflections on men and HIV/AIDS are usually limited to their culpability as drivers of the epidemic. Addressing these issues effectively means moving beyond laying blame, and starting to develop interventions to encourage uptake of prevention, testing and treatment for men —for everyone’s sake” (Mills et al., 2009: 276).

---

to partner’s behavior, rather than the woman’s behavior. Women who had ever had a violent partner were more than two times as likely to report being at risk for HIV; women who were coerced to have sex and/or felt that their current partners would react negatively if she refused sex without a condom were more than three times as likely report being at risk for HIV (Kelvin et al., 2008). A survey of 126 people in South Africa found that women felt at risk of contracting HIV because of the multiple partnerships of their current male partner, but felt disempowered to do anything to change their risk of acquiring HIV (Ngema et al., 2008). A study of 50 low-income Chilean women found that “women who are vulnerable to HIV do not perceive themselves at risk. They believe that HIV is something that happens to

homosexually active men or to [sex workers], not something that happens to women in a stable relationship” (Cianelli et al., 2008: 298).

### *Traditional Gender Norms Also Hurt Men*

Men are also affected by gender norms that define masculinity as including early, risky sex with multiple partners (WHO, 2007a; Barker et al., 2007b). A survey of 1,268 respondents in Botswana who held three or more gender discriminatory beliefs had nearly three times the odds of having unprotected sex in the past year with a non-primary partner as those who held fewer gender discriminatory beliefs (PHR, 2007a). Homophobia makes men who have sex with men more likely to marry a woman to diminish stigma and legal or other consequences, where homosexuality is illegal (White and Carr, 2005. [See also *Chapter 3B. Prevention for Women: Partner Reduction*]) In many settings, men also tend to be socialized to be less inclined than women to engage in health seeking behavior. Furthermore, the sexual health concerns of men living with HIV and AIDS are frequently neglected in program efforts and men often lack information on how to lead a healthy sex life (Esplen, 2007). A study in China with ten AIDS health professionals and 21 adults living with HIV found that “power differentials between men and women, men’s dominant role in sexual life and their ignorance about HIV/AIDS and its prevention contribute to the increasing HIV risk faced by women (Zhou, 2008). A survey of 185 young men and women in India found that young men were more likely to have higher AIDS knowledge, to perceive themselves to be at risk for contracting HIV, have higher self-efficacy of using condoms correctly, buying condoms, having a condom when needed, and believe that it is acceptable to have multiple partners (Seth et al., 2008). In Papua New Guinea, in-depth interviews with 86 people, half female, found that women reported that a woman’s refusal of sex would drive the husband to seek sex elsewhere (Dover and Levy, 2008).

Ideas that equate masculinity with sexual risk-taking and being in control of women have been shown to be associated with less condom use, more partners, more casual partners and more transactional sex (Greig et al., 2008). A qualitative study of six groups of 5 to 10 partici-

pants meeting once per week for three weeks in rural South Africa with sexually experienced young people ages 14 to 19 found that young men universally felt that female virginity was a desirable characteristic. However, once in a relationship, boyfriends often insisted on sexual intercourse to establish that their girlfriend was a virgin. Young women acquiesced as young women believed that their virginity should be saved for the right partner. Young women then lost their valued status as a virgin in the process of proving virginity, with some young women claiming coercion: “...he forces you to have sex to prove to him that you are still a virgin” (Harrison, 2008: 185).

### *Changing Gender Norms Requires Programming for Both Men and Women... Together*

While numerous programs have shown results in addressing gender norms with men to reduce HIV risks (Colvin, 2009; Pulerwitz et al., 2006), these programs reach a tiny fraction of the population in need (Barker, 2009). Some programming reinforces traditional gender norms. PAHO analyzed gender roles in 200 HIV-related public service announcement TV spots from Latin America and found that TV spots reinforced the traditional gender roles that are partly responsible for the HIV epidemic, with women bearing the sole responsibility of HIV prevention and men as more interested in sex than women (Parodi and Lyra, 2008). Changing prevailing gender norms dictating multiple sexual partners for men and sexual ignorance and submissiveness for women and girls, that can lead to increased HIV rates, is critical. Research suggests that “relational gender programming” that works with both women and men together may be most successful in changing gender norms (Levack and Greene, 2010).

The role of gender norms in fueling the AIDS pandemic is clear but insufficiently addressed in programs (UNIFEM, 2008). For example, AIDS programs face a gender-related paradox that in most countries, women are more vulnerable to HIV transmission—in Africa, 61 percent of new HIV cases are in women—yet statistics on treatment show that more women than men access ARV services. Both statistics are related to gender norms that discourage women from obtaining knowledge about sex and protection and discourage men from seeking health care. “Addressing gender norms—the societal messages that dictate appropriate or expected behavior for males and females—is increasingly recognized as an important strategy to prevent the spread of HIV infection” (Pulerwitz et al., 2006: 1).

While this particular section addresses transforming gender norms, several other interventions regarding gender norms permeate the rest of the chapter as they relate to violence against women, women’s legal rights, employment, education, etc. Changing gender norms requires political will and leadership at every level, from national policymakers to community leaders. A multi-pronged approach is needed to work with men directly to support safer male sexual behavior, as well as with the media, community, religious leaders and others who can impact gender norms. Some of the most effective interventions involve working with young boys to promote gender equitable attitudes and behaviors. At the same time, attention to public policies that reinforce or transform gender norms for both women and men is critical (Barker et al., 2010).

### **What Works—*Strengthening the Enabling Environment: Transforming Gender Norms***

1. Training, peer and partner discussions, and community-based education about changing gender norms can increase HIV protective behaviors.
2. Mass media campaigns concerning gender equality as part of comprehensive and integrated services can increase HIV protective behaviors.

#### *Promising Strategies:*

3. Changing norms regarding the acceptability of concurrent partnerships can be successful.

## **EVIDENCE**

### **1. Training, peer and partner discussions, and community-based education about changing gender norms can increase HIV protective behaviors.**

- ▶ A campaign in **South Africa**, One Man Can, by Sonke Gender Justice Network, which provided training over the period of one year to engage men in gender awareness, implemented a range of communication strategies to shift social norms about men's roles and responsibility, engaged in advocacy and worked with local government, and resulted in men's increased utilization of VCT and increased use of condoms. Phone surveys with a randomly selected pool of previous One Man Can Campaign workshop participants were conducted with 2,000 men and boys. Focus group discussion, in-depth interviews and key informant interviews were also conducted. Following the training workshops, 25% of the men and boys had accessed VCT, 61% increased condom use and 50% reported acts of gender-based violence that the men had witnessed so that appropriate action could be taken to protect women. Workshops included 20 to 30 participants and took place over four to five days, using interactive and experiential activities. The One Man Can Campaign used community events, workshops and peer education to create positive models of masculinity around PPT, VCT, HIV prevention, home-based care, violence, multiple concurrent partnerships and alcohol abuse. Pre- and post-test surveys showed positive changes toward gender equitable attitudes that would assist HIV prevention: prior to the workshop, all the men thought they had the right to decide, as men, when to have sex with their partners; after the workshop, this decreased to 75%; prior to the workshop, 67% of the men thought they could get HIV from kissing that involved the exchange of saliva; after the workshop this decreased to none; prior to the workshop, 63% of the men believed that it is acceptable for men to beat their partners; after the workshop, 83% disagreed with the statement; prior to the workshop, 96% of

the men believed that they should not interfere in other people's relationships, even if there is violence; after the workshop, all believed they should interfere (Colvin, 2009). (Gray III) (*men, gender norms, condom use, gender relations, violence, South Africa*)

- ▶ An impact evaluation of Program H, undertaken by PROMUNDO, was conducted in **Brazil** to test the hypothesis that young men in slum areas of Rio de Janeiro can change their behavior and attitudes through participation in group education activities that encourage reflection on what it means to be a man. The program resulted in significantly smaller percentages of young men supporting inequitable gender norms over time. Improvements in gender norm scale scores were associated with changes in at least one key HIV/STI risk outcome. In two of the three intervention sites, positive changes in attitudes toward inequitable gender norms over one year were significantly associated with decreased reports of STI symptoms. In two of the three intervention sites young men were approximately four times and eight times less likely to report STI symptoms over time, respectively. No significant change was found in condom use. Those boys who reported that they had more equitable gender norms as measured by the GEM scale also reported a decrease in STI symptoms. Program H was developed on the premise that gender norms, which are passed on by families, peers, and institutions, among others, and are interpreted and internalized by individuals, can be changed. Furthermore, reinforcing these messages on the community level will have additional positive impacts. The quasi-experimental study, which followed three groups of young men ages over time, compared the impact of different combinations of program activities, including interactive education for young men led by adult male facilitators and a community-wide social marketing campaign to promote condom use as a lifestyle that used gender-equitable messages that reinforced the messages promoted in the education sessions (Pulerwitz et al. 2006). (Gray III) (*gender norms, STIs, condoms, violence, Brazil*)
- ▶ Based on Program H in Brazil, a study of 1,138 young men in Mumbai and rural Uttar Pradesh, **India** who were exposed under the Yaari Dosti program to either a peer led group education activities alone, combined with a community-based behavior change communication or a delayed intervention which promoted gender equity found that in all intervention sites there was a significant increase in report of condom use at last sex, decreased partner violence and increased support for gender equitable norms. The sample of young men included married and unmarried young men ages 16–29 in the urban areas and ages 15–24 in the rural settings. Logistic regression showed that men in the intervention sites in Mumbai were 1.9 times more likely and in rural Uttar Pradesh 2.8 times more likely to have used condoms with all types of partners than in the comparison sites in each place. Furthermore, self-reported violence against partners declined in the intervention sites. (Verma et al., 2008). (Gray III) (*men, peer education, behavior change communication, condom use, sexual partners, violence, gender equity, India*)

- ▶ An evaluation of the Stepping Stones program for young people in the Eastern Cape Province of **South Africa** found that the program was effective in reducing sexual risk taking and violence perpetuation among young, rural African men. The evaluation was designed using the gold standard of evaluation, a random controlled trial. Women in the intervention arm had 15% fewer new HIV infections than those in the control arm and 31% fewer HSV 2 infections, although neither was significant at the 5% level (Jewkes et al., 2008). Findings also showed that men reporting fewer partners, higher condom use, and less transactional sex, perpetration of intimate partner violence, and substance use. Among the women, there was an increase in transactional sex. Stepping Stones, originally designed for use in Uganda in the mid-1990s, is among the most widely used prevention interventions around the world, having been used in over 40 countries (Jewkes et al. 2007). Stepping Stones is a gender transformative approach designed to improve sexual health through building stronger and more gender-equitable relationships among partners, including better communication. Stepping Stones uses participatory learning approaches to increase knowledge of sexual health, and build awareness of risks and the consequences of risk taking. The program included a 50 hour program (with a comparison group receiving a 3-hour intervention on HIV and safer sex) (Jewkes et al., 2006b). (Gray II) (*violence, condoms, sex behavior, South Africa*)
- ▶ An evaluation of a curriculum-based intervention for youth to address gender norms and HIV field tested with 130 young men in 2006 and 145 young women in 2007 in **Tanzania** found that there was a significant positive change in decision making concerning safer sex practices, with a 30% increase in young men seeking HIV testing. Among the young women, condom use with partners increased by 10% and an increase of 20% in HIV testing (Magige et al., 2008). (Gray III) (*youth, HIV testing, condom use, Tanzania*)
- ▶ A participatory group education intervention to address gender norms and HIV with pre-post intervention survey among young women ages 16 to 28 in **India** found that the young women significantly shifted to more gender equitable attitudes and reported using condoms at last sex (50% following the intervention as compared to 15% prior to the intervention (Khandekar et al., 2008). (Gray III) (*education, gender norms, youth, gender equity, condom use, India*)
- ▶ In **Tanzania**, evaluation of Tuelimishane (Let's Educate One Another), a community-based HIV and violence program for young men in Dar es Salaam that combined community-based drama and peer education, found that the project resulted in significant changes in attitudes and norms related to gender roles and partner violence and some risk behaviors, including condom use. Two of the six variables measuring HIV risk behaviors were found to be significant. Men in the intervention community were significantly more likely to have used a condom during their last sexual experience, and they were less likely to report using condoms less than half the time in the past six months. There were no significant differences regarding reported use of violence, however men

in the intervention village were significantly less likely to report that violence against women is justified under various scenarios. The program was designed based on formative research among young men and women regarding the context of sexual relationships among youth at risk for HIV, including gender norms and roles, partner violence, and sexual behavior. The theme of transactional sex and the active roles of young men and women in the practice also emerged in the formative research as is described by Maganja et al. (2007). The interventions for young men were designed around three themes that emerged from the formative research, namely, infidelity, sexual communication and conflict (Maganja et al., 2007). (Gray III) (*gender norms, peer education, violence, condoms, Tanzania*)

- ▶ A peer group HIV prevention intervention that compared matched workplaces between an intervention group that addressed issues of gender inequality with a delayed control group for 300 urban employed women in **Botswana** found that the intervention group had significantly higher post-intervention HIV prevention behaviors consisting of personal safer sex behaviors; positive condom attitudes and confidence in condom use; higher levels of knowledge of HIV transmission, sexually transmitted diseases and positive attitudes towards persons living with HIV/AIDS. After the intervention, 76% of the intervention group felt confident about using condoms correctly, compared to 44% in the delayed control group. Almost half of the intervention group reported practicing safer sex compared to 34% of the delayed intervention group. The intervention group also had increased community HIV-related activities, with a mean of 6.1 activities compared to 4.7 activities for the delayed control group. The intervention group had an 83% positive response towards persons living with HIV/AIDS compared to 68% in the delayed intervention group, with stigma being “an important aspect of prevention that needs direct attention” (Norr et al., 2004: 222). The intervention consisted of six ninety-minute weekly or bi-weekly sessions with hands-on condom skills and partner negotiation skills. The peer group leaders sustained the program for more than five years after the end of research funding. As a preliminary phase of the study, 56 in-depth interviews were conducted with urban women in Gaborone, Botswana regarding their HIV prevention needs. A concern that mixed-gender groups might expose women to partner violence led to a decision to have women-only groups. The peer group sessions occurred in workplaces during lunch or after work (Norr et al., 2004). (Gray III) (*gender norms, condoms, workplace, Botswana*)

2. **Mass media campaigns concerning gender equality as part of comprehensive and integrated interventions can increase HIV protective behaviors.** [See also Chapter 5A. *Prevention for Young People: Encouraging Behavior Change—many of the media interventions promote equitable gender norms*]

- ▶ An evaluation of *Somos Diferentes, Somos Iguales* that included a cohort of 4,800 young people ages randomly selected in three cities in **Nicaragua** who were interviewed at

three times, 200 young people in focus group discussions and in-depth interviews with participants and non-participants of social action activities found that at baseline young people had good knowledge about HIV/AIDS and that AIDS-related stigma was prevalent and safer sex was not regularly practiced. The final survey found widespread exposure to the project, particularly the TV series *Sexto Sentido*, and that greater exposure to project activities led to a significant reduction in stigmatizing and gender-inequitable attitudes; an increase in knowledge and use of HIV-related services and a significant increase in interpersonal communication about HIV prevention and sexual behavior. Participants with greater exposure to the intervention had a 44 percent greater probability of having used a condom during last sex with a casual partner and that men with greater exposure had a 56 percent greater probability of condom use with casual partners during the past six months. *Somos Diferentes, Somos Iguales* (We're Different, We're Equal) project (2002–2005), using a communication for social change strategy aiming to promote the empowerment of young men and women and prevent HIV infection. The project considered *machismo* (sexism) as a risk factor for HIV/AIDS. *Somos Diferentes, Somos Iguales* used the weekly drama TV series *Sexto Sentido* (Sixth Sense), which was also broadcast in Costa Rica, Guatemala, Honduras, Mexico and the US, and the call in radio program *Sexto Sentido* Radio to promote the gender transformative and HIV prevention messages and worked with more than 80 local service providers to increase access to SRH services for young people. The project also worked with about 200 collaborating organizations. Interventions included a weekly national educational program (telenovela); a daily call-in radio show; community-based activities; visits by the case to schools; youth training camps and informational materials (Solarzano et al., 2008). (Gray III) (*gender norms, youth, communication, condoms, self-perception, Nicaragua*)

- ▶ An impact evaluation of Program H, undertaken by PROMUNDO, was conducted in **Brazil** to test the hypothesis that young men in slum areas of Rio de Janeiro can change their behavior and attitudes through participation in group education activities that encourage reflection on what it means to be a man. The program resulted in significantly smaller percentages of young men supporting inequitable gender norms over time. Improvements in gender norm scale scores were associated with changes in at least one key HIV/STI risk outcome. In two of the three intervention sites, positive changes in attitudes toward inequitable gender norms over one year were significantly associated with decreased reports of STI symptoms. In two of the three intervention sites young men were approximately four times and eight times less likely to report STI symptoms over time, respectively. No significant change was found in condom use. Those boys who reported that they had more equitable gender norms as measured by the GEM scale also reported a decrease in STI symptoms. Program H was developed on the premise that gender norms, which are passed on by families, peers, and institutions, among others, and are interpreted and internalized by individuals, can be changed. Furthermore, reinforcing these messages on the community level will have additional

positive impacts. The quasi-experimental study, which followed three groups of young men ages over time, compared the impact of different combinations of program activities, including interactive education for young men led by adult male facilitators and a community-wide social marketing campaign to promote condom use as a lifestyle that used gender-equitable messages that reinforced the messages promoted in the education sessions (Pulerwitz et al. 2006). (Gray III) (*gender norms, STIs, condoms, violence, Brazil*)

### Promising Strategies:

#### 3. Changing norms regarding the acceptability of concurrent partnerships can be successful.

- ▶ Focus group discussions with women and men in **Zimbabwe** to discuss underlying factors and programs in 1992, 1999 and 2006–2007 mirrored epidemiologic survey findings from 2000 to 2005: social norms changed to reduce acceptability of casual sex and payment for sex. “Men reported that having an STI or being seen with a partner other than one’s wife was no longer a sign of manhood. Behavior changes in terms of partner reduction were consistently reported in focus group discussions among men.” Men also could no longer afford multiple partners and participants mentioned messages concerning fidelity and increased availability of condoms (Muchini et al., 2008). (Gray IV) (*sex behavior, sexual partners, Zimbabwe*)

#### Gaps in Programming—Transforming Gender Norms

1. Changing prevailing gender norms dictating multiple sexual partners for men and sexual ignorance and submissiveness for women and girls that can lead to increased HIV rates is a current challenge. Further well-evaluated interventions are needed.
2. Programs to transform gender norms should address homophobia as part of the definition of masculinity.

1. **Changing prevailing gender norms dictating multiple sexual partners for men and sexual ignorance and submissiveness for women and girls that can lead to increased HIV rates is a current challenge. Further well-evaluated interventions are needed.** Studies found that women felt at risk for HIV yet without power to negotiate sex or condom use. Studies found that both men and women thought multiple sexual partners for men to be an accepted norm in many countries. Media reinforced these gender stereotypes.

- ▶ Gap noted, for example, in **Lao People’s Democratic Republic** (Songbandith et al., 2008); **South Africa** (Kelvin et al., 2008, Ngema et al., 2008, Harrison, 2008); **India** (Seth et al., 2008); **Chile** (Cianelli et al., 2008); **Papua New Guinea** (Dover and Levy, 2008); **China** (Zhou, 2008); **Latin America** (Parodi and Lyra, 2008); and **Zimbabwe** (Feldman and Masopere, 2003).

2. **Programs to transform gender norms should address homophobia as part of the definition of masculinity.** [See Chapter 3B. *Prevention for Women: Partner Reduction*]

## 11B. *Strengthening the Enabling Environment: Addressing Violence Against Women*

Violence, in addition to being a human rights violation, has been clearly demonstrated as a risk factor for HIV (Stephenson, 2007; Jewkes et al., 2006a; Manfrin-Ledet and Porche, 2003; Dunkle et al., 2004; Quigley et al., 2000b; Silverman et al., 2008). Analysis of DHS data in

Rwanda showed that women with few, if any, sexual risk factors for HIV but who have experienced sexual, physical or emotional abuse within their marriages were between 1.61 and 3.46 times more likely to test HIV-positive (Dude, 2009).

---

“Men never allow us to use condoms. If we suggest they beat us.”  
—Ugandan woman  
(Karamagi et al., 2006: 7)

---

Acts that would be punished if directed at an employer, a neighbor, or an acquaintance often go unchallenged when men direct them at women, especially within the family (Heise et al., 2002: S5). Violence against women (VAW), is a more specific form of the category of Gender-Based Violence (GBV), and is considered acceptable behavior in

many countries (Andersson et al., 2008). Women are “blamed” for bringing HIV into the family; women are kicked out of their homes and denied property, leading to further vulnerability to infection.

### *Violence Against Women Is Widespread*

A report that analyzed DHS Surveys in Bangladesh, Bolivia, the Dominican Republic, Haiti, Kenya, Malawi, Moldova, Rwanda, Zambia and Zimbabwe found that women experienced a wide variation across countries in the prevalence of physical or sexual violence by their current husband or partner, from 16% in the Dominican Republic to 75% in Bangladesh (USAID, 2008a). Inequitable gender norms may be related to increased violence: in five of the 10 countries studied (listed above), women who believe that wife beating is justified were more likely to report experiencing physical or sexual violence (USAID, 2008a). A study between 2000 and 2003 with 24,097 women ages 15 to 49 in Bangladesh, Brazil, Ethiopia, Japan, Namibia, Peru,

Samoa, Serbia and Montenegro, Thailand, and Tanzania found that of the 19,568 women who had ever had a partner, 15–71% reported they had experienced physical or sexual violence or both at some point in their lives by a current or former partner (Ellsberg et al., 2008). A survey in Vietnam with 465 women found that 37% said they had been beaten by their husbands (Luke et al., 2007). A study in India with 459 women, 216 of whom were living with HIV, found that 40% of HIV-positive women and 30% of HIV-negative women reported being forced to have unwanted sex with their husbands and one in three of all 459 women reported being hit by their in-laws (Gupta et al., 2008b).

Both males and females often justify violence as an acceptable gender norm. For example, a study in Ghana found that 56% of boys and 60% of girls argued that it was acceptable for a boy to beat his girlfriend in some circumstances (Glover et al., 2003 cited in Jejeebhoy and Bott, 2003). Studies in Nigeria and Uganda found that rape was accepted as inevitable among victims because males were uncontrollable, that rape was accepted as a “way to teach a haughty girl a lesson” and the misperception that women enjoy coercive sex (Ajuwon et al., 2001; Hulton et al., 2000 cited in Jejeebhoy and Bott, 2003). Other studies also report the misperception that men’s sexual needs are beyond their control (Sodhi and Verma, 2003 cited in Jejeebhoy and Bott, 2003).

Women threatened by violence and rape, including married women and adolescents, cannot negotiate condom use. A 2006 to 2007 study in Thailand with 205 women living with HIV and 86 women who had experienced violence found that 12% of HIV-positive women had forced first sexual intercourse and 34% had partners who refused condom use. Women who had suffered violence before testing HIV-positive were beaten more after disclosing their serostatus (Grisurapong, 2009). A repeat survey from 2002 in Botswana, Lesotho, Malawi, Mozambique, Namibia, Swaziland, Zambia and Zimbabwe found that 40% of women said they would have sex if their partner refused to use a condom, and 40% said that they did not think women have the right to refuse sex with their partner (Andersson et al., 2008). A sample of 575 sexually experienced young women ages 15–19 interviewed in 2001–2002 in Rakai, Uganda, found that 14% reported that their first sexual intercourse had been coerced. Coercion at first intercourse was negatively correlated with subsequent condom use: 24% of unmarried women who reported coerced first sex had used a condom at last sex, compared with 62% of those who reported no coercion at first sex. Respondents who reported coerced first intercourse were less likely than those who did not to say they had used a condom at last intercourse (13% as compared to 33%) (Koenig et al., 2004). Linkages between the justice system and the health system in many sub-Saharan countries is weak, making women more reluctant to seek judicial justice for crimes of rape (Kilonzo et al., 2009b).

### *Violence Can Increase Women’s Risk for HIV*

“There are three mechanisms through which violence is hypothesized to increase women’s risk for HIV infection: (1) through forced or coercive sexual intercourse with an infected partner, (2) by limiting women’s ability to negotiate safe sexual behaviors, and (3) by establishing a pattern of sexual risk taking among individuals assaulted in childhood and adolescence” (Maman et

al., 2000: 466). For example, a study in Uganda with 3,422 women ages 15 to 24 found that women who always used condoms were less likely than those who never used condoms or used them inconsistently to report physical violence and sexual coercion (Zablotska et al., 2009). A study in the Central African Republic found that among both men and women ages 15–50, those whose sexual initiation was forced were between 1.77 and 2.47 times more likely to report multiple partners in adulthood, compared to those whose first sex was consensual (Sonse et al., 1993 cited in Jejeebhoy and Bott, 2003). Intimate partner violence tends to be consistently associated with inconsistent condom use, having an unplanned pregnancy or induced abortion, and having an STI, including HIV (Coker, 2007).

A review for the U.S. Institute of Medicine based on studies between 1998 and 2007 found that “violence or fear of violence from an intimate partner is an impediment (to) or a consequence of HIV testing” (Campbell et al., 2008b: 2). Many women do not disclose status based on fear of violence and abandonment. While some studies have shown that only a small percentage of women experienced negative responses after disclosure of their HIV status, there is some evidence that women are subjected to violence from their sexual partners as a consequence of HIV testing and disclosure of results (Maman, 2001b). Women who disclose are more likely to be in secure relationships. [See also Chapter 6. *HIV Testing and Counseling for Women*] Violence is also a barrier to adherence to treatment as spouses may require that women share treatment if their partners do not want to be tested. Women may take HAART in secret. [See also Chapter 7. *Treatment*]

Some evidence exists that violence prevention is effective, particularly by developing nurturing relationships between parents and children, by developing life skills in children and adolescents and by changing gender norms (WHO, 2009d). Programs and evaluations to work with men to reduce violence have been limited (Ricardo and Barker, 2008). More recent literature indicates that abusive men are more likely to have other sexual partners unknown to their wives (Campbell et al., 2008a). A 2003 study in Uganda found that those women whose husband had another partner were more than twice as likely to have a higher risk of intimate partner violence. The women expressed reluctance to test for HIV, disclose HIV results and request to use condoms because of fear of intimate partner violence (Karamagi et al., 2006).

### *Sexual Abuse Puts Children at Risk for HIV*

Children who are sexually abused are more at risk as adults of acquiring HIV (Slonim-Nevo and Mukuka, 2007). Pilot programs are beginning to successfully address the needs for post-exposure prophylaxis by children who suffer from rape (Speight et al., 2006). “There is a growing recognition that children in sub-Saharan Africa are vulnerable to HIV transmission through sexual abuse and exploitation including incest, child rape, early (coerced) coitus, ‘sugar daddies’ and transactional sex” (Lalor, 2008). Family, non-family, acquaintance, and non-acquaintance perpetrators abuse young girls. Interventions are needed to reduce the incidence of sexual abuse, as well as to address the consequences of abuse. Furthermore, education-related exposure to violence needs to be addressed. Research conducted by Human Rights Watch in Zambia in 2002 found that long commute times to and from school was a significant

factor associated with sexual assault among young girls. Approximately 100 girls under the age of 18 were interviewed in a largely open-ended format that covered a variety of topics and 36 NGOs and a number of government officials were contacted and visited. “The length of the girls’ commute to school is an important factor here, since they risk sexual abuse by minibus drivers or conductors, if they take transportation, or abuse by others along the road, if they walk, can be significant” (Chimuka, 2002 cited in Fleischman, 2002: 49).

### *Eliminating Violence Against Women Requires a Comprehensive Approach*

A comprehensive response, based on principles of human rights and ensuring survivor-centered and empowering approaches, is needed to address violence against women; including political commitment and resource mobilization, legal and judicial reform, health sector responses, response from the education sector, use of mass media and community mobilization (UNIFEM, 2010; Global AIDS Alliance, 2008). Campaigns and public education can challenge the acceptance of violence against women and raise awareness of the adverse impact of violence on women’s health. Comprehensive gender-based violence policies are needed that “include primary prevention targeting men and boys; policies to engage men and boys in making public spaces free of violence for women and girls; programs for male perpetrators that are integrated with [the] judicial sector; implementation of gun control; control over alcohol sales; and legal, financial and psychological supports for survivors of violence, both women and men” (Barker et al., 2010). Efforts to stop violence against women will not succeed unless male attitudes and behavior are addressed. Innovative programs such as *One Man Can* in South Africa are good examples of working with men to reduce violence (Colvin, 2009). Political, religious and community leaders, along with the media can play a significant role in changing social norms. Improved awareness and attitudes need to be supported by the enforcement of laws that prohibit violence against women and punish the perpetrators. Women’s advocacy organizations have been key in raising awareness and working with governments to strengthen legal solutions. Women who experience violence, including from intimate partners, need counseling, health services and support.

### *Health Services Can Play a Critical Role to Assist Women Who Suffer From Violence*

It is vital that health providers do not further compound the suffering of a woman or girl who has been raped by blaming her for the rape (Caretta, 2008). A study in the Dominican Republic conducted in 2006 with 31 women living with HIV who were victims of violence and 39 providers for either HIV or violence services, including HIV physicians, counselors, social workers, etc. found that few HIV providers had training on services for women who suffered from violence; and few providers for violence services had training on HIV. Almost all the providers did not know the pertinent legislation related to violence and more than a third believed that women provoke violence. Protocols are needed for to establish linkages between HIV and violence services (Betances and Alba, 2009). A randomized survey among 100 obstetricians-gynecologists in Pakistan in 2002 found that “the significant mismatch between perceptions of prevalence of domestic violence in Pakistani society (>30%) and in

clinical practice (<10%) suggests that obstetricians are socially aware of the enormous public health burden but cannot associate an equivalent magnitude among their clientele...” (Fikree et al., 2004: 64). Only 8% of the survey participants had ever received domestic violence training related to case identification and management, however, 83% reported that it was important to receive such training (Fikree et al., 2004). Changes are needed in health care organizations to address violence using a systems approach, which includes awareness of laws, ongoing training and support for staff, referral networks, protocols and education for clients. [See also Chapter 13. Structuring Health Services to Meet Women’s Needs]

### *Ensuring Rape Victims Have Access to PEP Is Essential*

In many countries, there are few services for women who are subjected to violence—and fewer for girls. Rape victims need timely access to post-exposure prophylaxis (PEP). A review of barriers to PEP in 13 PEPFAR countries found that requiring HIV testing to access PEP, reporting rape to police to access PEP and the need for no-cost services and quality counseling were gender-related barriers to accessing PEP (Herstad, 2009). A record review of 390 clients of a rape crisis center in South Africa that saw, on average, 26 women per month over 15 months from 2003 to 2004 found that up to 36% of women were HIV-positive at the time of presentation. Acceptance of HIV testing and provision of PEP was high; however, adherence to antiretroviral therapy and return for testing were low. Only 57% of clients filled the four weekly PEP prescriptions, possibly because of travel costs and distance. Making services more user-friendly may increase uptake of completion of PEP (Carries et al., 2007). Children also need access to PEP. “Although the South African government has developed national guidelines for PEP treatment of individuals 14 and older, there are no corresponding guidelines for children under fourteen. As a result, many health care providers lack basic information about how—and even in what circumstances—to provide PEP to children under fourteen,” despite reports of rape of children under the age of 14, including infants (HRW, 2003a: 70).

A qualitative study was conducted in Kenya to better understand the reasons for the low uptake of post-rape care services in health facilities and to establish perceptions of sexual violence in Kenya. Thirty-four key informants were interviewed and 16 focus group discussions with women and men were held in three districts in Kenya. Blurred boundaries between forced and consensual sex emerged. Important implications for the delivery of HIV post exposure prophylaxis (PEP) after sexual violence include the need for gender-aware patient-centered training for health providers and for HIV PEP interventions to strengthen on-going HIV prevention counseling efforts (Kilonzo et al., 2008a).

The need to address post-conflict violence in relationship to HIV has been the subject of some controversy, but few evaluated interventions were found. Additional evidence and resources for working with all sectors—health, police, justice, education, and in conflict settings are available at [www.endvawnow.org](http://www.endvawnow.org) (UNIFEM, 2010).

## What Works—*Strengthening the Enabling Environment: Addressing Violence Against Women*

1. Community-based participatory learning approaches involving men and women can create more gender-equitable relationships, thereby decreasing violence.
2. Establishing comprehensive post-rape care protocols, which include PEP, can improve services for women.
3. Microfinance programs can lead to reduction in gender-based violence when integrated with participatory training on HIV, gender, and violence.

### *Promising Strategies:*

4. Training teachers about gender-based violence can change norms about acceptance of gender-based violence.
5. Multi-media health promotion can increase awareness of violence against women.
6. Integrating HIV prevention into services for abused women may increase condom use.

## EVIDENCE

1. **Community-based participatory learning approaches involving men and women can create more gender-equitable relationships, thereby decreasing violence.** [*See also 11A. Transforming Gender Norms*]
  - ▶ An evaluation of the Stepping Stones program for young people in the Eastern Cape Province of **South Africa** found that the program was effective in reducing sexual risk taking and violence perpetuation among young, rural African men. The evaluation was a random controlled trial. Men reporting fewer partners, higher condom use, and less transactional sex, perpetration of intimate partner violence and substance use (Jewkes et al., 2008). Stepping Stones is a gender transformative approach designed to improve sexual health through building stronger and more gender-equitable relationships among partners, including better communication. Stepping Stones uses participatory learning approaches to increase knowledge of sexual health, and build awareness of risks and the consequences of risk taking. The program included a 50-hour intervention/workshop (with a comparison group receiving a 3-hour intervention on HIV and safer sex) (Jewkes et al., 2006b). (Gray II) (*violence, condom use, sex behavior, South Africa*)

- ▶ A campaign in **South Africa**, One Man Can, by Sonke Gender Justice Network, which provided training over the period of one year to engage men in gender awareness, implemented a range of communication strategies to shift social norms about men's roles and responsibility, engaged in advocacy and worked with local government, and resulted in men's positive attitude shifts regarding gender based violence. Phone surveys with a randomly selected pool of previous One Man Can Campaign workshop participants were conducted with 2,000 men and boys. Focus group discussion, in-depth interviews and key informant interviews were also conducted. Following the training workshops, 50% reported acts of gender-based violence that the men had witnessed so that appropriate action could be taken to protect women. Workshops included 20 to 30 participants and took place over four to five days, using interactive and experiential activities. The One Man Can Campaign used community events, workshops and peer education to create positive models of masculinity around PPT, VCT, HIV prevention, home-based care, violence, multiple concurrent partnerships and alcohol abuse. Pre- and post-test surveys showed positive changes toward gender equitable attitudes that would assist HIV prevention: prior to the workshop, 63% of the men believed that it is acceptable for men to beat their partners; after the workshop, 83% disagreed with the statement; prior to the workshop, 96% of the men believed that they should not interfere in other people's relationships, even if there is violence; after the workshop, all believed they should interfere (Colvin, 2009). (Gray III) (*men, gender norms, condom use, gender relations, violence, South Africa*)

## 2. **Establishing comprehensive post-rape care protocols, which include PEP, can improve services for women.**

- ▶ Implementation of an intervention between 2003 and 2006 consisting of establishing a sexual violence advisory committee, instituting a hospital rape management policy, training for providers, centralizing and coordinating post-rape care in a designated room and community awareness campaigns in **South Africa** resulted in utilization of services from 8 to 13 cases per month. Rape survivors who reported seeing six or more providers on the first visit decreased from 86% to 54%. Chart reviews and patient interview suggested improved quality of history, exam, provision of pregnancy testing, emergency contraception, STI treatment, VCT, PEP, following counseling and referrals. Following the intervention, patients were more likely to report having received PEP, to have received a full 28 day course on their first visit and to have completed the full 28 day regimen. Providing anti-emetics for control of nausea, a common side effect of PEP, may have increased completion of PEP as well. There was a reduction from 28 hours to 18 hours between the assault and receiving the first dose of PEP and 49% of survivors knew that PEP was given to prevent HIV infection, as compared to 13% prior to the intervention. Post-intervention, survivors were 27% more likely to have been given a pregnancy test and 37% more likely to have received any VCT. Project nurses

worked with women's groups, radio and others to distribute information pamphlets to over 14,000 and trained nurses at 15 primary health care clinics to include information on sexual violence and services during health talks for patients waiting for services. The project took place in a rural hospital with a 450-bed district hospital that functions as a referral site for post-rape care. Interviews were conducted with 109 rape survivors, 50 providers and 334 hospital charts were reviewed. Two day training for healthcare workers and other service providers was implemented in 2005. A designated room for treating patients who have been sexually assaulted can reduce delays and increase privacy (Kim et al., 2007a; Kim et al., 2009a). (Gray III) (*violence, rape, pregnancy, counseling, providers, South Africa*)

- ▶ Between 2002 and 2007, a standard of care and a simple post-rape care system was developed in **Kenya**, resulting in 784 survivors of rape accessing services. Client exit interviews conducted with survivors or their guardians in 2005 indicated a high level of satisfaction with post-rape services. In 2002, a situation analysis was conducted. In 2003, there was no policy, no coordination, no confidential spaces for treatment, no service delivery mechanisms for post-rape services in Kenya and PEP was not offered. Formal counseling for sexual trauma did not include HIV testing. Starting in 2003, a standard of care, post-rape algorithms and counseling protocols were developed. Training that included knowledge, skills and values clarification was conducted with clinicians, lab personnel and trauma counselors. Post-rape kits were developed to facilitate the collection of evidence. Services were provided through VCT and casualty department. Services were advertised within public health services. A universal data form became acceptable for legal presentation in Kenyan courts. Since 2006, indicators for post-rape care have been incorporated into national planning. By June 2007, 13 post-rape facilities in Kenya delivered services to over 2,000 adults and children with 96% of those eligible initiating PEP at presentation. The cost of providing post-rape care was estimated at US\$27 per patient, similar to costs for VCT (Kilonzo et al., 2009a). (Gray III) (*violence, rape, pregnancy, counseling, providers, Kenya*)
- ▶ A project in **Kenya** with AMPATH instituted provision of occupational PEP and non-occupational PEP between 2001 and 2006, during which 446 patients sought PEP. Of these 446 patients, 91 sought PEP for occupational exposure. Of the 72 patients who presented for occupational exposure and tested HIV-negative, 69 completed PEP. Of the 296 patients who presented for non-occupational exposure and tested HIV-negative, only 104 completed PEP. Numerous reasons were advanced as contributing to high loss to follow-up in non-occupational cases, such as multiple stops, fees, and confidentiality concerns (Siika et al., 2009). (Gray III) (*post-exposure prophylaxis, Kenya*)
- ▶ Following the introduction of comprehensive post-rape care services, the reporting of rape was ten times higher in the following three months at Thika District Hospital in **Kenya** (Taegtmeyer et al., 2006). (Gray V) (*violence, rape, providers, Kenya*)

3. **Microfinance programs can lead to reduction in gender-based violence when integrated with participatory training on HIV, gender, and violence.**

- ▶ Using a cluster-randomized trial in rural **South Africa**, the Intervention with Microfinance for AIDS and Gender Equity (IMAGE) intervention combined a microfinance program with participatory training on understanding HIV infection, gender norms, domestic violence, and sexuality, which resulted in a reduction in experience of physical or sexual violence by an intimate partner. After 2 years, the risk of past-year physical or sexual violence by an intimate partner was reduced by more than half. Women in the intervention group experienced a substantial reduction in intimate partner violence in the previous 12 months and experienced less controlling behaviors by their partners. At baseline, 11% of the intervention group—22 out of 193 experienced intimate partner violence; at follow-up, only 6%—17 out of 290 participants experienced intimate partner violence. In the comparison group, 9% or 16 out of 177 experienced intimate partner violence in the last twelve months; at follow up, 12% or 30 out of 248 participants experienced intimate partner violence, for an adjusted risk ratio of .45. Fewer individuals in the intervention group reported more than one partner in the past year than did individuals in the comparison group; however, there was no difference in HIV incidence between intervention and comparison groups and there was little evidence that unprotected sexual intercourse at last occurrence with a non-spousal partner in the past 12 months was less common in the intervention group than it was in the comparison groups. The study could not demonstrate in the short term an impact on HIV risk (Pronyk et al., 2006). However, the findings indicate that economic and social empowerment of women can contribute to reductions in intimate partner violence. The study also showed that it is possible to target, even in the short term, the structural determinants of HIV and intimate partner violence in Africa. (Kim et al., 2007b; Croce-Galis, 2008). (Gray II) (*gender norms, microfinance, violence, self-perception, South Africa*)

**Promising Strategies:**

4. **Training teachers about gender-based violence can change norms about acceptance of gender-based violence.**

- ▶ A project in **South Africa** found that training teachers resulted in less teacher sanctioning of gender-based violence and more confidence to raise the issue of gender-based violence in the classroom. Of the teachers who received the training, 47% were women who had previously experienced physical abuse from a partner, while 25% were male teachers who previously reported that they had been physically abusive to a partner. The project trained two representatives from each selected school who in turn trained others. The project also trained all school employees, including administration and the cleaning staff, leading to significant changes in teachers' perceptions about the roles

of school in addressing gender-based violence and greater commitment from school management (Dreyer, 2001 cited in James-Traore et al., 2004). (Gray III) (*violence, teachers, training programs, South Africa*)

- ▶ A Safe Schools project that trained 185 supervisors in **Ghana** and 221 in **Malawi**, along with 359 teachers and 80 students, to recognize, prevent and respond to school-related gender-based violence increased recognition by teachers of sexual harassment from 30% to 80%. In Malawi, at baseline, 70% of girls disagreed with the statement that it was okay for a teacher to get a girl pregnant as long as he married her; post-intervention 90% disagreed with the statement (USAID, 2008a). (Gray III) (*teachers, pregnancy, violence, training programs, Ghana, Malawi*)

#### 5. Multi-media health promotion can increase awareness of violence against women.

- ▶ In **South Africa**, a multi-media health promotion project working with the National Network on Violence against Women, showed an impact on attitudes, help-seeking behaviors, and participation in community action, but not incidence of GBV (possibly because reporting of violence increased as a result of the intervention). The project, Soul City, used edutainment, integrating social issues into entertainment formats such as television or radio. Shows in domestic violence were coupled with advocacy for implementation of the 1998 Domestic Violence Act. Evaluation includes national level pre-post surveys and 29 focus group discussions and 32 in-depth interviews. There was a shift in knowledge regarding domestic violence, including 41% of respondents hearing about the project's helpline. Attitudinal shifts following the intervention include a 10% increase in respondents disagreeing that GBV is a private affair and a 22% shift in perceptions of social norms regarding GBV (Usdin et al., 2005, cited in Rottach et al., 2010). (Gray IV) (*violence, mass media, South Africa*)

#### 6. Integrating HIV prevention into services for abused women may increase condom use.

- ▶ A study that evaluated a six-session HIV prevention workshop with 97 abused women in **South Africa** increased reported condom use. The session was delivered in 90-minute weekly sessions for a total of nine intervention hours. The intervention focused on understanding abuse and links to HIV; condom use; negotiation skills; and economic independence, and included role-playing. The workshops explicitly addressed the possibility that implementing risk reduction strategies such as condom use may place women at greater risk for violence. Following the workshop sessions, the proportion of women reporting unprotected sex decreased from 20% to 14% (Sikkema et al., 2009). (Gray III) (*sexual abuse, violence, condom use, South Africa*)

## Gaps in Programming—Addressing Violence Against Women

1. Interventions that reduce commute times and/or ensure easy and safe access to safe public transportation may lessen the risk of sexual violence among adolescent girls.
2. Strategies are needed to ensure that women are able to complete their PEP regimen.
3. Programs are needed that link interventions addressing HIV/AIDS and child abuse.
4. Interventions are needed to combat gender-based violence of sex workers and IDUs.

1. **Interventions that reduce commute times and/or ensure easy and safe access to safe public transportation may lessen the risk of sexual violence among adolescent girls.** A study found that long commutes for girls increased the risk of sexual violence.
  - ▶ Gap noted, for example, in **Zambia** (Chimuka, 2002).
2. **Strategies are needed to ensure that women are able to complete their PEP regimen.** One study found that travel costs and distance were factors in women not completing their PEP regimen.
  - ▶ Gap noted, for example, in **South Africa** (Carries et al., 2007).
3. **Programs are needed that link interventions addressing HIV/AIDS and child abuse.** One report found that no PEP access guidelines exist for children who were raped and were under the age of 14.
  - ▶ Gap noted, for example, in **South Africa** (HRW, 2003a).
4. **Interventions are needed to combat gender-based violence of sex workers and IDUs.** [*See Chapter 4A. Prevention for Key Affected Populations: Female Sex Workers and 4B. Women Drug Users and Female Partners of Male IDUs*]

## 11C. *Strengthening the Enabling Environment: Transforming Legal Norms to Empower Women, including Marriage, Inheritance and Property Rights*<sup>1</sup>

In many of the countries where women are most at risk for acquiring HIV, laws to protect women are weak (Mukasa and Gathumbi, 2008; Ezer et al., 2006; Ezer et al., 2007). Laws which reinforce the subordinate status of women by denying women the right to divorce, the right to own property, the ability to enter into contracts, to sue and testify in court, to consent to medical treatment and to open a bank account are critical legal rights for women. For example, in Swaziland, fathers are automatically granted custody of children (Ezer et al., 2007), which may make a woman less likely to leave an abusive situation that may place her at risk of HIV acquisition. In Tanzania, the legal age of marriage is 15 years of age for girls, with increased risk for HIV acquisition, as both age and marital status tend to impact condom negotiation (Ezer et al., 2006). Some countries, such as Ethiopia, have reformed their laws to make child marriage under age 18 illegal and established 18 years of age as the legal minimum (Ezer et al., 2006). Now the challenge in Ethiopia is to enforce this new legal minimum (CHANGE, 2009). Women also need the basic right to mobility, i.e., women are not prohibited from accessing transport to services or need permission of male relatives in order to do so. These legal norms directly impact women's risk for HIV. For example, if a woman has no right to divorce, she must stay with a man who may put her at risk for HIV. If a woman cannot own property, she is more likely to have to engage in transactional sex to survive. While being a woman alone denies women their rights in certain countries, these limited rights can be restricted even further if a woman is infected with HIV. In some countries, people living with HIV have little access to the formal legal system (Kalla and Cohen, 2007).

Laws often reflect unequal gender norms that discriminate against women. Legal rights and gender norms must be addressed together because in order to change gender norms, laws must be transformed to empower women with basic legal rights and in order to transform laws in countries where women are disempowered, gender norms must be addressed. Women need knowledge of the legal rights that are in place and women living with HIV particularly need knowledge of their rights. Protecting the legal rights of people living with HIV as well as others at high risk of HIV acquisition, such as same sex partners, sex workers and IDUs,

---

“Without legal rights, a woman can do little to prevent her husband’s relatives from seizing property and land” (Swaminathan et al., 2007).

---

---

<sup>1</sup> As noted in *Chapter 2. Methodology*, the topic of legal reform related to HIV/AIDS did not receive the same systematic review of the legal literature that health-related topics received in the public health and HIV/AIDS literature. Stakeholders wishing to work on legal reform should consult with legal experts. Some references to groups working on legal issues are provided in this section.

is also critical to addressing the AIDS pandemic. [See also Chapter 4. *Prevention for Key Affected Populations*]

### *Criminalization of HIV Can Hinder Prevention, Treatment and Care Efforts*

Recent attempts to criminalize transmission of HIV can also have adverse impacts on women and girls. No evidence exists that HIV-specific criminal laws are effective in preventing transmission and in fact, may be harmful. “[...] Women, who are more likely to be tested for HIV than men...may be disproportionately exposed to the risk of criminalization...when it is precisely because women too often lack autonomy in their sexual relations...that they may be unable to disclose or negotiate safer sex” (Jurgens, 2007b: 53). Criminal liability may be assigned even when safer sex was practiced, HIV status disclosed, or even when the threat of violence precluded disclosure (Clayton et al., 2008). Criminal penalties may create an incentive not to be tested for HIV (Kalla and Cohen, 2007).

Studies have documented discrimination based on HIV status; violations of medical privacy; forced HIV testing; HIV status as a barrier to employment and/or education and/or housing (Mukasa and Gathumbi, 2008); and discrimination in health care settings. [See also 11F. *Reducing Stigma and Discrimination*] A 2007 review of data from 128 country reports on progress towards fulfilling the 2001 Declaration of Commitment on HIV/AIDS found that 59% of countries report laws that cause obstacles for the provision of HIV prevention programs to vulnerable groups, with 42% of countries reporting barriers to accessing services for sex workers, 37% of countries reporting barriers to accessing services for IDUs, 30% for prison inmates and 25% of countries reporting legal barriers for young people to access services. Legal reform to ensure proper support for vulnerable groups is necessary (Gruskin and Ferguson, 2008b).

### *Understanding Legal Systems is Necessary to Determine Entry Points*

Legal frameworks can empower women—for example through laws that ensure nondiscrimination on the basis of sex—but unfortunately laws often do not support women. “In many countries, national laws restrict women’s ability to own, inherit, or dispose of property. Women suffer inequality in access to education, credit, employment and divorce. Legal and social inequality renders women economically dependent on their husbands, leaving them little choice but to remain in relationships where they cannot refuse sex or insist on condom use. Women often sink into poverty upon the death of their husband or the dissolution of their marriage, finding their choices and possibilities so diminished that they have to trade sex for survival or rely on situations of lodging or work that expose them to sexual abuse or violence. Each of these factors places women at a heightened risk of HIV infection” (Jurgens and Cohen, 2007: 2).

It is important to understand the range of legal systems operating around the world when considering promoting legal changes to protect women. Countries, or “political entities,” which can include political subdivisions of countries, operate under a range of legal systems, categorized in various ways, but broadly as Civil Law, Common Law, Customary Law, Religious Law, and Socialist Law (JuriGlobe, 2009). Among these, civil law is the most prevalent system of law in the world, and relies on written law that is codified in statutes or a constitution. Common law,

also widely used worldwide and particularly in countries previously under British colonial rule, gives precedence to case-law, or decisions made by judges, over legislation (JuriGlobe, 2009).

Many countries use mixed systems in which customary and religious laws often exist as components of legal civil or common legal systems. These mixed domains can incorporate discriminatory views against women. Nigeria, for example, has three legal systems with three rivaling jurisdictions: common law, customary law, and Sharia (Muslim) law (JuriGlobe, 2009). A study by UNIFEM found that the three systems make it difficult to protect women's rights. Customary courts were found particularly problematic because they "administer 'justice' based on local social norms, beliefs and practices, resulting in significant variation in customary law and its implementation from one locality to another... to the disadvantage of women" (UNIFEM, 2006). These sorts of nuances should be taken into account in any legal reform process.

Marriage and divorce laws and inheritance and property rights are areas of particular importance for women and require specific action to change the legal norms that keep women unequal to men in the eyes of the law.

### *Marriage and Divorce Laws Need to Protect Women*

Marriage is not a protective factor for reducing risk of HIV transmission. [See *Chapter 3. Prevention for Women*] Marriage laws, including those related to forced marriages, child marriages, polygamy, and divorce, are needed to protect women. Laws protecting wives from violence and non-consensual sex, for example, can help protect women from HIV transmission. For example, in Sierra Leone, "only rape of a virgin is seen as a serious crime. Rape of a married woman or a non-virgin is often not considered a crime at all..." (HRW, 2003a: 65). "With the exception of South Africa, sexual violence laws around the continent fail to recognize rape in marriage as a crime. In countries such as Ghana and Kenya, consent to sex is considered to be implied by marriage, so a husband cannot rape his wife by definition" (HRW, 2003a: 80). The 1999 Federal Constitution of Nigeria discriminates against women. "It encourages child marriage when it proclaims 'every woman who is married shall be regarded as an adult,' while it also encourages spousal abuse when it says that 'wives may be corrected provided grievous harm is not committed'" (UNIFEM 2006: 11). Women's inability or difficulty in obtaining divorce, often coupled with men's ease with divorce, has serious implications for protection of women from HIV transmission. Women's lack of legal rights within marriage is often compounded with custody and maintenance arrangements and lack of property rights upon divorce.

### *Women's Inheritance and Property Rights Must Be Secured*

"Research and intervention strategies are just beginning to consider the role that women's property ownership and inheritance rights might play in potentially breaking the cycle of AIDS and poverty. There is growing evidence to suggest that where women's property rights are upheld, women acting as heads and/or primary caregivers of HIV/AIDS-affected households are better able to manage the impact of AIDS. Additionally, preliminary evidence indicates that such rights may help prevent further spread of HIV/AIDS by promoting women's economic

security and empowerment, thereby reducing their vulnerability to domestic violence, unsafe sex, and other AIDS-related risk factors” (Strickland, 2004: 1).

When women are denied their rights to property, whether in widowhood or desertion by their husbands, they experience deepened poverty and lower social status as a result. This is tragically compounded when they themselves become ill, and they are left destitute without shelter or care (Steinzor, 2003). In Kenya, women rarely own land titles either individually or jointly with their husband. Husbands may sell the matrimonial home without his wife’s knowledge or consent. The lack of equal property rights upon divorce drives women into poverty, thus wives feel they must remain in abusive marriages as they have no property. This dependence also prevents negotiation of safe sex practices and an increase in transactional sex for survival (FIDA Kenya and Georgetown University Law Center, 2009). Interviews with 1,270 widows in India found that only 22% received widow’s compensation, with no legislation to protect property and inheritance rights (Devasahayam et al., 2008). A support group for 100 widows in Kenya found that 60% had lost property after the deaths of their husbands and 20% had either to be inherited by relatives of the deceased or vacate the matrimonial home. Most could not afford legal fees to fight for their rights (WambuiWaweru, 2004). Women in polygamous marriages have additional concerns in accessing property where only one wife is entitled to property (Knox et al., 2007). In some countries, women are excluded from the decision-making process in land disputes as men hold the vast majority of seats in institutions that adjudicate land rights (FIDA Kenya and Georgetown University Law Center, 2009). “Many women are not aware of their legal rights to inherit property nor do [they] have the capacity to have them enforced by the judiciary” (Oja, 2008: 10). Rights-based training for women is underway in a number of countries in sub-Saharan Africa and training is also underway for police and the judiciary to uphold women’s property rights (Oja, 2008). Access by women to pro bono legal assistance is critical (COHRE, 2004).

International treaties, laws, and other instruments that protect women’s inheritance and property rights exist but are not consistently applied. Similarly, existing national laws that protect women’s property rights are often poorly enforced. A random sample of 219 households in rural Uganda with 74 enrolled in focus group discussions from seven villages found that many women are ignorant about the laws that protect them from widow inheritance and protect their property rights (Mabumba et al., 2007). During in-depth interviews with widows, widowers, and traditional leaders in the Ohangwena Region of Namibia, a difference between inherited property (property given by both families to formalize a marriage) and common property (property accumulated during a marriage) became apparent. Common property was often sold during times of hardship while the inherited property was sold as a last resort. Many inheritance disputes are often about who owns the property that came from the spouse’s family. Relatives often take all movable property, such as livestock and furniture, regardless of whether it was inherited or common property.

A 2007 review found that “more data is needed to guide the design and implementation of interventions that will effectively address women’s property rights within the HIV/AIDS context” (Swaminathan et al., 2007: 17). Others have recommended that legal frameworks

recognize women's property rights and secure adequate access to justice for women living with or affected by HIV (COHRE, 2009).

### *Moving Forward Requires Access for Women and Transformation of Legal Frameworks*

Women's access to legal services is critical. Few women have access to legal advice, and current provision of services is often dependent on volunteers or paralegals with limited knowledge of women's rights. These networks train paralegals in the fundamentals of property law and dispute resolution. If legal services are available through health services accessed by women and people living with HIV, more of those in need will have access to legal services (Kalla and Cohen, 2007). The tremendous need for HIV-related legal services in some countries has been well documented (Mukasa and Gathumbi, 2008).

In many countries, reform of constitutional, statutory, and customary laws is needed to guarantee equal rights for women. Constitutional reform is underway in countries such as Kenya, Namibia, and Tanzania, providing an opportunity to change women's rights. Ensuring that laws are consistent with constitutional change is critical. Protective legal frameworks should encompass inheritance, marriage, division of property upon divorce, land use and ownership, and access to housing. Many organizations are working to change written codes using the Committee on the Elimination of Discrimination against Women (CEDAW) as a guide. In Nepal, for example, women's groups pressured leading political parties to protect the right of women to own and inherit property, and this led to a new law, passed in 2002, which gives a wife equal right to her husband's property immediately after marriage. While some customary laws support the equal rights of women, others are discriminatory. In Kenya, for example, customary laws that undermine efforts to improve statutory legislation are allowed by the constitution. Changing customary laws requires efforts to change community attitudes and practices. Furthermore, the constitutions in some countries are progressive and the issue is to challenge statutes that no longer comply with the constitutions.

Efforts to promote women's legal rights should ensure gender-transformative legislation, the promotion of judicial capacity and effective litigation and advancing public awareness (Kim et al., 2008; ARASA, 2009). While numerous countries have constitutions that recognize women's equality and have ratified international and regional human rights treaties, national legislation is not enforced or is superseded by customary law. In these cases, strategic legislation, such as the lawsuit by TAC in South Africa to require provision of ARVs can advance the rights of people living with HIV.

Governments need to establish a gender-sensitive legal framework as a key element of HIV/AIDS policy and programming; one that upholds the human rights of women, including reform of laws and policies that place women at a disadvantage to men. A model legal framework for women's rights in the context of HIV/AIDS has been recently developed by the Canadian HIV/AIDS Legal Network (<http://www.aidslaw.ca/EN/womensrights/english.htm>), and includes four modules related to strengthening the enabling environment: (1) sexual violence, (2) domestic violence, (3), family issues, and (4) property issues. Current efforts to

share gender equitable laws are also available through the International Association of Women Judges (<http://www.iawj.org/>) – working with women judges to ensure promotion and sharing of gender equal laws.

### **What Works—*Strengthening the Enabling Environment*: Transforming Legal Norms to Empower Women, including Marriage, Inheritance and Property Rights**

1. Enforcing laws that allow widows to take control of remaining property can increase their ability to cope with HIV.

#### *Promising Strategies:*

2. Community organizing can help women pursue their legal rights.
3. Integrating legal services into health care can help ensure that women retain their property.

## **EVIDENCE**

1. **Enforcing laws that allow widows to take control of remaining property can increase their ability to cope with HIV.**

- ▶ An overview of 40 organizations working at a national level on property and inheritance rights, based on a survey of 60 community-based organizations in **East and Southern Africa** suggests that where women’s property and inheritance rights are upheld, women acting as heads and/or primary caregivers of HIV/AIDS-affected households are better able to mitigate the negative economic and social consequences of AIDS. Conversely, the denial of property and inheritance rights drastically reduces the capacity for households to mitigate the consequences should a member be infected with HIV. Recommended interventions can be categorized as legislation, litigation and education: activities promoting gender sensitive legislation and a legislative framework that protects women’s human rights; activities enhancing the judicial sector’s capacity to uphold women’s rights and provide for effective litigation; and activities that advance public awareness, understanding, and application of women’s rights (Strickland, 2004). (Gray V) (*property rights, inheritance, East Africa, Southern Africa*)

## Promising Strategies:

### 2. Community organizing can enable women to realize their rights to property and inheritance.

- ▶ An evaluation of GROOTS (Grassroots Organizations Operating Together in Sisterhood) **Kenya**, self-help and community organizations for women in Kenya which formed to strengthen the visibility of women in development and decision-making, found that the intervention resulted in both increased awareness and an increase in the number of women and girls receiving legal support (186 as a result of the intervention compared to 15 in the six months prior to the start of the intervention). The intervention was successful in raising women's participation in their communities around the issue of HIV/AIDS and property and inheritance rights for women and girls. GROOTS Kenya focuses on: property rights, community responses to HIV/AIDS, women's leadership and governance and community resources and livelihoods. The intervention was evaluated through discussion questions administered pre- and post- radio listening group discussion and community discussions, focus group discussions with project beneficiaries and records of paralegals (GROOTS Kenya, 2007). (Gray IV) (*community organizing, legal rights, Kenya*)
- ▶ Property rights are legally protected in Zimbabwe. A non-profit organization trained women and girls on comprehensive legal rights, resulting in 600 women regaining their property (Markham, 2008). (Abstract) (*property rights, peer education, Zimbabwe*)
- ▶ A project in **Kenya** in 2004 to improve the ability of widows to reclaim their property led to 20 widows reclaiming their property. The project mobilized and educated widows; provided training for customary leaders, NGOs, faith based organizations and community groups and held public meetings with media coverage to raise awareness of the issue (Nyong'o and Ongalo, 2005). (Gray IV) (*training programs, property rights, Kenya*)

### 3. Integrating legal services into health care can help ensure that women retain their property.

- ▶ A study in **Zambia** examined the impact of a video-based motivational intervention promoting future planning in 1,504 HIV-positive couples in Lusaka, Zambia and found that motivational messaging integrated into HIV VCT services encouraged future planning. Following a group video session, couples randomized to the motivational arm could choose to write a will, identify a guardian for their children and make financial plans. Desirable behaviors modeled in the motivational video were measured at quarterly intervals for a year and compared in intervention and control arms. Demographic measures including age, income and educational status were not associated with planning behaviors. Participation in the intervention was associated with will writing (23% versus 5%) and naming a guardian (32% versus 17%) but not with other planning behaviors. The intervention was noted if a male, a female or both wrote wills. The study points to the need to expand existing HIV and VCT services to meet other non-health needs of those living with HIV (Stephenson et al., 2008). (Gray III) (*property rights, wills, Zambia*)

## **Gaps in Programming—Transforming Legal Norms to Empower Women, including Marriage, Inheritance and Property Rights**

1. Interventions are needed to increase the knowledge of HIV-positive people—especially women—regarding their rights and provide resources to fight for these rights.
2. Legislation that allows women the right to refuse forced marriage and penalizes marital and non-marital rape may reduce coercive sex and the risk of HIV transmission.
3. Laws prohibiting young age at marriage need to be enacted.
4. Interventions are needed to assist parents dying of AIDS with planning for the future well-being of their children.

1. **Interventions are needed to increase the knowledge of HIV-positive people—especially women—regarding their rights and provide resources to fight for these rights.** Studies found that women had insufficient knowledge of their legal rights and no resources to fight for their legal rights.
  - ▶ Gap noted, for example, in **India** (Devasahayam et al., 2008); **Uganda** (Mabumba et al., 2007); **Kenya** (WambuiWaweru, 2004); and **Zambia, Namibia and Uganda** (Steinzor, 2003, Manchester, 2004).
2. **Legislation that allows women the right to refuse forced marriage and penalizes marital and non-marital rape may reduce coercive sex and the risk of HIV transmission.** Studies found that in some countries, legislation penalizing marital rape does not exist.
  - ▶ Gap noted, for example, in **sub-Saharan Africa** (Kilonzo et al., 2009b; HRW, 2003a).
3. **Laws prohibiting young age at marriage need to be enacted.** Field reports and studies found that child marriage for girls is still common in some countries.
  - ▶ Gap noted globally (CHANGE, 2009, Ezer et al., 2006)
4. **Interventions are needed to assist parents dying of AIDS with planning for the future well-being of their children.** [See Chapter 12B. *Care and Support: Orphans and Vulnerable Children*]

## 11D. *Strengthening the Enabling Environment: Promoting Women’s Employment, Income and Livelihood Opportunities*

Women’s economic dependence on men and unequal access to resources, including land and income-generating opportunities, increases the likelihood of women and girls engaging in a variety of unsafe sexual behaviors including transactional sex, coerced sex, earlier sexual debut, and multiple sexual partners, and thus increases their risk of becoming infected with HIV (Gillespie and Kadiyala, 2005).

### *A Woman’s Economic Stability Can Enhance Her Ability to Insist on Safer Sex*

Married women and women in partnerships often accept risky behavior by their partners due to the need for economic security. A study in Vietnam in 2004 and 2005, consisting of interviews with 23 husbands and 23 wives, along with 15 key informant interviews found that because women needed the economic benefits of marriage, women acquiesced to their husband’s multiple partnerships or purchasing sex with sex workers. Independent sources of income and employment for women may allow women to insist on safe sex (Phinney, 2008). Similarly, a qualitative study in Brazil among women with children enrolled in a day care center found that financial dependence is the factor that most contributes to accepting a man’s multiple sexual partnerships. As one woman put it: “She accepts his infidelity because ...she’s thinking...How will I care for the children? How will I find a job?” (Hebling and Guimaraes, 2004: 1215). The authors point out: “The results show that although women know how they should prevent...AIDS—by using condoms—they feel powerless to do so, since they feel that this depends on the man’s wishes. They admitted that they don’t have the real decision power...where ‘the man always has the final word.’ Fear of separation was associated with loss of financial... stability” (Hebling and Guimaraes, 2004: 1216). A study in South Africa found that the women interviewed claimed that if they had jobs, they would be able to refuse sex to men who refused to wear condoms. The women said, “Poverty makes prostitutes of us” (Susser and Stein, 2000: 1044).

In certain circumstances, providing microfinance for women can reduce unsafe sex (Pronyk et al., 2008). Although there is a need for better indicators to measure the HIV/AIDS-related impact of economic empowerment on women and girls, studies have consistently shown that increasing women’s access to information, skills, technologies, services, social support, and income increased their ability to protect themselves from HIV (Weiss et al., 1996 cited in Weiss and Gupta, 1998; Kaufman et al., 2002).

---

“The owners of the fish nets are men. The woman comes to this man who says ‘You want some fish, give me sex.’ The woman has to feed her family, so she can’t say no.”

—Malawian man (Kathewera-Banda et al., 2006: 655)

---

Condom use is an example of this. Women’s “inability to negotiate [condom use] is closely linked with women’s inferior economic situation: women’s frequent dependency on men renders them more likely to fear abandonment and the destitution that might ensue as a result of confronting or leaving their partners” (Mane et al., 2001: 10). With financial independence, women are better able to negotiate protective behaviors. Women around the world describe economic dependence on men. In the words of a sex worker in India, “I used to think why I should live such a horrible life with him. But I know how difficult it is to survive without any support” (Panchanadeswaran et al., 2008).

The International Community of Women (ICW) network has found that “the most commonly expressed need from women in sub-Saharan Africa is support and training on establishing income-generating projects in the hope that they can earn income which will alleviate the difficulties they face in their day to day lives” (Manchester, 2004: 95). As one HIV-positive woman from Cameroon put it: “We have to look for ways and means to get out of this abyss. Rather than seek alms we must look for an honest livelihood” (ICW, 2000: 11, cited in Manchester, 2004).

Economic empowerment of women and girls requires that they have access to vocational training, and opportunities to develop practical and business skills. Women also need access to financial resources to support the establishment of small businesses. The loans through micro-finance programs are often very small “...and would more accurately be viewed as increasing the ability of households to survive rather than as ‘economic empowerment’....” (Dworkin and Blakenship, 2009: 465). But skill sets taught by microfinance programs, such as assertiveness, recognition of gender norms, etc. may help women negotiate safer sex (Dworkin and Blakenship, 2009).

Finally, in some countries, women (and men) living with HIV face employment discrimination because of their HIV status. For example, some employers require HIV testing as a condition of employment, while others have abused the employment rights of workers who test positive (Human Rights Watch, 2004a; CHANGE, 2009). Laws to protect PLHAs, especially women, from employment and other forms of discrimination must also be enacted and enforced. *[See also 11C. Transforming Legal Norms to Empower Women, including Marriage, Inheritance and Property Rights]*

## What Works—*Strengthening the Enabling Environment: Promoting Women’s Employment, Income and Livelihood Opportunities*

1. Increased employment opportunities, microfinance, or small-scale income-generating activities can reduce behavior that increases HIV risk, particularly among young people.

### *Promising Strategies:*

2. Access to treatment can result in a rapid increase in employment and income for people living with HIV.
3. Engagement of trained women living with HIV can positively impact workplace HIV policies.

## EVIDENCE

### 1. Increased employment opportunities, microfinance, or small-scale income-generating activities can reduce behavior that increases HIV risk, particularly among young people.<sup>2</sup>

- ▶ Secondary analysis of quantitative and qualitative data in **South Africa** from IMAGE (see *Pronyk et al., 2006*) found that after two years of follow-up, young women ages 14 to 35 who had received microfinance loans to establish small businesses, along with training on gender and HIV, were more likely to have accessed VCT and less likely to have had unprotected sex at last intercourse, as well as being more likely to have had more communication concerning HIV with sexual partners and others. “...Data from focus group discussions and key informant interviews indicated a sense of enhanced bargaining power among intervention participants” (p. 1663). Qualitative data from non-participant observation of 160 women attending microfinance loan meetings during one year, focus group discussions, key informant interviews and diaries of training facilitators were used along with quantitative data. One hundred and twelve women in the intervention group and 108 in the control group were followed and interviewed. (Pronyk et al., 2008). (Gray II) (*microfinance, employment, risk behavior, South Africa*)
- ▶ In 2004, a nine-month-long SHAZ! (Shaping the Health of Adolescents in **Zimbabwe**) program provided 16 to 19 year-old poor, out-of-school girls just outside of Harare with an integrated microcredit, HIV education and behavior change program and resulted in increased HIV knowledge, increased equity in relationships, and condom use but low

---

2 Note: In some cases, microcredit can increase violence against women if the intervention is not carefully designed and appropriate to the local context (Schuler et al., 1998; Gupta et al., 2008a).

rates of loan repayment and business success. Zimbabwe's weak economy was blamed for the economic failures (Lukas, 2008). (Gray III) (*adolescents, microcredit, education, Zimbabwe*)

- ▶ In **Haiti**, between 2005 and 2007, 420 women who were screened for HIV infection at GHESKIO, a CSO, of whom 57% were HIV-positive, received a loan from a micro-finance institution following evaluation and training on business development. Of the women, 85% reported that the loans had improved their life conditions. The women were followed for a median of 12 months from the time of the first loan until the most recent clinic visit. Loan repayment was high: 93% for HIV-negative women and 82% for women living with HIV (Deschamps et al., 2008). (Gray IV) (*HIV testing, microfinance, Haiti*)
- ▶ Four years after an income-generating HIV prevention project for youth was initiated in Ewo, **Republic of Congo**, a follow up inquiry found that 24.2% of the youth were still involved in income generating activities. The follow up visit in 2006 used focus groups and a cross sectional survey of 372 young people ages 15–24, selected from four zones through cluster sampling to explore practices associated with risk of HIV in young people. Youth reported that, for those who continued with the income-generating activities, these activities provided them with money and, for some, skills training, which for the girls especially, reduced their dependency on others. Few (5%) reported having sexual intercourse with a new sexual partner without using a condom and this was significantly lower in those currently involved in income generating activities. Young people involved in agriculture, however, reported higher levels of sexual intercourse with a new sexual partner without using a condom. The focus group discussions pointed out that farm activities were carried out in neighboring villages and some on a seasonal basis. This may imply an increase on other risk factors such as insecure income, exposure to non-familiar adults and mobility. Further assessment is needed, however, to understand the factors driving the behavior of the young people involved in agriculture. Researchers found that for the youth in Ewo, there are four dimensions of income generating activities that are reported to be important for reducing susceptibility to HIV: the revenue they earned, the control/autonomy it brings to their lives, the training and new skills and the occupation of time in useful activity. Mobility and exposure to non-familiar adults in insecure forms of activity may counter some of these beneficial effects (Boungou, 2007). (Gray V) (*employment, youth, risk behavior, training programs, Republic of Congo*)
- ▶ A time-usage study in 1999 that analyzed data on education, work, and organized activities among 2,992 youths ages 14–22 in two **South African** districts found that employment opportunities decreased the odds of sexual activity among girls and higher wages for both boys and girls were associated with increased condom use. For example, girls were about one-third less likely to have had sex in the last year in communities where youth generally made more money from working and were almost two and a half times

more likely to report having used a condom. Boys living in communities with higher employment and wage rates were 50% more likely to report having used a condom. Overall, “for most groups, the number of hours spent hanging out is positively associated with having had sex in the last year and negatively associated with condom use” (Kaufman et al., 2002: 16). (Gray III) (*employment, youth, sex behavior, condoms, South Africa*)

### Promising Strategies:

#### 2. Access to treatment can result in a rapid increase in employment and income for people living with HIV.

- ▶ In **India**, access to HAART resulted in a rapid increase in employment and income for 1,319 HIV-positive patients (including those not eligible for HAART) followed between 2005 and 2007. Socioeconomic data were collected but data were not disaggregated by sex. A total of 452 patients initiated treatment and 867 received care and support. At six months after initiation of treatment, patients’ labor force participation rose 26% and weekly hours worked rose 14.5%. Asymptomatic patients receiving counseling and support also experienced significant but smaller increases in employment. At twelve months after treatment initiation, employment increases remained large and significant (Thirumurthy et al., 2008). (Abstract) (*treatment, employment, India*)

#### 3. Engagement of trained women living with HIV can positively impact workplace HIV policies. [See also 11F. Reducing Stigma and Discrimination]

- ▶ Training of 40 women and 80 men living with HIV in 2006 to 2007 who then were involved in consultations for developing workplace policies resulted in commitments by several employers’ organizations and five central trade unions in **India** that included principles of non-discrimination and continued employment of people living with HIV. A message that made an impact was: “If you take away my job, you will kill us faster than the virus” (Mohd, 2008). (Abstract) (*training programs, employment, discrimination, India*)

### Gaps in Programming—Promoting Women’s Employment, Income and Livelihood Opportunities

1. Expansion and scaling up of interventions promoting economic opportunities for women are needed to increase their ability to refuse unsafe sex.

1. **Expansion and scaling up of interventions promoting economic opportunities for women are needed to increase their ability to refuse unsafe sex.** Studies found that lack of income and jobs forced women to sell sex to survive, placing them at risk of HIV acquisition.
  - ▶ Gap noted, for example, in **Vietnam** (Phinney, 2008); **Brazil** (Hebling and Guimaraes, 2004); and **South Africa** (Susser and Stein, 2000).

## 11E. *Strengthening the Enabling Environment:* **Advancing Education**

Increasing the access of girls to education is critical to combating the AIDS pandemic. Education of girls is associated with delayed marriage and childbearing, lower fertility, healthier babies, and increased earning potential. Analysis by the Global Campaign for Education estimates that seven million HIV infections in young people could be averted in a decade, if all children completed primary school (Global Campaign for Education, 2004, cited in UNAIDS et al., 2004). The 2009 report of the Millennium Development Goals (UN, 2009) shows that in the developing world, enrollment coverage was 88 percent in 2007, up from 83 percent in 2000, but still not on track to reach the MDG Goal 2 of achieving universal primary education. Furthermore, in 2007, in the 171 countries with data, only 53 had achieved the target of gender parity in education. An estimated “72 million children worldwide were denied the right to education in 2007. Almost half of these children live in sub-Saharan Africa, followed by Southern Asia, home to 18 million out-of-school children” (UN, 2009) It is estimated that half or more of those children might never have any schooling.

### *Education: The “Window of Hope” in HIV Prevention*

The effectiveness of education as an HIV prevention strategy, which the World Bank calls the “window of hope,” rests upon two key components: (1) greater access to schooling and (2) using schools as a natural place to reach young people with AIDS education and life skills training—practical tools that help them stay safe (World Bank, 2002). “Data compared across countries and regions and disaggregated by education levels show that young women and men with higher levels of education are more likely to have increased knowledge about HIV/AIDS, a better understanding of ways to avoid infection, and an increased likelihood of changing behaviour that puts them at risk of contracting the disease. Thus, it is clear that ensuring quality education for all children is one of the best ways to protect both the rights and the lives of young people threatened by HIV/AIDS” (UNICEF, 2004a). Comprehensive sex education, covered in *Chapter 5. Prevention for Young People*, is also an important component of HIV prevention planning.

DHS surveys from 11 countries found that women with some schooling were nearly five times as likely as uneducated women to have used a condom the last time they had sexual intercourse (Global Campaign for Education, 2004). Literate women are three times more

likely than illiterate women to know that a healthy-looking person can be HIV-positive and four times more likely to know preventive behaviors (Vanandemoortele and Delamonica, 2000 cited in Global Campaign for Education, 2004). While universal primary education is not a substitute for HIV/AIDS treatment and prevention, young people with little or no education may 2.2 times more likely to become HIV-positive as those who have completed primary education (De Walque, 2004 cited in Global Campaign for Education, 2004). Even controlling for income, education's impact on HIV/AIDS is robust. In the five years before the publication, better-educated young people have increased condom use and reduced the number of casual partners at a much steeper rate than those with little or no education (Hargreaves and Glynn, 2002; World Bank, 2002 cited in Global Campaign for Education, 2004).

Yet girls face barriers to staying in school. A study of primary school in Uganda in 2001 found that 51 percent of girls dropped out of primary school due to money needed for school funds, uniforms, textbooks and supplies, among other items, including uniforms and shoes. Some girls receive pressure from their parents to marry (Kasente, 2003). One study found that since 2003 when school fees were abolished in Kenya, girls in schools with free uniforms had a 10 percent decrease in childbearing and a 12 percent decrease in teen marriage (Duflo et al., 2007). Furthermore, lack of sanitary facilities means that girls and female teachers cannot attend school during menstruation” (Adams et al. 2009). An estimated 1 in 10 African girls of school age do not attend school during menstruation or drop out at puberty due to lack of appropriate sanitation facilities in schools (UNICEF, 2005). Further interventions are needed to eliminate these barriers and enable girls to stay in school, for example “school fee abolition strategies to be embedded within country-wide poverty alleviation and growth strategies” (World Bank and UNICEF, 2009: 11), or improving sanitary facilities so girls can attend school when they are menstruating (Adams et al., 2009).

### **What Works—*Strengthening the Enabling Environment: Advancing Education***

1. Increasing educational attainment can help reduce HIV risk among girls.
2. Abolishing school fees enables girls to attend (or stay in) school.
3. Providing life skills-based education can complement formal education in building knowledge and skills to prevent HIV.

## **EVIDENCE**

### **I. Increasing educational attainment can help reduce HIV risk among girls.**

- ▶ A systematic review of published peer-reviewed articles explored the time trends in the association between educational attainment and risk of HIV infection in **sub-Saharan**

**Africa** and found that HIV infections appear to be shifting towards higher prevalence among the least educated in sub-Saharan Africa, reversing previous patterns. Articles were identified that reported original data comparing individually measured educational attainment and HIV status among at least 300 individuals representative of the general population of countries or regions of sub-Saharan Africa. Statistical analyses were required to adjust for potential confounders but not over-adjust for variables on the causal pathway. Approximately 4000 abstracts and 1200 full papers were reviewed. Thirty-six articles were included in the study, containing data on 72 discrete populations from 11 countries between 1987 and 2003, representing over 200,000 individuals. Studies on data collected prior to 1996 generally found either no association or the highest risk of HIV infection among the most educated. Studies conducted from 1996 onwards were more likely to find a lower risk of HIV infection among the most educated. Where data over time were available, HIV prevalence fell more consistently among highly educated groups than among less educated groups, in whom HIV prevalence sometimes rose while overall population prevalence was falling. In several populations, associations suggesting greater HIV risk in the more educated at earlier time points were replaced by weaker associations later (Hargreaves et al., 2008a). (Gray I) (*education, sub-Saharan Africa*)

- ▶ A 2001 cluster-randomized study evaluated the impact of school attendance on the sexual risk behaviors and HIV prevalence of 916 males and 1,003 females between the ages of 14 and 25 in rural Limpopo Province, **South Africa**, where HIV prevalence in antenatal clinics was 13.2 percent. The study found that school attendance correlates with lower HIV prevalence among males, fewer sexual partners for both sexes, and among females, a lower likelihood of having partners who are more than three years older, more frequent condom use, and less frequent sex within relationships. Because students did not have greater access to HIV prevention materials than non-students, the study suggests that school attendance may have a protective effect on HIV risk by affecting the sexual network structure of young people. “School attendance might affect communication within sexual networks, in turn helping to improve confidence, self-efficacy and the adoption of safer sexual behaviors. It might also increase group negotiation of positive attitudes toward positive behaviors, by putting young people in regular contact with each other in a structural environment,” (Hargreaves et al., 2008b: 118). Women from very poor households were less likely to be students. Among study participants, HIV prevalence rates were 3.4% for men and 9.8% for women, increasing over the age range (Hargreaves et al., 2008b). (Gray II) (*youth, education, sex behavior, risk behavior, South Africa*)
- ▶ A 2003 household survey of 1,708 15–24 year-old women in **South Africa** who were sexually experienced but only had one lifetime partner (typically considered “low risk” for HIV) found that women who had not completed high school were more likely to be HIV-positive by odds of 3.75 than those who had completed high school. Fifteen percent

of the women surveyed were HIV-positive, and 77.5 percent had not completed high school (Pettifor et al., 2008a). (Gray IV) (*sexual partners, education, South Africa*)

- ▶ Data from a longitudinal HIV surveillance and a linked demographic surveillance in a poor rural community in KwaZulu-Natal, **South Africa**, showed that in multivariable survival analysis, one additional year of education reduced the hazard of acquiring HIV by 7% net of sex, age, wealth, household expenditure, rural vs. urban/periurban residence, migration status and partnership status. The purpose of the study was to investigate the effect of three measures of socioeconomic status on HIV incidence: educational attainment, household wealth categories (based on a ranking of households on an assets index scale) and per capita household expenditure, the sample comprised of 3325 individuals who tested HIV-negative at baseline and either HIV-negative or -positive on a second test (on average 1.3 years later). Holding other factors equal, members of households that fell into the middle 40% of relative wealth had a 72% higher hazard of HIV acquisition than members of the 40% poorest households. Per capita household expenditure did not significantly affect HIV incidence. The results suggest that increasing educational attainment in the general population may lower HIV incidence (Bärnighausen et al., 2007). (Gray III) (*education, income, South Africa*)
- ▶ A study of key findings from nationally representative surveys conducted in 2004 of 5,950 young people ages 12 to 19 in **Burkina Faso**; 4,252 in **Ghana**; 4,012 in **Malawi** and 5,065 in **Uganda** found that formal education was positively associated with protective behaviors such as delaying first sex, abstaining from sex and using condoms. Surveys were supplemented with 16 focus groups each in Burkina Faso and Ghana, 11 focus groups in Malawi and 12 focus groups in Uganda. The research team also conducted 406 in-depth interviews with adolescents and 240 in-depth interviews with key adults in the lives of the adolescents (Biddlecom et al., 2007). (Gray IV) (*education, sex behavior, condoms, abstinence, Burkina Faso, Ghana, Malawi, Uganda*)
- ▶ A study in **Ethiopia** of 35,512 VCT clients of Family Guidance Association of Ethiopia found that male and female VCT clients with more than secondary level education are 58% and 66% (respectively) less likely to be HIV-positive than those with no education (Bradley et al., 2007). (Gray V) (*education, counseling, HIV testing, Ethiopia*)
- ▶ Evidence from population-based surveys in **Zambia** (1995–2003) shows a marked decline in HIV prevalence among higher educated young people. Data are from serial population-based HIV surveys conducted in selected urban and rural communities in 1995 (n = 2989), 1999 (n = 3506) and 2003 (n = 4442). Analyses were stratified by residence, sex and age group. Logistic regression was used to estimate age-adjusted odds ratio of HIV between low (< or = 4 school years) and higher education (> or = 8 years) for the rural population and between low (< or = 7 school years) and higher education (> or = 11 years) for the urban population. Results show there was a universal shift towards reduced risk of HIV infection in groups with higher than lower education in

both sexes among urban young people in men and in women. A similar pattern was observed in rural young men but was less prominent and not statistically significant in rural women. In age 25–49 years, higher educated urban men had reduced risk in 2003 but this was less prominent in women. The findings suggested a shift in the association between educational attainment and HIV infection between 1995 and 2003. The most convincing sign was the risk reduction among more educated younger groups where most infections can be assumed to be recent. The changes in older groups are probably largely influenced by differential mortality rates. The stable risk among groups with lower education might also indicate limitations in past preventive efforts (Michelo et al., 2006). (Gray III) (*education, Zambia*)

- ▶ Cross sectional data from a population-based survey with 9,843 adults (80% of those eligible) including 2,268 young women large-scale, conducted between 1998 and 2000 in rural **Zimbabwe** found that young women’s chances of having avoided HIV were strongly associated with experience of secondary education. “Young women with higher levels of school education...had better knowledge about HIV...(and) young women with greater knowledge about HIV” were more likely not to have started sex and to have avoided HIV (Gregson et al., 2004, p. 2126). Greater education was positively associated with self-efficacy in both married and unmarried young women (Gregson et al., 2004). (Gray V) (*education, self-perception, Zimbabwe*)
- ▶ DHS surveys from **11 countries** found that women with some schooling were nearly five times as likely as uneducated women to have used a condom the last time they had sexual intercourse (Global Campaign for Education, 2004). Literate women are three times more likely than illiterate women to know that a healthy-looking person can be HIV-positive and four times more likely to know preventive behaviors (Vanandemoortele and Delamonica, 2000 cited in Global Campaign for Education, 2004). While universal primary education is not a substitute for HIV/AIDS treatment and prevention, young people with little or no education may 2.2 times more likely to become HIV-positive as those who have completed primary education (De Walque, 2004 cited in Global Campaign for Education, 2004). Even controlling for income, education’s impact on HIV/AIDS is robust. In the five years before the publication, better-educated young people have increased condom use and reduced the number of casual partners at a much steeper rate than those with little or no education (Hargreaves and Glynn, 2002; World Bank, 2002 cited in Global Campaign for Education, 2004). (Gray V) (*education, condoms, protective behavior*)

## 2. Abolishing school fees can enable girls to attend (or stay in) school.

- ▶ A 2009 World Bank and UNICEF study evaluated the impact of primary school fee abolition in five African countries. **Ethiopia** abolished primary school fees in 1994, **Ghana** in 1995, **Kenya** in 2003, **Malawi** in 1994, and **Mozambique** began implementation in 2004. Fees were abolished in all countries for grades 1 through 7, with several

countries extending the fee abolition to higher grades. Fee abolition resulted in a 23% increase in total enrolment from 1994/95 to 1995/1996 in Ethiopia, a 14% increase in total enrolment from 2004/2005 in Ghana, an 18% increase from 2002/03 to 2003/04 in Kenya, a 51% increase from 1993/94 to 1994/95 in Malawi, and a 12% increase from 2003/04 to 2004/2005 in Mozambique. The ratio of girls to boys enrolled in primary school increased in Ethiopia from 0.61 girls to 1 boy in 1994/95 to a ratio of 0.79 girls to 1 boy in 2004/2005. The increase in the ratio of girls to boys was insignificant in the other countries (The World Bank and UNICEF, 2009). (Gray III) (*education, school fees, Ethiopia, Ghana, Kenya, Malawi, Mozambique*)

- ▶ The most successful strategy for increasing access to education and lowering HIV vulnerability, particularly for girls, has been the elimination of school fees, which otherwise put education out of reach for many families. In **Tanzania**, the removal of school fees more than doubled primary school enrollment. **Kenya** saw enrollment jump by 22% in the first week alone with their abolition. In **Uganda**, girls' school enrollment leapt by over 30% when school fees were dropped, including a near doubling for the poorest economic fifth of girls (Burns et al., 2003; UNICEF, 2005; Deininger, 2003; Bundy and Kattan, 2005, cited in Global Coalition on Women and AIDS, year not specified). (Gray V) (*education, school fees, Tanzania, Kenya, Uganda*)

### 3. **Providing life skills-based education can complement formal education in building knowledge and skills to prevent HIV.** [See Chapter 5. Prevention for Young People]

#### **Gaps in Programming—Education**

1. Successful efforts to increase educational attainment for girls must be scaled up.
2. Interventions are needed for school children that suffer from violence on the way or at school.

#### 1. **Successful efforts to increase educational attainment for girls must be scaled up.** [See also Chapter 12B. *Care and Support: Orphans and Vulnerable Children*] Studies and surveys found that girls lag behind boys in educational attainment.

- ▶ Gap noted, for example, in 11 DHS countries (Hargreaves and Glenn, 2002; World Bank, 2002 cited in Global Campaign for Education, 2004).

#### 2. **Interventions are needed for school children that suffer from violence on the way to or at school.** [See also 11B. *Addressing Violence Against Women*] Studies found that girls suffer from violence both on the way and at school.

- ▶ Gap noted, for example, generally (WHO, 2006 cited in USAID, 2008a; USAID, 2008a). Increased recognition of sexual harassment by students was found in Ghana, but no HIV related outcomes were studied (USAID, 2008a).

## 11F. *Strengthening the Enabling Environment:* **Reducing Stigma and Discrimination**

Stigma and discrimination have been identified as tremendous barriers to addressing HIV/AIDS (Mann, 1999; Paxton et al., 2004a and b). Stigma was defined by Goffman (1963) as a discrediting attribute about an individual or group that serves to devalue that person or group in the eyes of society. Parker and Aggleton (2002) suggest that stigmatization and discrimination are manifest in a number of contexts, including within families, communities, schools, employment, travel/migration opportunities, health care settings, and HIV/AIDS programs. Hardee et al. (2009b) found remarkably consistent views related to people living with HIV and AIDS in a national survey in China, suggesting that stigma and discrimination can be pervasive in societies. Internalized stigma is the shame, guilt or fear that results from discrimination and can also affect family members and health providers. Internalized stigma may deter people from accessing needed HIV services (Brouard and Willis, 2006).

### *Stigma Affects Prevention Behaviors*

In a review of interventions to reduce HIV/AIDS stigma, Brown et al., (2003) noted that stigma affects prevention behaviors, test-seeking, care-seeking, quality of care provided to HIV-positive clients, and perceptions and treatment of people living with HIV and AIDS by communities and families. They and others, including Parker et al. (2002), contend that HIV/AIDS-related

---

“No matter where I go,  
there’s always someone who  
will reject me.”  
—HIV-positive woman, Cuba  
(Castro et al., 2007: S52)

---

stigma is often layered upon other stigma, for example, that HIV is associated with engaging in illegal behavior such as sex work and drug use. A study in China with 10 AIDS health professionals and 21 adults living with HIV found that the Chinese public assumes that any woman who has HIV is a sex worker (Zhou, 2008). Women are often considered to face the double stigma and discrimination associated with HIV and their inferior status to men in society (Armistead et al., 2008). [See also 11A. *Transforming Gender Norms*] A

study of 2,369 men and women in India at high risk for HIV found that women reported higher perceived community HIV/AIDS stigma than men (Zelaya et al., 2008). Findings from a qualitative research study conducted in 2003 in Vietnam found that “women living with HIV and AIDS tend to be more highly stigmatized than men...While women tend to be ‘blamed’ for acquiring HIV and AIDS, men are often forgiven by family and society. The consequences of stigma are also more severe for women, who are more frequently sent away from their

families and separated from their children than men are” (Hong et al., 2004: 2). A qualitative study conducted from 2001 to 2003 in rural and urban Ethiopia, Tanzania, and Zambia with structured text analysis of more than 650 interviews, and 80 focus group discussions, and a quantitative analysis of 400 survey respondents found that “constraints are particularly acute for young, married women with HIV who try to balance the stigma of being HIV-positive with the reality that childbearing is often their only route to social status and economic support” (Nyblade et al., 2003: 51).

In the words of an HIV-positive man who is an injecting drug user, “Men are forgiven. Women would not be forgiven. Women are blamed even if they are unlucky and sleep with a husband who used to sleep with many girlfriends or is an IDU and brought the disease to his wife” (Nguyen et al., 2009: 146). An HIV-positive woman tested in a PMTCT program in Malawi explained that, “In the community few people accept HIV-positive mothers. They think you are HIV-positive because you were just moving around and sleeping with a lot of men. They keep gossiping about you. Some even do witchcraft against you so you die faster. It is thus better that you keep your HIV status for yourself without telling others” (Bwirire et al., 2008: 1197). A cross-sectional survey of 148 youth living with HIV/AIDS in Kinshasa, Democratic Republic of the Congo (DRC), of whom 79% were female, found that females reported more personalized stigma and stigma related to public attitudes compared to males (Mupenda et al., 2008). Yet, many studies of stigma and discrimination do not collect sex-disaggregated data, making it difficult to determine differential experiences that men and women face.

### *Misconceptions About HIV Continue to Exacerbate Stigma and Discrimination*

Inadequate information about how HIV is transmitted adds needlessly to the stigmatization and discrimination faced by people living with HIV. For example, findings from a qualitative research study conducted in 2003 in Vietnam found that lack of detailed understanding of the routes of HIV transmission led to isolation and rejection of people living with HIV and AIDS, avoidance of their goods and services, and secondary stigma against their family members and children. Further, many families of people who are HIV-positive or have AIDS take unnecessary ‘preventive’ measures, such as eating separately, adding needlessly to the already significant emotional, economic and time-related burdens of care-giving (Hong et al., 2004). In Mali, “...the fact that social transmission (through sharing of food, bowls, latrines, blankets and clothes) was widely thought to be feasible is probably related to the perceived need to quarantine suspected AIDS cases...” (Castle, 2004: 6). It’s critical to educate parents and teachers so they can accurately educate young people as well. Interviews and focus groups in Mali found that three-fourths of the teachers in the study held mistaken beliefs about methods of HIV transmission that they then communicated to their students (Castle, 2004).

Interventions to combat stigma should include interventions for *individuals*, which create awareness of what is stigma and the benefits of reducing stigma, *environmental* interventions, i.e., meeting the need for information, supplies and training; and *structural*, i.e., addressing policies and laws (Nyblade, 2009). “Understanding the association of HIV and AIDS with assumed immoral and improper behaviors is essential to confronting perceptions that

promote stigmatizing attitudes towards individuals living with HIV” (Nyblade et al., 2009: 4). The Commission on AIDS in Asia reviewed over 5,000 papers; commissioned 30 papers; surveyed 600 members of civil society; conducted five country missions and held two sub-regional workshops and concluded that it is crucial to “avoid programmes that accentuate AIDS-related stigma...Such programs may include ‘crack-downs’ on red-light areas and arrest sex workers, large-scale arrests of young drug users under the ‘war on drugs’ programs and mandatory testing for HIV” (Report of the Commission on AIDS in Asia, 2008: 17). A 2008 review of published literature on stigma in the HIV/AIDS epidemic that included 390 articles, of which 176 were either global in scope or were in a developing country context, found that “there are only a small number of published studies on interventions and programmes designed to reduce HIV/AIDS stigma” (Mahajan et al., 2008: S74). An earlier review in 2003 found that among 22 relevant studies, “No study looked at different messages that could be tailored to men and women, nor were there any efforts to compare differential impact of male versus female contacts for different gendered audiences” (Brown et al., 2003: 66).

With the introduction and expansion of antiretroviral treatment, there was hope that stigma and discrimination would decline, however, “despite ongoing research, there is not yet conclusive evidence to support this hope” (Gruskin et al., 2007b: 12). A household probability sample of individuals ages 18–32 with 14,657 participants from Thailand, Zimbabwe, Tanzania, and South Africa found that lack of knowledge of antiretroviral therapy was significantly associated with increased personal endorsement of stigma towards people living with HIV in all sites (Genberg et al., 2008). What is clear is that reducing stigma improves quality of life for women living with HIV, especially in the realms of employment and schooling, in addition to improving quality of life within families and communities.

[See also *Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living with HIV*, *Chapter 9. Safe Motherhood and Prevention of Vertical Transmission*, and *Chapter 13. Structuring Health Services to Meet Women’s Needs* for further discussion of stigma as it relates to those topics.]

## **What Works—*Strengthening the Enabling Environment*: Reducing Stigma and Discrimination**

1. Community-based interventions that provide accurate information about HIV transmission (especially that casual contact cannot transmit the virus) can significantly reduce HIV stigma and discrimination.
2. Training for providers can reduce discrimination against people with HIV/AIDS.

### *Promising Strategies:*

3. Couple and family counseling, in addition to individual counseling for people living with HIV, can reduce stigma within households.
4. Implementation of non-discriminatory workplace policies may reduce stigma and discrimination.
5. Recruited opinion leaders can reduce stigmatizing behaviors in the community.
6. Support groups for people living with HIV in IDP camps, along with VCT and counseling, may reduce stigma.
7. Support to voluntarily disclose positive serostatus increases HIV-positive people's ability to cope and access treatment regimens and reduces perceived stigma in the community.

## **EVIDENCE**

1. **Community-based interventions that provide accurate information about HIV transmission (especially that casual contact cannot transmit the virus) can significantly reduce HIV stigma and discrimination.**
  - ▶ A study and intervention in two communities in Vietnam found that project interventions led to a significant increase in awareness of stigma, reduction in fear of becoming infected with HIV through casual contact with HIV-positive people and stigma and intentions concerning stigmatizing behavior. Better, more complete knowledge of how HIV was not transmitted translated into a greater degree of acceptance of people living with HIV and their family members. Stigma was so strong in these communities that no one was open about their HIV-positive serostatus. The intervention consisted of a workshop with community leaders to sensitize leaders on the impact of stigma and to provide knowledge on HIV and to meet people living with HIV. Each community designed activities to reduce stigma: distributing an HIV and stigma fact sheet; meetings; posters; drama; school sessions for students and teacher; and support groups for

people living with HIV. 35 focus group discussions and 97 in-depth interviews were conducted with people living with HIV, family members and community members. 700 in each community were sampled at prior to the intervention and at the end of the project, fourteen months later. Prior to the project, people living with HIV reported not accessing health services due to fear of disclosure of their serostatus. Exposure to multiple activities led to greater increases in stigma reduction. However, the intervention was less effective in reducing blame toward HIV-positive people, especially sex workers and IDUs (Nyblade et al., 2008). (Gray III) (*knowledge, stigma, Vietnam*)

- ▶ Between 2004 and 2006, a project in Thailand that paired HIV-positive with an HIV-negative partner to receive loans to create a small business found that HIV-negative partners reported greater willingness to participate in activities with HIV-positive people. Within a few months, the percent of people involved in the project who said they would be comfortable visiting a house of an HIV-positive person increased from 20% to 90%. HIV-positive partners reported they no longer felt they had to accept discrimination. People living with HIV who participated in the project reported improvements in quality of life, as well as in their economic, social, physical and mental well being between 2004 and 2006. In addition, 91% of the loans have been repaid on time. Both partners needed training in basic business skills. Women comprise the majority of the participants. More than 42% of all participants paired two women and 39% were composed of one man and one woman (UNAIDS, 2007b; Wolf et al., 2008). (Gray III) (*knowledge, stigma, microfinance, Thailand*)
- ▶ An intervention from 2005 to 2007 with 2,800 school children ages 12 to 15 in rural schools in **Bosnia and Herzegovina** that increased knowledge on HIV transmission via bodily fluids decreased the fear of socializing with HIV-positive people from 46% at baseline to under 13% by the end of project surveys. 150 pupils, aged 13 to 14, 62% girls and 38% boys were surveyed at the beginning of the project and at the end (Pancic, 2008). (Gray III) (*adolescents, knowledge, stigma, Bosnia, Herzegovina*)

## 2. Training for providers can reduce discrimination against people with HIV/AIDS.

- ▶ A study in **Vietnam** that provided training to 975 hospital workers who received a one and a half day training on HIV and universal precautions, along with testimonials from people living with HIV and training to 617 hospital workers who received the same training with an additional half day training on social stigma co-facilitated by people living with HIV found that both interventions were successful in reducing discriminatory behaviors and hospital practices, with the additional half day training on stigma resulting in a greater impact on reducing discrimination and stigma. For example, hospital workers who felt that HIV/AIDS is a punishment for bad behavior declined in one hospital from 44% before the intervention to 19%. The hospital workers who had additional stigma training were 2.3 times less likely to report placing signs on beds indicating HIV status than hospital workers without the stigma training. Training also

used the resource “Understanding and Challenging HIV Stigma: A Toolkit for Action” (Kidd et al., 2007; <http://www.icrw.org/docs/2003-StigmaToolkit.pdf>). The intervention also provided sharps containers for safe needle disposal as well as providing hospital workers with a manual on the “safe and friendly hospital worker in the presence of HIV/AIDS”. Guidelines for testing for HIV were created and having hospital policies in place reduced stigma. Approximately 70% of hospital workers were women. (Oanh et al., 2008). (Gray III) (*providers, training programs, discrimination, stigma, Vietnam*)

- ▶ Training for service providers in county hospitals Yunnan, **China** resulted in a stronger belief in patient confidentiality, reduced fear of people living with HIV and better knowledge and practice of universal precautions. 13 providers were assigned to an intervention or control group and followed for six months (Li et al., 2008). (Gray III) (*providers, knowledge, China*)
- ▶ A training of trainers for 45 nurse leaders in **Vietnam** from 2005 to 2007 with three-week training workshops including practice resulted in increased willingness to care for HIV-positive patients according to pre- and post-test evaluations. Between 2006 and 2007 the nurse trainers trained an additional 20,488 additional health care providers (Le et al., 2008). (Gray III) (*providers, training programs, Vietnam*)
- ▶ A pre-post test study in **India** of training for health workers in a hospital in India with a survey for 885 health workers resulted in less stigmatizing attitudes and practices by health workers. Based on interviews with health workers and HIV-positive patients, the project developed a “PLHA Friendly Checklist” (<http://www.popcouncil.org/pdfs/horizons/pfechklist.pdf>) and trained health workers. When presented with data from their hospital, managers instituted hospital-wide initiatives to combat stigma and discrimination. The number of ward staff who reported that HIV cannot be transmitted by touching someone with HIV increased significantly from 80% to 96%. After the intervention, doctors were more likely to agree that patients should not be tested for HIV without consent, increasing from 37% to 67%. Following training, a significantly greater proportion of doctors reported that they always arranged pre-test counseling (from 31% to 46%) and post-test counseling (56% to 69%). Following training, more doctors wore gloves (64% to 93%) and more ward staff wore gloves to carry blood samples (29% to 93%) (Mahendra et al., 2006). (Gray III) (*providers, training programs, stigma, discrimination, India*)

### Promising Strategies:

3. **Couple and family counseling, in addition to individual counseling for people living with HIV, can reduce stigma within households.**
  - ▶ YRGCare in Chennai, **India**, a nonprofit HIV counseling, testing and treatment center found that HIV-positive individuals reported that couple and family counseling was

beneficial in addition to individual counseling for reducing stigma within the household. Thirteen thousand patients have received counseling. Five thousand six hundred sixty-seven patients living with HIV/AIDS have been followed longitudinally since 1993 with medical and psychosocial care. Seven hundred fifty-four couples accessed couples counseling and 698 accessed family counseling. Disclosure, pressure to have children by family members unaware of their serostatus, discrimination, and hiding medication, which can alert others to their serostatus, were issues addressed (James et al., 2004). (Gray III) (*stigma, discrimination, counseling, couples, India*)

#### 4. Implementation of non-discriminatory workplace policies may reduce stigma and discrimination.

- ▶ With the technical support of the International Labor Organization (ILO), ten enterprises in six sectors of the economy of **Nepal** implemented HIV/AIDS workplace policies. While only 73% of workers were willing to work with an HIV-positive co-worker prior to workplace policies, following implementation of workplace policies this increased significantly to over 94%. Worker's views that employers should not fire HIV-positive workers increased from 61% to 81% (Singh, 2008). (Gray IV) (*employment, policies, Nepal*)
- ▶ A program established in 2003 in **Thailand** to create formal company HIV/AIDS policies and implement awareness and education for managers and employees found that acceptance in working with HIV-positive colleagues, such as sharing a meal, increased from 40% in 2005 to 95% after implementation (no dates given). Employees' reported condom use in casual sexual encounters also increased from 16% to 49% (Pramualratana, 2008). (Gray IV) (*employment, policies, education, condom use, Thailand*)

#### 5. Recruited opinion leaders can reduce stigmatizing behaviors in the community.

- ▶ A cluster-randomized behavioral intervention trial conducted in 14 villages in Anhui province, **China** found that recruited opinion leaders reduced the prevalence of stigmatizing behaviors observed and reported by community members. Seven villages were randomized to receive the intervention which consisted of four weeks of training for 742 opinion leaders followed by monthly reunion sessions, as well as eight weeks of skills training and monthly reunions for 150 people living with HIV. 330 people living with HIV were followed for one year in both control and intervention villages. Three cross-sectional surveys were carried out among 950 randomly selected villagers. At 12 months, the prevalence of stigmatizing behaviors observed and reported by community members was significantly lower in intervention villages at fewer than 42% compared to 56% in control villages. The intervention achieved a reduction in reported stigma of 27%. Reports from people living with HIV indicated corresponding decreased in perceived stigma, with significantly reduced perception of stigmatizing behaviors (Xu et al., 2008). (Gray II) (*opinion leaders, stigma, China*)

6. **Support groups for people living with HIV may reduce stigma.** [*See also Chapter 7. Treatment*]
- ▶ Following violence in **Kenya**, VCT services were established, with counseling and access to antiretroviral therapy for those who tested HIV-positive. Support groups for 100 women and 45 men living with HIV had reduced stigma. Along with ART, nutrition is key to supplement relief efforts (Wambete and Ptoch, 2008). (Gray V) (*violence, counseling, testing, support groups, antiretrovirals, nutrition, Kenya*)
7. **Support to voluntarily disclose positive serostatus, and continued support, increases HIV-positive women’s ability to cope and access treatment regimens and reduces perceived stigma in the community.**
- ▶ A study carried out from 1999 to 2001 in **Thailand**, with 329 HIV-positive women found that HIV-positive women who reported that they could disclose their HIV serostatus gained increased acceptance and support from family and community, accessed support groups that increased their ability to cope with the disease, and increased their access to treatment regimens. Of the 329 women, 57% participated in one or more HIV-positive support groups. One woman stated: “At that time, when I knew I was HIV-positive, I thought, how could I live! Then, I had a chance to learn about a support group. I joined this group. I feel good cause I can meet others who’re the same as me...” (p. 37). Another stated: “I can get more knowledge from others who have had the same experiences. I feel that there are many people living with HIV, not only me. I feel warm when I join in the group” (p. 37–38) One woman stated: “In the village, everybody knew my HIV status. At first, they did not accept me, but now they have a good relationship with me. I can eat and talk with them. I think that I can live well in the village” (p. 37). The women were interviewed using a structured questionnaire. In-depth interviews were conducted among 60 HIV-positive women. Four participatory workshops were held on data analysis and report writing. A week long counseling training session was held for the women conducting interviews. Women interviewed were selected non-randomly from support groups, clinics, ANC clinics, NGOs, and communities using dimensional sampling method. The dimensions used were ages 15–25, 26–35, or 36–49, and number of years from diagnosis. Women who met the criteria for both dimensions were selected based on convenient or snowball sampling techniques. Six focus group discussions were held with six to eight men (Yoddumnern-Attig et al., 2004). (Gray IV) (*stigma, discrimination, disclosure, Thailand*)
  - ▶ A qualitative study of interviews with 75 HIV-positive people (43 females, 32 males) from 20 countries, including **Australia, Botswana, India, Kenya, South Africa, Thailand, Uganda, Zambia, and Zimbabwe**, conducted between 1997 and 1999, found that immediately following diagnosis, most respondents felt shame and a sense of worthlessness. Most carefully guarded the secret of their serostatus for fear of negative repercussions. The average time between diagnosis and public disclosure was 2.6 years, as most people needed to time to talk through their fears with peers or a counselor. Motivation for

disclosure was to prevent further infections, challenge stigma, or both. Contributing to community AIDS prevention provides a sense of purpose for many of those interviewed: “It makes you feel like you’ve done something worthwhile” (Paxton, 2002: 564). (Gray III) (*stigma, discrimination, disclosure, Australia, Botswana, India, Kenya, South Africa, Thailand, Uganda, Zambia, Zimbabwe*)

### Gaps in Programming—Reducing Stigma and Discrimination

1. Further interventions and research are needed to reduce stigma and discrimination against women, specifically, who are at high risk or living with HIV.
2. Judicial action, legislation, and training on legal rights can protect people living with HIV from discrimination.
3. Provision of ART can reduce stigma, but additional interventions are needed.

1. **Further interventions are needed to reduce stigma and discrimination against women, specifically, who are at high risk or living with HIV.** [See also Chapter 9C-2. *Safe Motherhood and Prevention of Vertical Transmission: Treatment*] Studies found that women and girls are highly stigmatized if they test positive for HIV.
2. **Judicial action, legislation, and training on legal rights can protect people living with HIV from discrimination.** Studies found that people reported being denied housing or being evicted for testing HIV-positive but that peer education on legal rights may increase protect people from discrimination.
  - ▶ Gap noted, for example, in **Brazil** (Dultra et al., 2008); and **Ethiopia, Tanzania and Zambia** (Nyblade et al., 2003).
3. **Provision of ART can reduce stigma, but additional interventions are needed.** Studies found that lack of knowledge of ARV treatment increased stigma, but that ARV treatment alone did not eliminate stigma and discrimination.
  - ▶ Gap noted, for example, in **Thailand, Zimbabwe, Tanzania, and South Africa** (Genberg et al., 2008); and **Tanzania** (Roura et al., 2008).

## 11G. *Strengthening the Enabling Environment: Promoting Women’s Leadership*

Strengthening women’s NGOs and women leaders who can mobilize in-country efforts in the interests of women and girls who are affected by HIV is critical. Fostering social capital among and within these groups is also important. Just as the gay movement in the U.S. spurred activism and cohesion around HIV and AIDS early in the epidemic (Fauci, in Goldman, 2008), women in the Global South need support for the NGOs that can provide this mobilization of support and attention (Wellings et al., 2006). However, social capital, through participation in groups, can have positive as well as negative outcomes (Szreter and Woolcock, 2004; Pearce and Smith, 2003). Smith and Rimal (2009: 141) put it succinctly that “integration into a social system can serve to smother or inspire.” For women, integration in groups dominated by male leadership can serve to smother.

---

“While before I had been a victim and doomed, I started to become an actor in the fight against this terrible illness through my active participation in prevention campaigns.”

—Efficace, HIV-positive woman, Cameroon (Offe and van Roenne, 2007: 7)

---

### *Positive Women Deserve Meaningful Involvement in the Response to HIV and AIDS*

In most support groups and networks of people with HIV, women make up the vast majority of members of the networks yet the paid or elected positions are filled mostly by men (Manchester, 2004). Women living with HIV want substantial and meaningful involvement in policy and program design and implementation, rather than just to be included as honorary speakers or advisory members. As Fria Chika Islandar, a young Indonesian woman living with HIV put it at the International AIDS Conference Plenary in Toronto, Canada in August 2006, “I learned to demand my rights. I don’t want to just be listed in a report. I want to be more involved” (Islander, 2006). Few organizations recognize HIV-positive women’s organizations’ right to involvement “and often assume either that an HIV-positive man can speak for all HIV-positive people, or that a few individual women on their own can be expected, as token women, to carry the burden of representing the views and perspectives of the vast number of women and girls across the region” (Paxton et al., 2004a: 18).

HIV and AIDS programs need more women involved in leadership positions—particularly HIV-positive women and women with relevant skills. “There are many innovative responses by...HIV-positive women and girls worldwide. They show that quality of life does not end with an HIV diagnosis, but that given the right support, women and girls living with HIV can thrive and play a vital role in society, in families, and in prevention and support programmes” (ICW, 2004: 2). Despite significant challenges and limited resources, women and girls are responding positively to the epidemic—setting up support clubs, conducting peer education, providing care and support, looking after orphaned children, and engaging in advocacy and policy dialogue—and their contribution needs to be acknowledged and supported.

## *Women Need Support and Opportunities to Build Skills*

However, programs also need to recognize that it is difficult for women living with HIV or AIDS to participate unless their basic needs are met. Positive women need to earn an income and, consequently, have little time or energy available to volunteer with PLHA organizations. Many are widows with children to support. Of the 764 HIV-positive people interviewed in the Asia Pacific Network of People Living with HIV/AIDS (APN+) documentation of AIDS-related discrimination, 50 percent of the women but only 8 percent of the men were widowed (Paxton et al., 2004b).

In addition to support and strengthening social capital, women need opportunities to build skills for advocacy, networking, and participation in policy and program design and implementation. Important interventions include establishing mechanisms for meaningful participation of women in policymaking at international, national, community, and organizational levels; building women's policy advocacy and analysis skills; and ensuring that women are aware of their rights. Positive women also need separate networks to ensure that they have a voice. "Experience to date shows that the active involvement of positive women at all levels of decision-making, including the making and shaping of policy, is essential to treatment preparedness and expanded access as well as ensuring respect for positive women's sexual and reproductive health and rights. Yet, HIV-positive women and decision-making bodies continue to lack practical skills and political commitment to promoting meaningful involvement of positive women in shaping policies and programs" (Mthembu et al., 2006).

*[See also Chapter 4. Prevention for Key Affected Populations for leadership initiatives among sex workers and other marginalized groups.]*

### **What Works—*Strengthening the Enabling Environment: Promoting Women's Leadership***

#### *Promising Strategies:*

1. Investment in women's groups, especially positive women's networks, can result in policy engagement and change to better meet women's health and human rights needs.
2. Formation of a separate women's network within PLHA networks may empower women living with HIV.
3. Training on human rights for people living with HIV can increase protection of their rights.

## EVIDENCE

### Promising Strategies:

#### 1. Investment in women's groups, especially positive women's networks, can result in policy engagement and change to better meet women's health and human rights needs.

- ▶ There is an emerging collective empowerment based on knowledge and understanding of rights. Examples include the alliance of the **Zimbabwean** Network of Positive Women allied with women lawyers to introduce marital rape as a criminal offense in Zimbabwe law and the Treatment Action Campaign in South Africa, where an alliance of women and lawyers resulted in a ruling that pregnant women have the right to ARVs in pregnancy to reduce the risk of MTCT (Manchester, 2004). This study was based on oral sources, workshops and presentations, and memories of conversations with HIV-positive African women since 1992, as well as qualitative research through interviews conducted in 2000, with 10 HIV-positive African men and women (Manchester, 2004). (Gray V) (*women's empowerment, Zimbabwe, South Africa*)
- ▶ A project that provided training and networking by HIV-positive women with Parliamentarians from their own country—**Botswana, Kenya, Namibia and Tanzania**—along with NGOs, provided opportunities for HIV-positive women to comment on upcoming legislation that impacted them (Parliamentarians for Women's Health, 2007). (Gray V) (*training programs, women's empowerment, Botswana, Kenya, Namibia, Tanzania*)

#### 2. Formation of a women's forum within PLHA networks may empower women living with HIV.

- ▶ In **India**, the Women's Forum, established in 2007, has provided training on legal literacy and advocated for shelter and livelihood support for widows living with HIV. In July 2007, a National Women's Forum led by a seven member committee was established in India to mainstream gender issues within the Indian Network of People Living with HIV (INP+), which is a national network in 22 states with membership of over 105,000. The male: female ratio of PLHA is 100:60. Though 48% of members within INP+ are women, gender issues are not adequately represented within INP+ governance or nationally. Women living with HIV suffer from low levels of awareness on legal rights, limited social protection and restricted access to treatment, as well as lack of decision-making, violence and stigma (Goswami et al., 2008). (Gray V) (*women's empowerment, legal rights, treatment, violence, stigma, India*).

#### 3. Training on human rights for people living with HIV can increase protection of their rights.

- ▶ The AIDS Rights Alliance for Southern Africa (ARASA) trained 684 participants representing AIDS service organizations, women's groups and others on human rights and

HIV/AIDS, resulting in increased protection of rights. Participants came from **Angola, Botswana, Democratic Republic of the Congo, Malawi, Mauritius, Mozambique, Namibia, Swaziland, Tanzania and Zambia**. Results included a Charter of Rights for People Living with HIV in the Democratic Republic of Congo, removing the clause on criminalization of transmission in Mauritius and inclusion of harm reduction in legislation in Mauritius (ARASA, 2008). (Gray V) (*women's empowerment, human rights, Angola, Botswana, Democratic Republic of the Congo, Malawi, Mauritius, Mozambique, Namibia, Swaziland, Tanzania, Zambia*)

### **Gaps in Programming—Promoting Women's Leadership**

1. Interventions are needed to promote HIV-positive women's access to funding to start and lead initiatives.
2. Interventions are needed to foster the involvement of HIV-positive women and promote cooperation between PLHAs and health care facilities, government and other agencies creating HIV-related programs and policies.

1. **Interventions are needed to promote HIV-positive women's access to funding to start and lead initiatives.** Studies found that HIV-positive women's networks lacked funding.
  - ▶ Gap noted globally (Paxton et al., 2004a and b; Manchester, 2004).
2. **Interventions are needed to foster the involvement of HIV-positive women and promote cooperation between PLHAs and health care facilities, government and other agencies creating HIV-related programs and policies.** Studies found that little cooperation existed between HIV-positive women and health facilities but that efforts have been underway to educate parliamentarians concerning HIV-positive women's issues.
  - ▶ Gap noted, for example, in **Ukraine** (Yaremenko et al., 2004) and **Botswana, Kenya, Namibia and Tanzania** (Parliamentarians for Women's Health, 2007).

# Care and Support

- A. Women and Girls
- B. Orphans and Vulnerable Children

Possibly no other aspect of HIV and AIDS is as “gendered” as care and support (Esplen, 2009). Care and support generally includes both care of people living with HIV and AIDS and of families and children affected by HIV and AIDS. UNAIDS includes in its definition home- and community-based care (HCBC), palliative care, psychological support, carer support, and nutrition support. Among these, HCBC is meant to be the foundation on which national antiretroviral treatment programmes are built (UNAIDS 2009c). A 2004 UNAIDS report estimated that in Africa, only 12% of HIV-positive people in need of home-based care actually received it (UNAIDS, 2004 cited in Newman et al., 2009). Under PEPFAR, the term palliative care covers clinical services for opportunistic infections, social care (community mobilization, leadership development, legal services, linkages to food support and income-generating programs, among other activities to strengthen families and communities), psychological services, spiritual care, and positive prevention efforts (PEPFAR, 2009).

Of particular concern is the care and support of the growing number of orphans and vulnerable children. Worldwide, the number of orphans (children under age 18 who have lost one or both parents) to AIDS stands at approximately 17.5 million (UNICEF et al., 2009). Many more children live with one or more chronically ill parent. The vast majority of these children live in sub-Saharan Africa. The Joint Learning Initiative on Children and HIV/AIDS, which compiled over 50 systematic reviews by working groups of world orphan and vulnerable children (OVC) experts, contend that the definition of ‘orphan’ leads the international community to assume that these children are without family support. “The UN definition of an orphan, ‘a child who has lost one or both parents,’ distorts the global response to children affected by HIV and AIDS. Instead, “some 88% of children designated as ‘orphans’ by international agencies

actually have a surviving parent” (Irwin et al., 2009: 12, based on Belsey, 2008; Sherr, 2008; Richter, 2008). For example, an assessment of 12 out of 39 community groups that currently support 3,975 OVC, 200 PLWA and 1,375 HIV-affected households in Uganda in 2005 found a functioning extended family system playing a significant role in the care and support of PLHA and OVC in all communities (Balaba et al., 2008). Supporting family systems is therefore essential.

This chapter covers interventions that work in caring for and supporting women and girls in general, both with respect to their own needs in illness and the burden of caring for others who are ill. It also covers the care and support of orphans and vulnerable children, especially the particular vulnerabilities and needs of orphaned girls.

## 12A. Care and Support: Women and Girls

By all estimates, most care and support is provided in the home and women provide two-thirds or more of that care and support (Ogden et al., 2006; Homan et al., 2005; Akintola,

2006; United Nations, 2008b; Nyangara et al., 2009). In a study in China, a woman noted, “When I didn’t feel well, no one would take care of me...I often felt depressed when I finished doing those chores for him, but I couldn’t tell him how I felt” (Zhou, 2008: 1120).

---

“Who cares for the carers, and why is it taken for granted that women provide, and will continue to provide, care and support to family members and loved ones, with no sense of the cost and value of this work to society and the economy in general?”  
(Berman 2002, cited in Ogden et al., 2006)

---

### *Care and Support Programs Often Rely on Women’s Unpaid Labor*

While ordinary care for families tends to be considered women’s domain in most countries, care and support programs have been built on the assumption that the supply of women’s labor is unconstrained and flexible and that women’s labor will be adjusted in response to crises or illness (Elson, 1999, cited in Ogden et al., 2006). Due

to this pervasive view of gender roles, “home-based care is often perceived as a ‘cost-effective response’ to the epidemic, yet in reality it is exploitation of women’s unpaid labour...” (Esplen, 2007: 20). Thus, care often relies on “women, young girls, and elderly grandmothers who are ‘default volunteers’...” (Sepulveda et al., 2007: 193). Between 2000 and 2001, 254 interviews of caregivers in Botswana found that 66% of female caregivers were single mothers who provided the bulk of caregiving for their sick children with little or no contribution from fathers, with 21% of HIV caregivers losing pay in order to provide care (Rajaraman et al., 2006).

A distinction can be made between linked and unlinked care, although the two are often used interchangeably in relation to HCBC to refer to both clinical and non-clinical care provided by lay, volunteer or professional providers who are linked to programs and non-clin-

ical care provided by family members who are not linked to programs (Ogden et al., 2006). While a range of organizations are involved in care and support programs, including health facility outreach, NGO-based, faith-based, community-rooted, PLWHA networks and self-help groups, unlinked care is still likely the most prevalent type of care available to people living with HIV and AIDS.

Financial compensation for the labor of women and girls, through reimbursements, stipends, salaries or social protection mechanisms such as pensions, children support grants or cash transfers would go a long way to meeting some of the needs of women and girls (Esplen, 2007). In the case of girls, they are often removed from school to care for sick relatives. “This is also a huge economic and social loss, both for them and for their future families” (Paxton et al., 2004a: 2). A study in Tanzania found that mothers and daughters provide most care, with AIDS care reducing time available for food cultivation (Tarimo et al., 2009).

### *Older Women Need Additional Support*

Grandmothers are often the care providers, however, women often have few or no rights to inheritance and property, which particularly affects older women who are widowed (HelpAge International, 2007). Older women are usually considered beyond productive working age, which impedes their income earning abilities. Lack of education further exacerbates their situation in relation to their male counterparts (HelpAge International, 2007). A qualitative study done in 2003 with elderly respondents (50 years and older) in rural and urban communities in two districts of Uganda highlighted the need for comprehensive interventions to support elderly caregivers of people living with HIV and children affected by HIV/AIDS. There was a general concurrence that caring for orphans was more stressful for them especially if the child was also HIV-positive. Most respondents did not feel optimistic about the future and felt that they probably would die sooner than they would have otherwise. While reflecting on appropriate interventions that enable them to address some of the challenges brought upon them by HIV/AIDS, the majority cited assistance with income-generation projects, provision of training programs to enable the respondents to gain better knowledge of best practices of care, and access to protective equipment (Ssengonzi et al., 2007). A cross-sectional study (year not given) with a hundred elderly caretakers of orphan and dependent children, village and church leaders, local administration, government officials, and members of community-based organizations in Kenya showed the rise in the responsibility of the elderly to provide care for the increasing number of dependent children in their households and their challenge to ensure food security. Fifty percent of the elderly caretakers in the study were between ages 65–87 and 56% had 4–10 dependents in their households. Women constituted 86% of the elderly caretakers. Ninety percent of the caretakers reported old age illnesses, stress and morbidity that significantly inhibited their productive capacity. Thirty-one percent of caretakers highlighted that inadequate income was the major cause of food insecurity followed by lack of energy and strength, lack of time, absence of family resource base, and insufficient household labor (Muga et al., 2009).

## *Family Counseling and Basic HIV Information Could Provide Needed Support*

The needs of carers, mostly women, is often overlooked, but as UNAIDS recognizes, “the strains on those caring for people living with HIV are enormous, and without adequate and reliable support the risk of ‘burnout’ is high” (UNAIDS, 2009c: NP). Both the physical and psychological toll of being care providers is often overlooked by women and care and support programs alike. Many are isolated and receive little social support because of HIV/AIDS-related stigma and discrimination. Some experience gender-based violence (Apondi et al., 2007). Among women who are living with HIV themselves, how and when to disclose to children is challenging (Manchester, 2004). In one study in Uganda carried out between 2001 and 2005, HIV-positive parents reported inconsistent advice from counselors on whether to, or when to, disclose to children, with no national or NGO guidelines or training for counselors. Yet HIV-positive children should know their serostatus prior to becoming sexually active. Children’s perspectives on this topic are needed. Family counseling may be advantageous (Rwemisisi et al., 2008).

Many women caregivers lack information about HIV-related illness, basic nursing care, and measures to protect themselves from HIV transmission (Hong et al., 2004). A 2003 to 2004 study of 1,017 people living with HIV in Uganda found that 47% reported depressive symptoms, with women, those over age 50 and those without income more likely to be depressed. Screening for depression should be incorporated in HIV care (Kaharuza et al., 2006). A representative sample of 409 people living with HIV in Buenos Aires, Argentina, of whom 18% were women, found that only 21% of parents had received health service counseling on how to talk with children about their HIV-positive serostatus, but 77% felt that such counseling would be useful. 73% of the children were unaware of their parent’s serostatus (Ottenberger et al., 2008). A 2000 to 2001 study in Chennai, India with 141 HIV-positive women and 215 HIV-positive men at a large tertiary care community based center, YRG Care, which has provided care for over 10,000 people living with HIV, found that women were more likely to be separated, widowed or abandoned, more likely to be unemployed and more likely to have a substantially lower income than men. Women scored lower than men on all items measuring quality of life (such as worry about being able to take care of oneself, having negative feelings) except being comfortable talking to family and friends about their HIV status. HIV-positive women still bear the majority of household caretaking responsibilities and suffer stigma and shame due to their serostatus. With access to ARV therapy, HIV-positive men and women are living longer, making quality of life an important concern (Solomon et al., 2008).

## *Few Home-Based Care Programs Address the Specific Needs of Women*

Many women cannot afford to visit a clinic or hospital for treatment. Most prefer to be cared for and die in their own surroundings. Women are also concerned about leaving their children alone if they are hospitalized. Likewise, children are put in the position of having to watch their parents and elders grow increasingly sick and die, to intimately handle their bodies, to wonder and worry whether they are “doing it right” or “doing enough,” while at the same time

dealing with their sorrow, grief, and facing an uncertain future (Ogden et al., 2004). In addition, women who mother and care for children living with HIV in resource-limited settings face many challenges, ranging from the routine of pill-taking to disturbing discussions on health. One eight-year-old girl said: “Mummy tells me to take my pills, otherwise I will die and to not tell anybody...because it’s AIDS” (Hejoaka, 2009: 873).

Gender norms keep men from participating more fully in care and support, although some programming to increase the role of men is underway (Gomo, ND). Providing monetary support for men and boys who provide care and support could also expand their participation. However, shifting some of the burden of care to men will be insufficient to “address the profound issues of poverty, strain and hardship of caregiving on families and households. Nor is it likely to meet the ever growing gaps in services and safety nets on the part of governments associated with health sector reforms, decentralization, privatization and cuts to social spending” (United Nations, 2008b: 9). A 2008 study of 31 focus groups with 264 people in villages, health clinics and hospitals in three districts in Lesotho to assess HIV/AIDS care from those participating in and potentially affected by health care initiatives found that men stand to lose respect from other men and discretionary time by entering into community home-based care, but stand to gain economically by now working as a remunerated community health worker. While men’s participation in community-based home care can alleviate the disproportionate burden of HIV/AIDS care, women stand to lose the benefit of social recognition and may face competition from men for community health worker jobs. Training for male and female community health workers should involve critical reflections on gender roles and responsibilities. More than 70% of men in Lesotho were willing to care for a family member with AIDS in their home with training and support (Newman et al., 2009).

### *The Financial Toll of HIV and AIDS is Great*

HIV and AIDS can take a tremendous financial toll on households. Asset liquidation among AIDS caregivers to cope with the economic impact occurs, first liquidating savings, then business income, then household assets, then productive assets, and finally, land (Strickland, 2004). Profits from sales of assets may offset losses resulting from caregivers (usually women and girls) being diverted from other income-generating activities. Of note, land is the last asset to be sold given its centrality to sustaining women and families (Drimie, 2002, cited in Strickland, 2004). Up to 41% of female-headed households live below local poverty levels and lack resources to buy land or property or develop land allocated to them (UN Habitat, 2002 cited in Strickland, 2004). A study of 300 households in Nigeria found that costs for HIV treatment and care consumed between 17–25% of household income. Expenditures greater than 10% usually require that household members do not meet their basic needs (Odiah, 2008). Assessment of HBCB programs in South Africa found that poverty is a constant underlying issue for many HIV-affected households (Horizons, 2005).

For those who are linked to programs, a number of studies find that more women than men attend care facilities, reflecting both that women have more access to health services during pregnancy, to obtain contraception or to obtain health care for their children, as well

as gender norms that promote health seeking behavior among women (when they are not ignoring their own health to care for others) but not among men. A study in Burkina Faso, for example, confirmed the low presence of seropositive men not only in the consultation rooms of physicians but also for services that provide food, medicine or school supplies. Few men participated in health care facility orientations or support groups for people living with HIV, despite the fact that the 2003 DHS survey of Burkina Faso found that among ages 15 to 49, 1.9% of women are HIV-positive and 1.8% of men are HIV-positive. “Even when seropositive men consent to follow-up, it is widespread practice for women to stand in for their husband, who has stood apart...if his presence is essential...especially in cases of drug, food or other aid distribution” (Bila and Egrot, 2009:857). Women say they do this both to conceal the man’s shame and to avoid widowhood.

### *Treatment Alone Will Not Be Enough*

With the advent of treatment, insufficient research has been conducted in recent years on “what works” in care and support. It was assumed that “if many more of those who are sick with AIDS were able to access the necessary drugs and adhere to the drug regimen, then the crises around caregiving would be reduced” (Urdang, 2006: 169). In reality, “while access to anti-retroviral therapy has been expanding (in 2007 an estimated 3 million people globally received access to ART)” that figure represented only one-third of those in need of treatment (United Nations, 2008b:3). Furthermore, people on ART have palliative care needs. A study in Tanzania found that palliative care intervention was indicated for 378 (51.7%) patients. The majority was female (70.9%). Morphine was being prescribed to 21 patients (2.8%) and ART was being prescribed to 434 (59.4%). In the field of African HIV care where mortality is high, palliative care has been shown to be largely lacking though it continues to be an important part of HIV programs even in the presence of ARV treatment (Collins and Harding, 2007).

While remarkable improvements have been made for both patients and caregivers with access to HAART, caregiving is still needed. For example, “when it comes to actions aimed at combating the HIV/AIDS–food insecurity nexus, the empirical base is still thin” (Gillespie, 2006 cited in World Bank, 2007: IV, A). A 2008 UNAIDS review of caregiving in the context of HIV/AIDS concluded that “caregiving must be addressed through a mix of strategies and development lenses, adapted to different social and economic contexts, in order to address the economic, social and psychological burden of caregiving on individuals, families, communities and economies” (United Nations, 2008b: 9). Inputs from governments, as well as NGOs and communities, are needed. The UNAIDS review calls for investment in operational research to “better understand caregiving in the context of HIV and AIDS and to generate strategic information to inform programming” (United Nations, 2008b: 13). A review by the Horizons project called for situational analyses of HCBC programs to assess the “scope, content and quality of services offered in different communities (Horizons, 2005). Further research on cost-effectiveness of HCBC programs is needed to analyze the cost and benefit of participation to households, and referral systems to care and support programs must be strengthened (Horizons, 2005).

## What Works—*Care and Support: Women and Girls*

1. Continued counseling (either group or individual) for those who are HIV-positive and those who are caregivers can relieve psychological distress.
2. Peer support groups can be highly beneficial to women living with HIV.

### *Promising Strategies:*

3. Linking outside assistance from home- and community-based care programs with household care can be effective in meeting the needs of HIV/AIDS-affected families.
4. Training men to provide voluntary home care assistance can ease the burden of home care for women.
5. Training young people to provide voluntary home care assistance can ease the burden of home care for women.
6. Home-based antiretroviral therapy may increase family support.
7. Reducing stigma improves the quality of life for women living with HIV, particularly regarding employment and schooling.

## EVIDENCE

### 1. Continued counseling (either group or individual) for those who are HIV-positive can relieve psychological distress.

- ▶ A cluster, randomized, controlled clinical trial conducted in “an impoverished part of southwest **Uganda** that has been severely affected by the HIV epidemic” (Bolton et al., 2003: 3117) found that group interpersonal psychotherapy was highly efficacious in reducing depression and dysfunction. The link between HIV and depression was outside the scope of this study, but will be the subject of a future study. Mean reduction in depression severity was 17.47 points for the intervention groups and 3.55 for controls. Mean reduction in dysfunction was 8.08 for the intervention groups and 3.76 for the controls. Following the intervention, only 6.5% of those in the intervention groups met the criteria for major depression, compared to 54.7% of the control groups. Prior to the intervention, 86% of the intervention group and 94% of the control group met the criteria for major depression. The intervention villages received group interpersonal psychotherapy for depression as weekly 90-minute sessions for 16 weeks. A local person who had received two weeks of intensive training led groups. The group leader reviewed each participant’s depressive symptoms. The participant was then encouraged to describe the week’s events and link these to symptoms. The group leader then

facilitated support and suggestions for change from other group members. The trial compared group counseling to whatever is the usual treatment (which was not delineated). Fifteen villages were randomly selected for studying men and 15 were randomly selected for studying women. In each village, adult men or women believed by themselves and other villagers to have depression-like illness were interviewed using a locally adapted Hopkins Symptom Checklist and an instrument assessing function. A total of 108 men and 116 women completed the study. Eight of the 15 male villages and 7 of the 15 female villages were randomly assigned to the intervention arm and the remainder to the control arm. People confirmed of danger of suicide were not enrolled in the study but referred to a psychologist (Bolton et al., 2003). (Gray II) (*depression, counseling, Uganda*)

- ▶ YRGCare in Chennai, **India**, a nonprofit HIV counseling, testing and treatment center found that HIV-positive individuals reported that couple and family counseling was beneficial in addition to individual counseling for reducing stigma within the household. In all, 13,000 patients have received counseling. Since 1993, 5,657 patients living with HIV/AIDS have been followed and provided with medical and psychosocial care. Among those, 754 couples accessed couples counseling and 698 accessed family counseling. Disclosure, pressure to have children by family members unaware of their serostatus, discrimination, and hiding medication that can alert others to their serostatus were issues addressed (James et al., 2004). (Gray III) (*couples, counseling, disclosure, HIV testing, India*)
- ▶ A study evaluated the efficacy of an individualized psycho-education (PE) program in reducing psychological distress and risky sexual behavior and enhancing self-disclosure associated with an HIV diagnosis among attendees of a walk-in non-governmental voluntary counseling and testing (VCT) center in **Nigeria**. Researchers found that at four weeks post-intervention, significant reductions on all measures as well as reduction in risky sexual practices were observed in the treatment group compared with the wait-list group. Treatment group members were also significantly more likely to disclose their serostatus and accept their HIV status as a way of coping, compared with the wait-list group. Ninety-four consecutive individuals were asked to complete a pre-counseling, baseline questionnaire detailing their sociodemographic characteristics, psychopathology, sexual practices, self-disclosure intention and coping behaviors. They were screened for HIV and post-test counseled. Sixty-seven individuals (72.2%) who tested positive were consecutively randomly assigned to one of two groups: a PE program (four 60-minute weekly manual driven sessions) (N=34) and a wait-list (WL) control group (N=33). The major outcome measures used were the Crown Crisp Experiential Index (CCEI), the Beck Depression Inventory (BDI) (Beck et al., 1961), self-report sexual practices in past three months, self-disclosure intention and the brief COPE (Olley, 2006). (Gray V) (*counseling, risk behavior, sex behavior, depression, Nigeria*)

## 2. Peer support groups can be highly beneficial to women living with HIV.

- ▶ Thirty in-depth interviews with HIV-positive women in **Vietnam** who participated in a support group starting in 2004 that were interviewed again after two years, along with 23 husbands and 18 mothers-in-laws, found that a support group provided a major source of emotional support to the HIV-positive mothers, with most of the thirty women learning how to do peer support work, run a business or keep a job. “I have come to life again and don’t suffer from an inferiority complex any longer’ noted a 23 year old HIV-positive woman (p. 147). Through the support group, women access information and services, both for themselves and their children. Peer counselors accompanied the HIV-positive women to health facilities in groups of five. Mothers-in-law also learned to change as the HIV-positive women themselves accessed information, services and support: “In the beginning, I had no idea how HIV is transmitted. All of us were very afraid of it...Now I feel so sympathetic to my son and daughter-in-law. I wish I had not been so awful to them” (p. 148). Prior to the support group, their families would not have meals with them, forbade them to touch their own baby and kept the mother’s HIV-positive status a secret from neighbors. Mothers acutely felt stigmatized by health providers. During PMTCT counseling, “nearly all the information given to infected women during counseling was aimed at protecting other people from infection...Very little was explained about the potential risks to their own health or how they could keep healthy” (p.145). Only six of 30 women were given postnatal appointments by health facilities. Women were blamed by in-laws for ‘not being able to protect their husband from social evil behaviors’ or for ‘being a source of transmission to a beloved grandchild’ (p. 145). Families would not spend money on the HIV-positive mother’s care: “Anyway they will die in the future...It’s a fatal disease. So it’s better to use money properly” said one mother-in-law (p. 146). Training was provided to the support group in communication skills (Nguyen et al., 2009). (Gray III) (*counseling, support groups, stigma, mothers, Vietnam*)
- ▶ A study from 2003 to 2005 in **South Africa** with 186 women and 64 men, all HIV-positive, found that the 27% (52 women and 15 men) who joined a support group had scored better on physical and mental health items than those who did not join a support group. Almost 90% rated that the support group had a positive impact in their lives. The support group also helped with disclosure and had made them more able to access services and information related to HIV/AIDS. The support group may also have made participants feel more in control of their lives, going from being passive recipients of help to becoming active agents (Dageid and Duckert, 2007). (Gray III) (support groups, disclosure, South Africa)
- ▶ Evaluation of the mothers2mothers (m2m) program in, **South Africa** found that the m2m program provided a strong continuum of care to the women and infants. Compared to non-participants, m2m participants had greater psychosocial well-being and greater use of PMTCT services and outcomes. Postpartum program participants were significantly

more likely to have disclosed their status to someone than non-participants, and to have done so prior to delivery. M2m seeks to reduce PMTCT, empower pregnant and post-partum women to improve their health and the health of their babies, fight stigma and encourage and support disclosure. The program offered education and psychosocial support to HIV-positive pregnant women and new mothers, assisted women to access PMTCT services, and followed up to ensure care of mothers and infants after delivery (Baek et al. 2007). (Gray IV) (*PMTCT, support groups, mothers, South Africa*)

- ▶ In-depth interviews conducted from 2000 to 2001 with ten pregnant women in **Thailand** following their HIV diagnosis found that peer support groups were critical for women when they were ready to share their struggles with others (Ross et al., 2007). (Gray V) (*support groups, Thailand*)
- ▶ A qualitative study in rural and per-urban **Malawi** explored the acceptability of a caregiver's training and support group for Malawian women. Twenty women caregivers were recruited for in-depth interviews. Questions address the actions that could be conducted in the group, the reasons to participate, the barriers to participation, and the benefits of a caregiver group. Responses from women show that a caregiver support group would be acceptable to Malawian women. Rural and peri-urban women said a group could take action by sharing household chores, finding material resources, and developing business ideas to generate income. Barriers to the group were community "gossiping", and husband and family disapproval. Benefits of the group were the opportunity to learn and share information, share patient care, and offer emotional support. In addition, women expressed the hope that direct access to antiretroviral treatment could be obtained through the group. This group of Malawian women caregivers felt they could benefit greatly from a caregiver support group. While the caregiving demands are vast, these women have many skills and abilities to care for patients and a support group could enhance the sharing of treatment, care, and support to alleviate the impact of HIV/AIDS for families (Hatchett et al., 2006). (Gray V) (*support groups, Malawi*)
- ▶ A study in **South Africa** based on interviews with 317 pregnant HIV-positive women found that women reported benefiting from a structured support group. Program material for the support group meetings was based on a needs assessment. The meetings provided information on HIV; the emotional experience of being HIV-positive; sharing coping with difficult situations, using role plays; planning for disclosure; what they wanted from their partners; dealing with stigma; and goal setting and future planning. Masters level psychology students facilitated the support groups. Interviewers following the support group sessions found that the women found the support group valuable: "It was a shelter to hide away where I could talk freely. I can tell others now. Now I am stronger, I can stand on my own" (Visser et al., 2005: 339). Another woman stated: "It was a positive picture of HIV. I did not feel alone and embarrassed anymore" (Visser et al., 2005: 339). Role-playing was especially helpful. In addition, the introduction of human rights helped women to realize "that they were not at fault, but that other people

discriminated unjustly against them” (Visser et al., 2005: 340). (Gray V) (*support groups, South Africa*)

- ▶ A qualitative study of interviews with 75 HIV-positive people (43 females, 32 males) from 20 countries, including **Australia, Botswana, India, Kenya, South Africa, Thailand, Uganda, Zambia, and Zimbabwe**, conducted between 1997 and 1999, found that women were more likely to seek peer support than men and that peer support groups were “lifelines” (Paxton, 2002: 563). (Gray V) (*PLHA, support groups, Australia, Botswana, India, Kenya, South Africa, Thailand, Uganda, Zambia, Zimbabwe*)

### Promising Strategies:

#### 3. Linking outside assistance from home- and community-based care programs with household care can be effective in meeting the needs of HIV/AIDS-affected families.

- ▶ A study of six home-based care programs in **South Africa** (year not specified) found that a range of 10 expressed needs of program beneficiaries were met by household members alone, by household members and outside help, and by outside help alone, with some unmet need, particularly for financial aid. The six programs represented programs that work in rural areas and informal settlements. Data were collected through a household survey of 374 clients, focus group discussions with 59 program beneficiaries and 53 caregivers, financial records and service statistics, and interviews with financial officers, program managers and caregivers. The largest expressed need was for emotional/spiritual support through counseling (over 80%), following by physical care, nursing care, chores and information (from 55–70%), transportation, financial aid, family care and legal aid (from 20–35%), and sanitation (around 5%). Beneficiaries looked to outside help particularly for counseling, nursing care, information, transportation, family care and legal aid. They looked least to outside help for household chores. Even with outside help, the study found that household caregivers spent more time per week assisting the person living with HIV/AIDS than the outside caregiver. The qualitative component of the research found that respondents indicated that they had unmet needs related to financial aid, access to medical care and emotional care. (Homan, et al., 2005). (Gray III) (*community-based care, South Africa*)
- ▶ A cross-sectional study in **Kenya** with 1,123 OVC, ages 8–14, and 771 guardians (2007) found that guardians with a community health worker (CHW) doing regular home visits over an average of ten months reported lower rates of perceived social marginalization, better family functioning and more positive attitudes towards OVC under their care than guardians without a CHW. Further, guardian and child reports suggest more positive psychosocial wellbeing among OVC living in homes visited by a CHW (Thurman et al., 2008b). (Abstract) (*OVC, community health workers, Kenya*)

**4. Training men to provide voluntary home care assistance can ease the burden of home care for women.**

- ▶ A study of Africare’s Male Empowerment Project in **Zimbabwe** from 2003 to 2004 which trained 80 male home care volunteers to provide basic nursing care, infection control, and psychosocial support found that the trained male caregivers reduced the workload of the primary caregivers, who were primarily women. Clients felt that the simple fact that “someone cared enough to visit’ was motivation enough for living” (p. 10). Over 80 percent gathered firewood and over 60 percent assisted with gardening and fetching water. Clients and caregivers were found to be supportive of the program, with primary caregivers and clients giving credit to the voluntary caregivers for improving the mental health and physical well being of the clients. While voluntary caregivers assisted with basic household chores, skills that are not traditionally assigned to men such as feeding were less readily undertaken. This project proved successful in increasing men’s acceptance of providing care to people living with AIDS. The study used a questionnaire prior to the intervention and then 18 months later, two focus groups and five in-depth interviews. The male volunteers received training, covering topics such as HIV transmission and prevention, communication on sensitive topics, life planning, basic nursing care and end of life care. Lack of salary presented problems for the men who were looking to offset the time that could have been spent in income generation. Frequent in-service training and monitoring was recommended for home-based care. (Johnson et al., 2007). (Gray III) (*community-based care, men, Zimbabwe*)

**5. Training young people to provide voluntary home care assistance can ease the burden of home care for women.**

- ▶ A Horizons project in rural **Zambia** assessed the strategy of building young people’s capacity to provide care and support to people living with HIV and AIDS. Members of youth anti-AIDS clubs in schools and communities were trained as adjunct caregivers, using a locally developed curriculum that allowed them to explore and challenge gendered notions of caregiving, and that emphasized networking with existing resources. Results show that caregiving increased among males (47% to 82%) and females (41% to 78%). Both sexes provided similar caregiving services, including help with household chores and personal care tasks. Youth also undertook activities with children to decrease their isolation, help them stay in school, and reach additional services. While clients and caregivers reported positive aspects of the programme, both reported frustration with the youths’ inability to meet material needs. This study demonstrates that trained youth already involved in anti-AIDS efforts can meet a range of care needs and be valuable assets to their community. It also highlights the importance of communicating clearly what youth can and cannot do, ongoing monitoring and support of youth caregivers, and involving community leaders to give youth credibility and access to local resources. (Esu-Williams et al., 2006). (Gray III) (*community-based care, youth, Zambia*)

## 6. Home-based antiretroviral therapy may increase family support.

- ▶ A study based on interviews with 654 people (72% women) receiving HAART through home-based care in rural **Uganda** found that most reported positive social outcomes, such as increased family support. Home-based care may have advantages in decreasing barriers due to transport, along with the ability to provide for multiple family members (Apondi et al., 2007). (Gray V) (*community-based care, treatment, Uganda*)

## 7. Reducing stigma improves the quality of life for women living with HIV, particularly regarding employment and schooling. [See Chapter 11F. Strengthening the Enabling Environment: Reducing Stigma and Discrimination]

### Gaps in Programming—Women and Girls

1. Further interventions are needed to provide support (physical, psychological, technological, economic) to caregivers.
2. Interventions are needed to train caregivers on taking care of children living with HIV.
3. The increased vulnerability of female-headed households requires targeted interventions.
4. Interventions are needed to support HIV-positive women to disclose their serostatus to their children and families.
5. Interventions are needed to increase access to palliative care.
6. Caregiver training for male and female community health workers may benefit from critical reflections on gender roles and responsibilities.
7. Further interventions are needed to improve quality of life for women living with HIV.
8. Care and support programs should address gender-based violence.

### 1. Further interventions are needed to provide support (physical, psychological, technological, economic) to caregivers. Studies showed that caregivers have many physical, psychological, technical and economic unmet needs, with high rates of depression and poverty.

- ▶ Gap noted, for example, in **China** (Zhou, 2008), **Uganda** (O'Hare et al., 2005, Kaharuza et al., 2006, Ssengonzi et al., 2007); **South Africa** (Akintola, 2006); **Botswana** (Rajaraman et al., 2006, Shaibu, 2006).

2. **Interventions are needed to train caregivers on taking care of children living with HIV.** A study found that caregivers of HIV-positive children needed training and information.
  - ▶ Gap noted, for example, in **South Africa** (van Graan et al., 2007).
3. **The increased vulnerability of female-headed households requires targeted interventions.** Studies found that female-headed households risk losing farmland and property and need targeted interventions.
  - ▶ Gap noted, for example, in **Kenya** (Yamano and Jayne, 2004, cited in Gillespie and Kadiyala, 2005); **Uganda** (Kanyamurwa and Ampek, 2007); and **Malawi** (Shah et al., 2001, cited in Gillespie and Kadiyala, 2005).
4. **Interventions are needed to support HIV-positive women to disclose their serostatus to their children and families.** Studies found that HIV-positive women found it extremely difficult to disclose their serostatus to their children and to their families and wanted specific counseling to address this need.
  - ▶ Gap noted, for example, in **Argentina** (Ottenberger et al., 2008); and **Uganda** (Rwemisisi et al., 2008, Manchester, 2004).
5. **Interventions are needed to increase access to palliative care.** A study found that a significant proportion of patients needed palliative care.
  - ▶ Gap noted, for example, in **Tanzania** (Collins and Harding, 2007).
6. **Caregiver training for male and female community health workers may benefit from critical reflections on gender roles and responsibilities.** A study found that men and women competed for remunerated caregiving, with training needed on gender roles.
  - ▶ Gap noted, for example, in **Lesotho** (Newman et al., 2009).
7. **Further interventions are needed to improve quality of life for women living with HIV.** A study found that women with HIV had lower quality of life scores than men.
  - ▶ Gap noted, for example, in **India** (Solomon et al., 2008).
8. **Care and support programs should address gender-based violence.** [See also Chapter 11B. *Strengthening the Enabling Environment: Addressing Violence Against Women*] A study of women who received home based care found that significant numbers experienced violence.
  - ▶ Gap noted, for example, in **Uganda** (Apondi et al, 2007).

## 12B. Care and Support: Orphans and Vulnerable Children

Girls who have been orphaned by HIV/AIDS face an intersection of vulnerabilities: As children, they lack the legal rights (e.g., inheritance and property), maturity, and skills to care and provide for themselves. As girl children, they most often do not have equal access to household resources for schooling, nutrition, or health care. When a catastrophic event hits the family, girls are more often the ones who must leave school and take on a greater burden within the home. A study in Tanzania found a dramatic increase in labor force participation by adolescents ages 10–14 and a decrease in school attendance, especially for girls, which correlated with the increased HIV/AIDS prevalence and incidence between 1990 and 1991 (Wobst and Arndt, 2004). A study in Rwanda found that “90 percent of the estimated 45,000 child-headed households were headed by girls” (UNHCR, 2001 cited in Lawday, 2002). Many receive little social support because of the stigma associated with HIV/AIDS. OVC, and girls in particular, are more likely to have high rates of absenteeism from school, experience behavior or performance problems in school, or leave school altogether (Cornia, 2002; Steinberg et al., 2002). In households that experience the death of a woman, girls have lower enrollment rates and are more likely to assume activities typically done by women (Desmond et al., 2000). Further, a study based in Zambia with 228 OVC found female OVC had less decision-making power, lower self-confidence, negotiation and communication skills than males (Alvarez et al., 2008).

---

The number of children receiving antiretroviral therapy increased from 198,000 in 2007 to about 275,700 in 2008, reaching 38% of the 730,000 children estimated to be in need of antiretroviral therapy in low- and middle-income countries (UNAIDS, 2009d: 87).

---

### *Girls Who Have Lost Their Mothers Are at Particularly High Risk*

Parental death is recognized as one of the most stressful life events a child or adolescent can endure... (Hallman et al., 2008: 38). Interviews conducted in 2005 with orphans and vulnerable children, their parents and caregivers, students and teachers in communities heavily affected by HIV/AIDS in South Africa and Swaziland found that parental death is one of the major causes of disruption of children’s lives. Interviewees reported that illness and/or death of parents leads to increased poverty, child’s engagement in risky behavior and more vulnerability to HIV infections, and a higher likelihood of dropping out of school. The interviews reported that boys are more likely to get involved in multiple concurrent relationships and drug-taking while girls are more likely to get pregnant or engage in sex work or sexual relationships with older men in exchange for money and food. Girls are also at higher risk of rape and abuse by teachers in their school (Poulsen, 2006).

A study of 200 orphaned and non-orphaned girls ages 16 to 19 in Zimbabwe highlighted that maternal care and support is important for HIV prevention. Seven percent of girls in the study had lost only their mother while 20 percent had lost both parents. Female adolescent

maternal orphans were found to have more than five times the odds of engaging in sexual activity with their current partner, more than fourteen times the odds of receiving basic needs from their current sexual partner, and nearly five times the odds of acquiring HIV as compared to study participants who had not lost their mothers. The study also found that maternal orphans were less likely to have been physically forced the first time they had sex. This could be because more maternal orphans were intentionally engaging in sexual activity for material benefits and may thus be less likely to have been forced to engage in sex for the first time (Kang et al., 2008).

Data from Rwanda and Zambia show that orphanhood, especially if it occurs closer to adolescence, results in earlier sexual initiation (Murray et al., 2004). Early sexual debut places girls at risk of HIV, other STIs, and unwanted pregnancies. Further, loss of a parent increases vulnerability to trafficking, child prostitution, and hazardous labor situations (Ayieko, 1998; Human Rights Watch, 2003), in addition to forced sex (Birdthistle et al., 2008). These vulnerabilities enhance orphans' risk for acquiring HIV. A study in Zimbabwe found a greater number of female orphans ages 15 to 18 had higher incidence of HIV infections than their non-orphan peers (Gregson et al., 2005). "...The majority of orphans and children whose parents are HIV-positive or AIDS-unwell are in fact adolescents and have a great need for information and skills on sexual and reproductive health and development. These topics are frequently omitted from OVC programmes..." (Hallman et al., 2008: 36).

### *Many Families Caring for Orphans Are Struggling*

Evidence compiled during the Joint Learning Initiative on Children suggests that policies, programs and funding should support family-centered services that address material needs, cognitive development and psychosocial support (Richter, 2008). A study in Botswana using data from a 2002 sample of 1,033 working adults found that 37% provided orphan care. Nearly half of working households with orphan care responsibilities reported experiencing financial difficulties, lacking resources to provide basic needs such as food, shelter or transport. Only 42 social workers were responsible for the care of more than 100,000 orphans (Miller et al., 2006; Heymann et al., 2007). A baseline study conducted in 2007 in Malawi with 785 AIDS-affected households indicated that cash transfers were needed for social protection of OVC. Forty percent of households had no working age adult even though 60% of households contained 2.6 children. Seventy-three percent of households went without enough to eat for eight or more days in the past month (Huijbregts et al., 2008). A case control study done in 2007 in Uganda with 369 HIV-positive children (49% female) between ages 7 months to 15 years found that children cared for by grandparents were less likely than those cared for by biological parents to have their immunizations up to date and more likely to have poor nutritional status (Kintu et al., 2008).

### *More Effective Programming and Policies for OVC Are Needed*

Despite the recognition of the magnitude and negative consequences of this problem, the evidence on effective programming for children affected by HIV/AIDS remains scant

(Thurman et al., 2007). As of 2008, only 32 countries had a national plan of action with benefits for orphans (UNICEF, 2008). Yet a substantial epidemic of HIV/AIDS in older survivors of mother-to-child transmission is emerging in Southern Africa...[with] a failure to...adequately address the clinical needs of HIV-infected older children and adolescents” (Ferrand et al., 2009: 2039). Few countries have adopted national strategic plans to address the needs of orphans and vulnerable children. While many NGOs, faith-based groups, and community-based organizations are working at the grassroots level to meet the needs of children affected by HIV/AIDS, few specifically address the needs of female OVC. A recent review of 14,343 documents with 414 judged relevant and reviewed on OVC found that “few provided strong evidence and most moderate to strong evidence described the situation of children, with little on effective interventions,” with important gaps in evidence. Strong evidence was found that institutional care of OVCs should be the last resort (Franco et al., 2008).

Access to treatment is another programmatic gap for orphans living with HIV. A study in rural Uganda of 101 HIV-positive children (56 girls and 45 boys), of whom 47 were orphans, highlighted the need to improve access to antiretrovirals for orphans. The study found that orphans were more likely to be at WHO clinical stage 4, suggesting that orphans are at a greater risk of progressing to AIDS than non-orphans and in need of timely treatment initiation (Ntanda et al., 2009).

A number of policy gaps exist regarding OVC (Smart, 2003; Engle, 2008). A review of National Plans of Action for OVC found that “there is a wide range in the developmental appropriateness of the plans within the 17 countries. The most common interventions are health and nutrition and birth registration. Slightly less than half of the plans have components that include childcare centres (8) or community-based centre programmes (7). Some NPAs incorporated concerns for psychosocial support for younger children (4), a holistic approach to the treatment of HIV-infected children (6) and incorporating young children’s concerns into home-based care (3). Only two programmes mentioned capacity building for working with young children and three plans had age categories in their monitoring and evaluation plans. Some NPAs included programmes for young children but did not include funding” (Engle, 2008: v).

Significantly, “WHO, UNAIDS and the international data sets are not gathered or coded by gender. This serious omission leads to ignorance by neglect—despite well established gender challenges in later life” (Sherr, 2008). Evaluations of OVC programs are just beginning. Chatterji et al. (2005) have noted that educational programs should target all out-of-school children, not only orphans. Adolescents ages 13–19 in particular need encouragement and support to stay in school. Program implementers need to develop proven and sustainable interventions to help improve the individual material well-being of children—both orphans and children with chronically ill caregivers. Policies should also ensure that national maternal and child health (MCH) programs focus attention on orphans. In particular, the primary caregivers of these children, some of whom are very young (15–24) or older (50+), need to be targeted by health promotion campaigns that typically reach mothers ages 25–49.

## What Works—*Care and Support: Orphans and Vulnerable Children*

1. Accelerating treatment access for adults with children can reduce the number of orphans, improve pediatric mortality and social well-being.
2. Programs that promote the strength of families and offer family-centered integrated economic, health and social support result in improved health and education outcomes for orphans.
3. ARV treatment with good nutritional intake and regular medical care can improve health and survival of HIV-positive children in resource-poor settings.
4. Psychological counseling and mentoring for OVC improves their psychological well-being.
5. Programs that provide microenterprise opportunities, old age pensions or other targeted financial and livelihood assistance can be effective in supporting orphans.

### *Promising Strategies:*

6. Programs for OVC should keep siblings together if at all possible.
7. Providing community development projects, rather than a narrowly defined HIV/AIDS program, may reduce the stigma against OVC.
8. Community meetings may reduce stigma against OVC.

## EVIDENCE

### 1. Accelerating treatment access for adults with children can reduce the number of orphans, improve pediatric mortality and social well-being. *[See also Chapter 7. Treatment]*

- ▶ A prospective cohort study with 1,373 HIV-positive and 4,601 HIV-negative household members (over 70% respondents were women) conducted from 2001–2005 in **Uganda** showed that access to antiretroviral therapy (ART) and co-trimoxazole prophylaxis treatment program led to large reduction in mortality among HIV-positive adults living in resource-poor settings and in the rate of orphanhood. Compared with no intervention, ART and co-trimoxazole were associated with a 95% reduction in mortality in HIV-positive adult participants, an 81% reduction in mortality in their uninfected children younger than 10 years and a 93% estimated reduction in orphanhood. During the study periods households were visited every week by lay trained paid providers who resupplied medicine and monitored drug adherence, hospital admissions, potential symptoms of drug toxicity, death of a household member in the preceding 7 days, and orphanhood. No routine clinic visits were scheduled after enrollment and home-based

care and services were provided, which greatly helped in overcoming the problem of inability of ART-eligible people to access routine health services due to poverty or poor transportation (Mermin et al., 2008). (Gray III) (*treatment, mortality, orphans, Uganda*)

- ▶ The Joint Learning Initiative on Children and HIV/AIDS compiled over 50 systematic reviews by working groups of world OVC experts and found that “family-centred treatment programmes may accelerate the expansion of paediatric treatment, improve children’s adherence to therapy, and secure better outcomes for children living with HIV,” (Irwin et al., 2009: 21). JLICA cited a 2007 cohort study of 151 children in **South Africa** who were started on HAART, which determined that 89% of children had an adherence to treatment of greater than 95%, leading to 84% virologic suppression after 6 months and 80.3% suppression after a year. The study found that having at least one HIV-positive parent decreased the children’s chances of death, leading to the conclusion that treating parents and keeping families infected with HIV together can improve HIV outcomes (Reddi et al., 2008). (Gray III) (*orphans, treatment, South Africa*)
- ▶ A Joint Learning Initiative on Children and HIV/AIDS executed a systematic review of the impact of adult use of antiretroviral treatment on family well-being. The study evaluated primary research and modeling studies and found that “having parents on ART reduces the likelihood of children’s labour supply; increases children’s school attendance and improves their nutritional intake,” (Kimou et al., 2008: 9). Among 41 other studies, JLICA cited a 2004–2005 longitudinal household survey of 775 randomly chosen households, households with at least one known HIV-positive adult on ARV, and households with a known HIV-positive adult not receiving ARV in 100 villages in rural **Western Kenya**. The study evaluated 482 children living in these households and determined that after treating adults with antiretroviral therapy for six months, the number of hours that the children in the household attend school increased by 20 percent overall, and 30 percent for boys. After six months of adult ART, the average hours a week worked by boys in the labor supply decreased by 7.46 hours. Lastly, ARV treatment of parents was found to improve the nourishment of young children (Zivin et al., 2006). (Gray III) (*orphans, child labor, education, treatment, Kenya*)

## 2. Programs that promote the strength of families and offer family-centered integrated economic, health and social support result in improved health and education outcomes for orphans.

- ▶ A study done in **India** (year not given) with 312 HIV-positive children (including those on HAART) and 2,278 HIV-affected children (including those not on ART) showed that after providing free clinical care (including ART), nutritional supplements and community-based support to HIV-positive children for 12 months, pediatric quality of life score among HIV-positive and affected children improved significantly in all domains—physical, social, emotional and educational, with no differences by sex. The program also resulted in a significant increase in the proportion of HIV-affected children aware of

their parent's status (from 16% to 25%) as well as an increase in the proportion of HIV-positive children aware of their parent's status (from 12% to 19%) and their own HIV status (from 10% to 20%). Among HIV-positive children who were enrolled in school at baseline, 95% continued going to school at 12 months. The proportion of affected children (one or both parents HIV-positive) who missed more than five school days per month significantly decreased (Sreevidya et al., 2008). (Gray III) (*children, community-based care, education, India*)

- ▶ Services that are “provided through integrated, family-centered delivery models” work best for children, according to the Joint Learning Initiative on Children and HIV/AIDS final report on children, AIDS and poverty (Irwin et al., 2009: 47). “Programmes obtain the best results for children when they adopt integrated intervention strategies providing a range of services to the whole family. The most effective delivery systems integrate HIV and AIDS services with family-centered primary health care and social services provided through community-based models,” (Irwin et al., 2009: 48). JLICA highlights **Rwanda's** National Policy and Strategic Plan for Orphans and Vulnerable Children, which looks beyond AIDS to provide a “minimum package of services” of healthcare, nutrition, formal education, livelihood training, protection, and psychological and socioeconomic support. The decentralized, rights-based system “can connect families to such opportunities through referral systems and linkages to public support or NGO programmes,” (Irwin et al., 2009: 49 citing Binagwaho et al., 2008). (Gray V) (*orphans, community-based care, Rwanda*)
- ▶ An orphan day care center in **Botswana** provides centralized care to over 355 orphans ages 2 to 18 with pre-school aged children cared for in a safe, supervised environment during the workday, relieving the caregiving burden for guardians and facilitating their ability to work or care for relatives with HIV. Older children come to the center after school to receive meals, participate in activities and receive counseling. The family outreach program delivers counseling to children's guardians during home visits. The center in Botswana has quality control measures in place to ensure that orphans benefit, but the labor-intensive efforts are more challenging to scale up (Kidman et al., 2007). (Gray V) (*orphans, counseling, Botswana*)

### 3. ARV treatment with good nutritional intake and regular medical care can improve health and survival of HIV-positive children in resource-poor settings.

- ▶ A study with 103 (61 male, 42 female, age range: 3–127 months) institutionalized HIV-infected orphaned children in **Tanzania** showed that after one year of being on HAART, children with severe malnutrition and declined CD4 values had significant increases in their CD4 counts. Their CD4 cell percentages increased from 10.3 to 25.3 percent and absolute count, from 310 to 660/mm<sup>3</sup>. Their nutritional status improved significantly. Two out of 27 untreated children became eligible for antiretroviral treatment. The study also showed that institutionalized children who do not meet the criteria

for treatment can be safely monitored for immunological status with no mortality and no difference in clinical events compared to treated children in the short-term. HAART can be effectively used for HIV-positive children in resource poor settings along with good nutritional intake and regular medical care (Ble et al., 2007). (Gray III) (*orphans, treatment, HAART, Tanzania*)

- ▶ A retrospective review in **Kenya** with 279 children (49% girls and 54% orphans) enrolled at nine HIV clinics between 2002 and 2005 and on antiretroviral therapy (ART) showed that ART for HIV-positive children produced significant and sustainable CD4 improvement and weight gains during the initial 30 weeks. The study found no effect of orphan status on ART adherence or rise in CD4 counts, at least in the short-term. The mean peak for CD4 percent increase at 30 weeks for orphans was 23% and that for non-orphans was 24%. The study indicates the feasibility of providing ART to children in resource poor settings (Nyandiko et al., 2006). (Gray III) (*treatment, children, orphans, Kenya*)

#### 4. Psychological counseling and mentoring for OVC improves their psychological well-being.

- ▶ A cluster randomized control trial of a school-based peer-group support intervention with 326 AIDS orphans (aged 10–15) in Mbarara District, **Uganda** found that peer-group interventions when led by teachers and complemented by healthcare check-ups significantly decreased anxiety, depression and anger among the intervention group. Of the children, 42.6% were double orphans. The intervention provided twice-weekly peer-group support meetings conducted by a trained teacher over the course of ten weeks and supplemented these sessions with monthly healthcare examinations and treatment. The support meetings presented topics of concern to orphans through plays, poems, stories and games, asked the orphans to identify the problems embedded in the activities, inquired whether they had experienced similar issues, explored the causes of the problems and their effects on families, and brainstormed solutions. Although the children in the intervention group had started out having lower self-concept scores and higher indications of depression than the control group, the intervention group had lower scores of anxiety, depression, and anger at baseline. (Kumakech et al., 2009). (Gray II) (*support groups, counseling, orphans, Uganda*)
- ▶ A study done in **Mexico** from 2005–2008 with 135 HIV-positive children and adolescents (77 girls) between age 6 and 17 years found that ten sessions of Cognitive Conductual Therapy (CCT) reduced the initial depression level and maintained it for at least 6 months after the therapy. Of the 135 HIV-positive children and adolescents, 131 were infected by perinatal transmission and 54 were diagnosed with depression (Tovar-Larrea et al., 2008). (Gray III) (*children, adolescents, counseling, depression, Mexico*)
- ▶ A 2006 follow up survey of an 18-month intervention with 593 youth household heads (equal number of males and females) aged 27 years and under, in **Rwanda** reported that a mentorship program may mitigate grief among youth. Youth with a mentor showed

a decrease in marginalization, increase in perceptions of adult support and stability in grief levels. They also reported a slight though significant decrease in depressive symptoms. The mentoring program appears to have enhanced available support and overall community connectedness (Brown et al., 2008). (Gray III) (*youth, depression, Rwanda*) A 2006–2007 post-test study of 6,127 children ages 8–14 in four OVC programs in **Kenya** and **Tanzania** found that kids’ clubs had mixed results in improving children’s psycho-social outcomes. One successful kids’ club, which met once a month and had a standardized curriculum and an OVC supervisor on staff, was associated with higher perceptions of having adult support, improved pro-social behavior and fewer emotional problems (Nyangara et al., 2009). (Gray IV) (*orphans, support groups, Kenya, Tanzania*)

- ▶ A study in **Benin** from 2005–2007 with 91 children, 51% female, aged 5 months to 15 years, found that psychological disorders disappear after two months of continued psychological care given to them as well as to their parents, caregivers or other relatives involved in childcare. In this intervention, follow up for those with psychological problems was done twice a week for a month, and twice a month until the patient was stable. Psychological care was integrated into the care package for HIV-exposed or infected children and comprised of clinical, social and nutritional, therapeutic education and pediatric community-based care (Odjo et al., 2008). (Abstract) (*children, adolescents, counseling, community-based care, Benin*)

5. **Programs that provide microenterprise opportunities, old age pensions or other targeted financial and livelihood assistance can be effective in supporting orphans.**

- ▶ A randomized clinic trial studied 268 adolescent orphans in their final year of primary school from fifteen comparable primary schools in Rakai District, **Uganda** and found that at ten months post-intervention, adolescents who had participated in an economic empowerment intervention had significantly better self-esteem and self-rated health measures than the control group. Girls reported greater increases in self-esteem than boys. Self-esteem was positively correlated with self-rated health functioning, and adolescents with increased self-esteem were found less likely to intend to engage in risky sexual behaviors. The SUUBI economic intervention focused on increasing assets for families and provided workshops on asset-building and planning, monthly meetings with mentors on life planning, and a Child Development Account (CDA) for each adolescent with a 2:1 match of contributions that could be used for “secondary education, vocational training and/or for a small family business” (Ssewamala et al., 2009: 193). The average monthly net deposit was \$6.33, which accumulated to \$228 per year, enough to cover almost two years of secondary education. The study participants had an average age of 13.7 years. The proportion of study participants who were paternal, maternal and double orphans was 41%, 19% and 40%, respectively (Ssewamala et al., 2009). (Gray II) (*adolescents, orphans, microfinance, self-perception, Uganda*)

- ▶ A study done in **Kenya** (year not given) with 228 OVC showed that OVC with a head of household involved in saving and loans associations (SLAs) had more diverse diets, ate more frequently and had better nutritional status than those from a household with a head not involved in SLA. Households involved in SLAs had significantly higher agricultural productivity and income generating activities after a two-year intervention by a community-based care program for OVC. The program organized OVC household heads (of whom 95% were women) into SLAs to pool money and borrow sums that they paid back with interest. OVC household heads were trained in cash management and were given agricultural support. The study further indicated that 78% of OVC households involved in SLAs had either three or more feedings as compared to 64% of OVC households not involved in SLA (Taoka et al., 2008). (Gray IV) (*OVC, food security, training programs, Kenya*)
- ▶ A study in **Haiti, Kenya, Tanzania, Rwanda and Zambia** (year not given) with 2,205 OVC ages 7–17 years found OVC with agricultural training, farming inputs and home/community gardens to be more likely to report greater frequencies of having enough food to eat (54% compared to 35%). The study found that dual orphans were most vulnerable to food insecurity (Senefeld et al., 2008). (Gray IV) (*OVC, training programs, food security, Haiti, Kenya, Tanzania, Rwanda, Zambia*)
- ▶ Old age pensions bring specific benefits to vulnerable children. The Joint Learning Initiative on Children and HIV/AIDS final report, which compiled over 50 systematic reviews by working groups of world OVC experts, found “that old age pensions help children ... households that include pension recipients increase spending related to children’s welfare,” particularly in the African policy context. JLICA cited a 2004 study that evaluated the impact of **South Africa’s** Old Age Pensions on children’s school attendance. When a household member received a pension, the children in the household attended school 20 to 25% more often. In the poorest quartile, old age pensions increased the chance that girls would attend school fulltime by 7% and for boys by 5%. (Adato and Bassett, 2008 citing Samson et al., 2004).” (Gray IV) (*orphans, grandparents, pensions, South Africa*)
- ▶ A final report of a study on children, AIDS, and poverty, which compiled over 50 systematic reviews by working groups of world OVC experts, suggested “income transfers as ‘a leading edge’ intervention to rapidly improve outcomes for extremely vulnerable children and families,” (Irwin et al., 2009: 58). JLICA suggests unconditional income transfers and child poverty support grants for the African policy contexts. In particular, income transfers to women in the households improve children’s outcomes. The JLICA review of cash transfer programs cited a pilot income transfer study in **Malawi** and **Zambia** which found that in high HIV prevalence areas where families were targeted for the income transfer based on poverty, 70% of the participating families were affected by HIV (Adato and Bassett, 2008 citing Schubert et al., 2007). (Gray IV) (*orphans, financial assistance, Malawi, Zambia*)

- ▶ A study with 1,400 adults in **South Africa** found that assistance to families as well as additional funds to support OVCs increased the likelihood of adults supporting orphans. When non-direct financial assistance such as paying for the child's education and providing for a trained person to assist in care, were included, adults were more willing to care for orphans. However, 28% of best friends, 29% of strangers and 15% of fathers and 17% of grandparents said they would decline to take in a child or children if they were HIV-positive (Freeman et al., 2006). (Gray V) (*OVC, financial assistance, South Africa*)

### Promising Strategies:

#### 6. Programs for OVC should keep siblings together if at all possible.

- ▶ A cross-sectional survey (year not given) in rural **China** with 124 double AIDS orphans (42% were female) with an average age of 12.4 years and with at least one sibling (69 separated from siblings and 55 living with a sibling) concluded that separation from siblings is associated with trauma symptoms of AIDS orphans who had lost both parents and were placed in group care settings. The study found that the orphans separated from their siblings had significantly higher scores on anxiety, anger, dissociation and sexual distress as compared to those living with their siblings (Gong et al., 2008). (Gray IV) (*orphans, China*)

#### 7. Providing community development projects, rather than a narrowly defined HIV/AIDS program, may reduce the stigma against OVC.

- ▶ A 2006–2007 study of 6,127 children ages 8–14 and 4,591 caregivers in four OVC programs in **Kenya** and **Tanzania** found that services targeting OVC or families affected by HIV/AIDS may also add to stigma. “A noticeable fraction of the sample across each study setting reported that there was community jealousy of services provided to OVC and their families.” Between 22 and 57 percent of the children across all study sites perceived jealousy for the services they received, while among caregivers these perceptions were higher—from 27 to 67 percent. “These results bear credence to both the importance of engaging the community in decisions regarding who will receive services, as well as programmatic efforts to sensitize the community on the needs of OVC and those of HIV-affected families,” (Nyangara et al., 2009: 31) (Gray IV) (*OVC, stigma, Kenya, Tanzania*)
- ▶ A community development project that incorporated income-generating activities for women's cooperatives in **Côte d'Ivoire** identified 409 OVC, all of whom were provided school kits and fees, medical care, psychosocial support and monthly food supplements for families in need, along with increased HIV testing of those in the community. Because the community perceives the program as a community development program

rather than a narrowly defined HIV/AIDS program, this may have reduced the stigma attached to OVCs. Linking HIV prevention, testing and care with income generation for women may increase care and support for OVC (Bossou et al., 2008). (Abstract) (*OVC, community-based care, stigma, Côte d'Ivoire*)

#### 8. Community meetings may reduce stigma against OVC.

- ▶ A post-test cross sectional study conducted in **Kenya** (year not mentioned) with 2,472 OVC adult guardians (92% female) showed that guardians exposed to curriculum-based anti-stigma community meetings had more positive attitudes towards OVC and PLHA than guardians not exposed to community meetings. OVC guardians who attended meetings were twice as likely (51%) as non-attendees (27%) to have ever been tested for HIV (Thurman et al., 2008). (Abstract) (*OVC, stigma, Kenya*)

#### Gaps in Programming—Orphans and Vulnerable Children

1. Increased financial support is needed for adults, especially grandparents, caring for orphans.
2. Increased psychosocial support is needed for caregivers.
3. Interventions are urgently needed to help girls enroll (and stay) in school.
4. HIV/AIDS programming should also reach young children.
5. Improved and timely access to antiretrovirals is needed for orphans.
6. Interventions are needed to assist parents dying of AIDS with planning for the future well-being of their children.
7. Further interventions to provide support programs, including counseling, are needed for AIDS-orphaned children to combat depression, social isolation and stigma.
8. Further interventions are needed to help female OVCs reduce risky sexual behaviors and protect them from sexual violence.
9. Programs should encourage male involvement in children's treatment and orphan care.
10. NGO and government interventions must take care not to create dependence on externally funded services and decrease the community's sense of responsibility for OVC.

1. **Increased financial and other support is needed for adults, especially grandparents, caring for orphans.** Studies found families caring for orphans lacked adequate food and nutrition and reported financial difficulties in meeting basic needs.
  - ▶ Gap noted, for example, in **Uganda** (Kintu et al., 2008); **Kenya** (Muga et al., 2009); **Botswana** (Miller et al., 2006, Heymann et al., 2007); and **Malawi** (Huijbregts et al., 2008).
2. **Increased psychosocial support is needed for caregivers.** A study found that caregivers need psychological support.
  - ▶ Gap noted, for example, in **Tanzania** (Nyangara et al., 2009).
3. **Interventions are urgently needed to help girls enroll (and stay) in school.** [See also Chapter 11E. *Strengthening the Enabling Environment: Advancing Education*] Studies found that girls affected by HIV are more likely to be out of school, despite the protective factor of education in reducing the likelihood of HIV acquisition.
  - ▶ Gap noted, for example, in a systematic review (Irwin et al., 2009); **Thailand** (Yoddumnern-Attig et al., 2004); **Tanzania** (Wobst and Amdt, 2004); **South Africa** (Horizons et al., 2004); **Kenya** (HRW, 2003).
4. **HIV/AIDS programming should also reach young children.** A review found that despite the impact of investing in early childhood interventions, few HIV/AIDS programs exist for young children.
  - ▶ Gap noted, for example, in a systematic review (Irwin et al., 2009) and review of National Plans of Action for OVC (Engle, 2008).
5. **Improved and timely access to antiretrovirals is needed for orphans.** A study found that orphans were more likely to be at WHO clinical stage 4, and need timely treatment initiation.
  - ▶ Gap noted, for example, in **Uganda** (Ntanda et al., 2009).
6. **Interventions are needed to assist parents to disclose and dying of AIDS with planning for the future well-being of their children.** [See also Chapter 11C. *Strengthening the Enabling Environment: Transforming Legal Norms to Empower Women, including Marriage, Inheritance and Property Rights*] Studies found that many parents dying from AIDS had not written wills nor provided custody arrangements for their children.
  - ▶ Gap noted, for example, in **Kenya and Tanzania** (Nyangara et al., 2009, Hunter and Williamson, 2000).

7. **Further interventions to provide support programs, including counseling, are needed for AIDS-orphaned children to combat depression, social isolation and stigma.** Studies found that AIDS orphans reported insufficient food, depression and stigma.
  - ▶ Gap noted, for example, in **Republic of the Congo** (Taylor et al., 2008); **Zambia** (Alvarez et al., 2008); **Rwanda** (Thurman et al., 2008a); **South Africa** (Cluver et al., 2007, Cluver and Gardner, 2007); **China** (He et al., 2007).
  
8. **Further interventions are needed to help female OVCs reduce risky sexual behaviors and protect them from sexual violence.** [See also Chapter 5. *Prevention for Young People*] Studies found that female orphans had higher rates of early sexual debut and were more likely to have had coerced sex.
  - ▶ Gap noted, for example, in **South Africa** (McGrath et al., 2009); **Zimbabwe** (Kang et al., 2008, Birdthistle et al., 2008, Nyamukapa et al., 2008); **Rwanda** (Boris et al., 2008); **Nigeria** (Olaleye et al., 2008); **South Africa** (Thurman et al., 2006); **South Africa and Swaziland** (Poulsen, 2006).
  
9. **Programs should encourage male involvement in children’s treatment and orphan care.** A systematic review and several studies found that fathers are often overlooked in orphan care when the mother has died.
  - ▶ Gap noted, for example, in a systematic review (Sherr, 2008); **South Africa** (Hill et al., 2008; and **Zimbabwe** (Nyamukapa et al., 2005).
  
10. **NGO and government interventions must take care not to create dependence on externally funded services and decrease the community’s sense of responsibility for OVC.** An evaluation of programs providing services to orphans found that because of NGO interventions, communities believed they had no responsibilities towards caregivers and orphans.
  - ▶ Gap noted, for example, in **Kenya and Tanzania** (Nyangara et al., 2009).



## Structuring Health Services to Meet Women’s Needs

The manner in which health services are structured has an impact on HIV prevention, treatment and care services for women and girls. Women often need multiple reproductive health services such as family planning in addition to HIV prevention, treatment and care, but most health care facilities are not structured to provide integrated services. Integration of services, especially HIV and family planning provides a way to capture the missed opportunities to counsel women and couples on contraceptives and other sexuality issues as well as provide HIV services. Sexual and reproductive health services are also excellent locations for providing HIV services, reaching potential ART users (WHO, 2003a; Interact Worldwide et al., 2008). If family planning is offered separately or if HIV service providers cannot counsel on contraceptives and sexuality issues, women may not be getting the full range of services they need.

### *Integration of Services Is Key to Ensuring Women Receive Comprehensive Health Care*

“Women are willing to use sexual and reproductive health clinics and outreach services because they do not attract the stigma” (Titus and Moodley, 2009: 138) often attached to HIV services such as HIV testing. “Women already attend clinics or community-based distribution programs for contraceptive advice, and when pregnant, millions of women in under-resourced countries make at least one visit to a prenatal clinic and a significant proportion make at least one postnatal clinic visit” (Titus and Moodley, 2009: 138). Recent studies in Kenya and Zambia found that family plan-

---

“I feel like mothers benefiting from PMTCT must be assisted quickly at the antenatal clinic unlike what we see today. We keep waiting from early in the morning to late in the evening without being attended to. We remain hungry all day long and our children keep crying out of hunger as well. At the ANC there is not even a place to lay down and rest.”

—Woman attending PMTCT program, Malawi  
(Bwirire et al., 2008: 1997)

---

ning providers, antenatal care and family planning clients, and HIV-positive women identified the need for family planning in a context of high HIV prevalence (Banda et al., 2004; Gichuhi et al., 2004).

A recent review of PMTCT program failures in developing countries concluded that key factors include “the lack of linkages between prevention of mother-to-child transmission programs and primary prevention, family planning, and most importantly, the provision of care and treatment” (McIntyre and Lallemand, 2008a: 139). However, it is critical that policy-makers and program managers know and understand the client population before deciding whether service integration is likely to be effective (Gillespie et al., 2009).

Integrating PMTCT into reproductive and child health services in Tanzania between 2006 and 2007 showed a positive association with the PMTCT program including antenatal clinic attendance, syphilis testing and malaria prophylaxis among pregnant women (Giphart et al., 2008). TB screening as part of antenatal and postpartum care is also important due to the increased risk of maternal and infant mortality associated with TB and HIV co-infection during pregnancy and postpartum (Mofenson and Laughton, 2007).

Women should be viewed as individuals with health care needs. Access to antiretroviral treatment for pregnant women in ANC clinics should not be seen to emphasize prevention of perinatal transmission at the expense of the women’s own health. Focus on HIV for women only during pregnancy often shifts services to only preventing HIV transmission to the babies and neglects the health needs of the women themselves. Importantly, health care providers must practice in a respectful, non-discriminatory manner.

### *Health Care Providers’ Needs Must Also Be Met*

Nurses occupy a pivotal position in relation to the HIV/AIDS epidemic, especially in Africa, where they face a disproportionate risk of infection, the largest burden of caring for sick family

or orphans, and as health care workers, risk of occupational exposure (Zelnick and O’Donnell, 2005). A review of human resources for health care in Kenya found that many health care workers are themselves living with HIV, suffer from stigma and cannot afford the services or treatment they prescribe for others (Munene and Simiyu, 2008).

In order to provide quality care, health care workers must have access to the means of universal precautions (e.g. gloves, masks and other protective equipment) so they can protect themselves from HIV transmission. Health care workers must be assured of the use of this personal protective equipment, which can reduce fear of treating people with HIV and thus reduce stigma and discrimination

against women living with HIV who access health services. [See also *Chapter 11F. Strengthening the Enabling Environment: Reducing Stigma and Discrimination*]

---

“Where workers have the potential to encounter blood or other body fluids in the course of their work, employers have an obligation to train them in infection control and to ensure ready access to protective equipment and post-exposure prophylaxis”  
(UNAIDS, ND).

---

“All national HIV prevention programmes must promote adherence to sound infection control practices in healthcare settings. Risk of HIV infection can be significantly lowered through workers’ adherence to universal precautions, the routine use of gloves and other protective equipment to prevent occupational exposures, safe disposal of needles and other sharp instruments, and timely administration of a four-week prophylactic course of antiretroviral drugs” (UNAIDS, ND). Importantly, in case of needle stick injuries, post-exposure prophylaxis should be used. Post-exposure prophylaxis guidelines can be found at: [http://whqlibdoc.who.int/publications/2007/9789241596374\\_eng.pdf](http://whqlibdoc.who.int/publications/2007/9789241596374_eng.pdf). The following WHO and ILO documents provide information on standards in health care services in the context of HIV: [http://www.who.int/hiv/pub/priority\\_interventions\\_web.pdf](http://www.who.int/hiv/pub/priority_interventions_web.pdf) and [http://www.who.int/hiv/pub/prev\\_care/who-ilo-guidelines.pdf](http://www.who.int/hiv/pub/prev_care/who-ilo-guidelines.pdf).

### *More Health Care Workers Are Needed*

Health personnel are a critical component to effective health services and are in extremely limited numbers in many parts of the world. For example, Malawi has nurse vacancy rates of 55% and only 1.7 physicians per 100,000 population (Massaquoi et al., 2008b). A review of human resources for health care in Kenya found that while the current work force totals 30,575, the needed human resources are 79,667 (Munene and Simyu, 2008). Additionally, in order to provide adequate care, health care workers need to be equitably distributed within the country, in both urban and rural areas. The shortage of health personnel increases the waiting time and reduces the quality of service for women.

### *Health Care Systems Must Be Strengthened*

Task shifting of non-medical tasks to less highly trained staff, is one way the human resources crises in health care has been addressed. Although this approach can improve access to services and increase uptake of antiretroviral and other treatments, this can also increase the burden on community and lay health workers who are predominantly women. Identifying a full range of solutions to resolve the human resources crisis is beyond the scope of this document but further information can be found at Physicians for Human Rights: <http://physiciansforhumanrights.org/library/report-boldsolutions-2006.html>.

Strong service delivery systems, such as supportive supervision, training programs, logistics systems to ensure supplies are also essential for structuring health services in a way that meets women’s needs, but interventions addressing these issues are also beyond the scope of this document. Further information on this topic can be found at <http://www.who.int/healthsystems/en/>.

## What Works—Structuring Health Services to Meet Women’s Needs

1. Integrating HIV testing and services with family planning, maternal health care or within primary care facilities can increase uptake of HIV testing and other reproductive health services.
2. Promoting contraceptives and family planning as part of routine HIV services (and vice versa) can increase condom use, contraceptive use, and dual method use, thus averting unintended pregnancies among women living with HIV.
3. Providing VCT together with other health services can increase the number of people accessing VCT.
4. Scaling up PMTCT programs increases the number of women who know their serostatus, and improves HIV knowledge.
5. Clinic-based interventions with outreach workers can be effective in increasing condom use among sex workers.
6. Providing accessible, routine, high quality, voluntary and confidential STI clinical services that include condom promotion can be successful in reducing HIV risk among sex workers.
7. Home testing, consented to by household members, can increase the number of people who learn their serostatus.
8. Training providers can reduce discrimination against people with HIV/AIDS.
9. Establishing comprehensive post-rape care protocols, which include PEP, can improve services for women.
10. Providing clinic services that are youth-friendly, conveniently located, affordable, confidential and non-judgmental can increase use of clinic reproductive health services, including VCT.

## What Works—Structuring Health Services to Meet Women’s Needs *(continued)*

### *Promising Strategies:*

11. Integrating testing and treatment for syphilis with HIV testing for pregnant women will increase the number of women treated for syphilis and may reduce perinatal transmission of HIV.
12. Conducting HIV testing and counseling for women who bring their children for immunization can increase the number of women accessing testing and treatment services.
13. Infection control of TB within health care settings can reduce the incidence of TB among health care workers, particularly nurses.
14. Screening for TB during routine antenatal care in high HIV prevalent settings results in increased TB detection rates in women and is acceptable to most women, though stigma may be a barrier.
15. Screening for and treating STIs on a continuous, accessible basis improves overall health systems, and has been associated with reducing the risks of HIV acquisition in a setting with high STI prevalence.
16. Integrating HIV test kits with condom and contraceptive supplies may decrease stock-outs.
17. Integrating legal services into health care can help ensure that women retain their property.
18. A combination of infection control strategies may significantly reduce the rate of TB transmission, including drug-resistant TB, in high-risk, low-resourced health care settings.
19. Implementing service-related changes based on needs assessments can result in improvements in HIV services.

## EVIDENCE

1. **Integrating HIV services with family planning, maternal health care or within primary care facilities can increase uptake of HIV testing and treatment and other reproductive health services.**
  - ▶ In **Zambia** from 2007 to 2008, 581 HIV-positive pregnant women were successfully identified and initiated on HAART in primary health centers. Of 14,815 HIV-positive pregnant women registered in the 60 primary health care centers, 1,660 had their CD4

counts available at primary health care clinics. Of these, 796 had CD4 counts under 350 and were eligible for treatment and 581 of them were initiated on HAART at the primary care level (Mandala et al., 2009). (Gray III) (*pregnancy, treatment, health facilities, Zambia*)

- ▶ Integration of family planning and HIV services in **Nigeria**, with strengthened referral links, provider training, co-located services, same staff and parallel supply chain management systems, resulted in monthly consultations of family planning increasing from a range of 1 to 161 per month pre-integration to 3 to 410 post-integration. The mean attendance at family planning clinics increased significantly from 67.6 pre-integration to 87 post-integration. The mean couple years of protection increased significantly from 32.3 pre-integration to 38.2 post-integration. There was an increase of 34 referrals per 1,000 ART users and an increase of 42 per 1,000 PMTCT clinic users (Chabikuli et al., 2009). (Gray III) (*family planning, health facilities, Nigeria*)
- ▶ A pre-post intervention study in 23 public sector hospitals, health centers and dispensaries in two districts in one province in **Kenya** found that provider-initiated testing and counseling was feasible and acceptable in family planning services, did not adversely affect the quality of the family planning consultation and increased access and use of HIV testing in a population which benefited from knowing their serostatus. All clients were female. 538 pre-intervention and 520 post-intervention were randomly selected to be observed and interviewed. The policy environment in Kenya has been conducive to linking HIV/AIDS services with reproductive health service, with a Reproductive Health and HIV/AIDS strategy. Counseling guidelines were updated for providers to discuss HIV transmission and prevention, conduct risk assessment, discuss dual promotion and offer HTC. Staff received training on contraceptive methods, HIV, reproductive rights, informed choice and consent, safe sex, values clarification, risk assessment and reduction, record keeping and logistics management. One group of 28 family planning providers were trained for nine days in the integrated family planning and HIV counseling intervention and in providing HIV testing and counseling to family planning clients requesting a test during the consultation. Another group of 47 family planning providers were trained for five days in the intervention and referred clients interested in an HIV tests. Implementing the intervention added two to three minutes per consultation for those who wanted a referral and seven minutes for those wanting on-site rapid testing. The incremental cost per family client ranged from \$5.60 in hospitals to \$9.53 in dispensaries. Dual method use increased from 1% to 6%. For those who were tested on site, 35% of clients were tested; for those referred, 20% were tested for HIV. One-third of the family planning clients who chose to have an HIV test had never had an HIV test before (Liambila et al., 2009). (Gray III) (*family planning, HIV testing, contraception, health facilities, Kenya*)
- ▶ A 2001–2002 study of 706 women in **Tanzania** who accessed post-abortion services found that most accepted HIV testing and condoms. In Tanzania, abortion is illegal

and women have unsafe abortions to terminate unplanned pregnancies. Of 1,357 with incomplete abortion, 708 admitted unsafe abortion. Women were offered HIV testing and counseling about contraception and HIV and, 407 (58%) accepted HIV testing. Prior to the study, condom use during the past six months before hospital admittance was low, with 61% never using condoms. Among women who accepted being tested for HIV, 73% accepted to use condoms either alone or in combination with hormonal contraception after having been provided with contraceptive counseling. Of the 407 women who accepted HIV testing, 14% were HIV-positive. "... Women who have an unsafe abortion comprise a vulnerable group who are at high risk of repeated unsafe abortion and HIV infection" (Rasch et al., 2006: 703). (Gray III) (*HIV testing, abortion, condom use, health facilities, Tanzania*)

- ▶ A study in **South Africa** found that providing HAART at primary care clinics with adequate support for health facilities resulted in a four-fold increase in new HAART initiations with a high rate of viral load suppression of over 85% and a twenty fold increase in CD4 cell count testing in HIV-positive adults. Systems improvements included immediate CD4 cell count determination if HIV test results are positive, with multiple processes at the same visit, such as counseling, lab testing, clinic staging, etc.; nurses designated to follow-up on basis of CD4 cell counts; increased reliance on clinical judgment of health workers who know the clients well, such as deferring home visits based on logistics; patients are referred back from secondary and tertiary HAART initiation sites to primary care clinics for care (Barker et al., 2007a). (Gray IV) (*HAART, health facilities, HIV testing, South Africa*)
- ▶ In the Western Cape Province of **South Africa**, all HIV-positive women identified through PMTCT services undergo immunologic testing. Pregnant women with CD4 counts greater than 200 receive a two drug short course of zidovudine and nevirapine for PMTCT, whereas those with CD4 counts of 200 or lower are immediately referred to separate HIV treatment facilities for a 'fast-track' evaluation and HAART initiation (Coetzee et al., 2005 cited in Abrams et al., 2007). Instituted in 2004 and now implemented on a wide scale, this has contributed to low rates of PMTCT, estimated at between 6 to 8% (Abrams et al., 2007). (Gray V) (*PMTCT, pregnancy, CD4 counts, HAART, health facilities, South Africa*)
- ▶ Integrating HIV/AIDS treatment in 53 health facilities in 23 districts in **Mozambique** with 80,000 people resulted in 70% decline of loss to follow up from antenatal care to ART services over one year (Pfeiffer et al., 2008). (Abstract) (*treatment, antenatal care, health facilities, Mozambique*)
- ▶ A study at a hospital in **Kenya** found that integration of PMTCT, ANC and MCH services reduced MTCT, increased women's retention in HIV care and improved follow-up of infants born to HIV-positive women. Women who tested HIV-positive were given HAART if appropriate. Prior to the integration project, women who tested HIV-positive did not report to the HIV clinic even when personally escorted by hospital staff.

Pregnant women reported feeling out of place in the HIV clinic. (Bilonda and Njau, 2008). (Abstract) (*pregnancy, PMTCT, treatment, antenatal care, health facilities, Kenya*)

- ▶ A 2008 study from **Swaziland** showed that integrating HAART into preexisting maternal and child health (MCH) services increased the number of HIV-positive pregnant women initiating HAART (no numbers given). MCH services began offering HAART for HIV-positive pregnant women and their families in February 2007. After 10 months, 28% of pregnant women eligible for HAART initiated treatment in comparison to only 5% initiating HAART during the 10 months previous to the integration. Over 300 patients initiated HAART post-integration, 45% of which were pregnant women. Additionally, 25 family units enrolled in HAART services during this time demonstrating the usefulness of integrated MCH/HAART services for women and their families (Mahdi et al., 2008). (Abstract) (*health facilities, HAART, pregnancy, Swaziland*)
  - ▶ A 2004 to 2007 project in **Ethiopia and Ukraine** conducted by UNFPA and EngenderHealth that integrated HIV prevention interventions into maternal and child health programs increased the numbers of women receiving HIV counseling and testing, and syphilis screening, as well as women's intentions regarding HIV risk during pregnancy. Interventions to support the introduction of integrated services included whole site training, minor upgrades to facility infrastructure and provision of necessary supplies. Pre- and post-test training questionnaires were conducted with 307 health providers and 64 women receiving services (Perchal et al., 2008). (Abstract) (*HIV testing, counseling, health facilities, Ethiopia, Ukraine*)
  - ▶ A study in **Rwanda** found that provision of HIV care at VCT and PMTCT sites effectively enrolls more patients earlier in their illness and more effectively refers those eligible for HAART. In five health centers in 2007, 119 clients tested HIV-positive, of whom 118 were referred to the nearest treatment site. Of the 118 patients referred, only 33% arrived at the treatment site within three months. In the program that consisted of standard pre-antiretroviral therapy HIV care, 100 patients (74% female and 26% male) were immediately enrolled and staged during a three months period following their seropositive HIV test. Of these, 26% were eligible for HAART and were referred to the nearest treatment site where 91% of them were started on HAART (Ubarijoro et al., 2008). (Abstract) (*health facilities, PMTCT, HAART, Rwanda*)
2. **Promoting contraceptives and family planning counseling as part of routine HIV services (and vice versa) can increase condom use, contraceptive use, and dual method use, thus averting unintended pregnancies among women living with HIV.** [See also above and Chapter 8. *Meeting the Sexual and Reproductive Health Needs of Women Living with HIV*]
- ▶ In **Uganda**, a project from 2006 to 2007 integrated family planning and HIV treatment, resulting in a three-fold increase in the number of HIV treatment patients accessing family planning. Evaluation data included 105 client exit interviews, 30 provider client observations, 37 self-administered provider questionnaires, six key informant inter-

views with program staff, three group discussions with people living with HIV and three group discussions with providers showed that two-thirds of clients interviewed in exit surveys reported that they used condoms every time they had intercourse in the past six months. Four contraceptive methods were provided: condoms, oral contraceptives, injectables and emergency contraceptive pills. Referrals were made for long acting and permanent contraceptive methods to the hospital a few yards from the TASO clinic. A performance needs assessment and an integrated training curriculum to provide family planning and antiretroviral therapy were developed and utilized. Prior to the intervention, only 16% of HIV-positive women were counseled on their family planning needs because providers were concerned that providing family planning would encourage women living with HIV to have sex. Condoms were provided for HIV prevention but not for family planning and HIV-positive men were excluded from family planning activities. By the end of the project, 62% of providers reported that adding family planning services did not adversely affect the provision of antiretroviral therapy while 35% of clients reported that adding family planning services improved the provision of antiretroviral therapy and 41% experienced no change. In Uganda, approximately one million people live with HIV and adult HIV prevalence is 6.7%, with the highest levels among women in urban areas. Nearly 25% of all new HIV infections result from perinatal transmission. Although the mean ideal number of children is 5.3, the total fertility rate is 6.7 lifetime births per woman. Only 18% of married women use a modern effective family planning method. (Searing et al., 2008). (Gray V) (*PMTCT, family planning, condom use, treatment, Uganda*)

- ▶ Focus group discussions with four HIV-positive women and four HIV-positive men at a public health facility in Cape Town, **South Africa** found that they felt that HIV/AIDS services provided good non-judgmental, respectful, informative and confidential care as compared to facilities that provided reproductive health services and contraception where, as one woman noted, “that crew make you feel scared to go to the clinic” (Orner et al., 2008: 1218). In addition, “integrating services would mean not having to repeatedly explain themselves to others, thus decreasing instances of stigma and prejudice directed towards them. For women who needed to access contraceptives, access to ‘everything you need under one roof’ was unambiguously desired” (Orner et al., 2008: 1220). (Gray V) (*HIV testing, treatment, contraception, South Africa*)

3. **Providing VCT together with other health services can increase the number of people accessing VCT.** [*See above and Chapter 6. HIV Testing and Counseling for Women*]

4. **Scaling up PMTCT programs increases the number of women who know their serostatus and improves HIV knowledge.**

- ▶ A study in **Côte d’Ivoire** from 2004 to 2005 showed that implementation of a comprehensive PMTCT program in urban health facilities significantly increased HIV testing, PMTCT and also improved the quality of some antenatal and delivery health services.

Before implementation of the PMTCT intervention, five urban health facilities underwent renovation, or new buildings were constructed in order to meet PMTCT program standards that included adequate room for individual counseling and group sessions. Additionally, a standard set of equipment was supplied to each facility and all maternity care staff was provided PMTCT training. After PMTCT program implementation the number of pregnant women offered HIV testing increased from 0% to 63%, 83% of HIV-positive mothers and 78% of infants received nevirapine, health facility staff in favor of recommending HIV testing increased from 82% to 98% and the proportion of staff who would be willing to be tested during their own pregnancy increased from 59% to 86%. Further, interpersonal communication improved significantly with women receiving a friendly greeting increasing from 44% to 70% and an invitation to sit from 69% to 99%. Confidentiality also improved with the number of women asked questions individually without another patient present increasing from 63% to 81%. Individual counseling showed an increase in family planning counseling from 3% to 28% and prevention of STI counseling from 7% to 36%. The number of women participating in information sessions where prevention of STIs, HIV and HIV testing was addressed increased from 39% to 75%. Washing of hands before or after an examination by clinic staff increased from 3% to only 11%. During the medical interview at first antenatal care, the frequency of retrieving a history of previous pregnancies increased from 44% to 58%, history of cesarean sections from 35% to 55% and last menstrual period from 38% to 55%. During the antenatal care clinical examination, checking of uterine height increased from 95% to 98%, checking of fetal heart rate from 67% to 79% and checking of fetal position from 67% to 81%. Inter-personal relationships improved significantly with women receiving information on labor progression from 8% to 41%, having someone present for support from 19% to 27% and delivering privately without being visible to other patients from 65% to 81%. Safe obstetric procedures demonstrated a marked decrease in episiotomies from 24% to 14% for all women and 64% to 25% in primiparous women. Infection prevention showed that washing the perineum before delivery increased from 9% to 27% and sterile instruments available for each delivery increased from 57% to 69%. At the first exam checking of blood pressure, pulse and conjunctiva all increased (41% to 65%, 3% to 16% and 47% to 61% respectively) and during examination at admission for delivery checking women's antenatal card increased from 91% to 98%, asking about onset of labor pain from 27% to 50%, asking if uterine membranes had ruptured from 33% to 43%, determining uterine height from 65% to 80%, determining position of the fetus from 53% to 84% and measure of fetal heart rate from 60% to 80%. After delivery the use of oxytocics increased from 83% to 90% and checking for uterine retraction increased from 28% to 50%. However, several indicators appear to be negatively impacted by the PMTCT intervention. Information sessions addressing family planning decreased from 30% to 10%, professional attendance at delivery by both doctors and midwives decreased (2% to 1% and 86% to 79% respectively) and manual exploration of the uterus after delivery increased from 32% to

64%. Overall the marked improvement in quality of maternal care after implementation of the PMTCT program was attributed to intensive staff training, supervision and adequate equipment. (Delvaux et al., 2008). (Gray IV) (*PMTCT, HIV testing, treatment, Côte d'Ivoire*)

- ▶ A study reviewed quantitative and semi-qualitative national level PMTCT and pediatric HIV care and treatment data in **71 countries** in 2005 and 58 in 2004 to track progress in scaling up interventions to prevent mother-to-child transmission of HIV in maternal and child health services. The near universal acceptance (90%) of HIV testing among pregnant women who received counseling for PMTCT illustrates that women desire this important bridge to HIV treatment and prevention services. The fact that only 11% (10.3 million) of the women in 71 countries in 2005 were counseled on PMTCT demonstrates the many missed opportunities for ensuring necessary services for healthy mothers and newborns. In countries with generalized epidemics, rapid expansion of provider-initiated HIV testing and counseling in maternal-newborn-child health (MNCH) settings and particularly antenatal care has been an effective way to increase uptake of PMTCT services. Botswana introduced routine offer of HIV testing in 2004. Within three months, the proportion of pregnant women tested for HIV increased from 75% to 90%. Scaling up efforts for PMTCT has started to show an impact. The proportion of HIV-positive pregnant women receiving antiretroviral treatment for PMTCT increased from 7% in 2004 to 11% in 2005, a more than 50% increase (Luo et al., 2007). (Gray IV) (*PMTCT, antenatal care, HIV testing, treatment*)
- ▶ The **Cameroon** Baptist Convention Health Board implemented a program to prevent mother-to-child transmission of HIV-1 (PMTCT) as part of its routine antenatal care, with single-dose maternal and infant peripartum nevirapine (NVP) prophylaxis of HIV-positive mothers and their babies. Nurses, midwives, nurse aides, and trained birth attendants counseled pregnant women, obtained risk factor data, and offered free HIV testing with same-day results. From February 2000 through December 2004, this program rapidly expanded to 115 facilities in 6 of Cameroon's 10 provinces, not only to large hospitals but also to remote health centers staffed by trained birth attendants. Staff trained 690 health workers in PMTCT and counseled 68,635 women, 91.9% of whom accepted HIV testing. Of 63,094 women tested, 8.7% were HIV-1-positive. Independent risk factors for HIV-1 infection included young age at first sexual intercourse, multiple sex partners, and positive syphilis serology. Staff counseled 98.7% of positive and negative mothers on a posttest basis. Of 5,550 HIV-positive mothers, 5,433 (97.9%) received single-dose NVP prophylaxis. Consistent training and programmatic support contributed to rapid upscaling and high uptake and counseling rates (Welty et al., 2005). (Gray V) (*PMTCT, treatment, antenatal care, Cameroon*)
- ▶ A 2007 study in **Nigeria** found that extending PMTCT services from large regional comprehensive ART centers "Hubs" to include smaller secondary hospitals and primary health care centers "Spokes" resulted in a fourfold increase in the number of women

accessing PMTCT. An evaluation of 3 “Hub” sites and 13 “Spoke” sites showed that at “Hub” sites 6,882 new women received antenatal care, 74% of whom were counseled, tested for HIV, and given results, while at “Spoke” sites 33,119 new women received antenatal care, of which 87% were counseled, tested for HIV, and given results. Women who tested HIV-positive at “Spoke” sites and required HAART for their own health were provided transportation to a “Hub” site, while women who did not require HAART were given short course ARTs at the same “Spoke” site. However, women were more likely to return for delivery at “Hub” sites (61.2% of women returning) compared to “Spoke” sites (48.5% of women returning) (Akinmurele et al., 2008). (Abstract) (*PMTCT, health facilities, HIV testing, HAART, Nigeria*)

5. **Clinic-based interventions with outreach workers can be effective in increasing condom use among sex workers.** [*See Chapter 4A. Prevention for Key Affected Populations: Female Sex Workers*]
6. **Providing accessible, routine, high quality, voluntary and confidential STI clinical services that include condom promotion can be successful in reducing HIV risk among sex workers.** [*See Chapter 4A. Prevention for Key Affected Populations: Female Sex Workers*]
7. **Home testing, consented to by household members, can increase the number of people who learn their serostatus.** [*See Chapter 6. HIV Testing and Counseling for Women*]
8. **Training providers can reduce discrimination against people with HIV/AIDS.** [*See Chapter 11F. Strengthening the Enabling Environment: Reducing Stigma and Discrimination*]
9. **Establishing comprehensive post-rape care protocols, which include PEP, can improve services for women.** [*See Chapter 11B. Strengthening the Enabling Environment: Addressing Violence Against Women*]
10. **Providing clinic services that are youth-friendly, conveniently located, affordable, confidential and non-judgmental can increase use of clinic reproductive health services, including VCT.** [*See Chapter 5B. Prevention for Young People: Increasing Access to Services*]

### **Promising Strategies:**

11. **Integrating testing and treatment for syphilis with HIV testing for pregnant women will reduce congenital syphilis and may reduce perinatal transmission of HIV.** [*See Chapter 9C-1. Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*]

12. **Conducting HIV testing and counseling for women who bring their children for immunization can increase the number of women accessing testing and treatment services.** [*See above and Chapter 9E. Safe Motherhood and Prevention of Vertical Transmission: Postpartum*]
13. **Infection control of TB within health care settings can reduce the incidence of TB among health care workers, particularly nurses.**
  - ▶ A cross-sectional study from **Brazil** found that mask use by health care workers, HEPA filters and biosafety cabinets in lab areas, isolation of TB patients with respirators and a negative pressure isolation room, along with rapid diagnosis and treatment of TB patients, resulted in a significantly lower rate of the incidence of LTBI in initially tuberculin-negative health care workers. The study compared two hospitals with infection control with two hospitals with no TB control measures in place. The incidence of LTBI in hospitals without prevention measures was 16 per 1,000 person months; and with prevention measures 7.75 per 1,000 person-months, a statistically significant rate (Roth et al., 2005 cited in Joshi et al., 2006). (Gray III) (*TB, health facilities, Brazil*)
14. **Screening for TB during routine antenatal care in high HIV prevalent settings results in increased TB detection rates in women and is acceptable to most women, though stigma may be a barrier.** [*See Chapter 10A. Preventing, Detecting and Treating Critical Co-Infections: Tuberculosis*]
15. **Screening for and treating STIs on a continuous, accessible basis improves overall health systems, and has been associated with reducing the risks of HIV acquisition in a setting with high STI prevalence.** [*See Chapter 3D. Prevention for Women: Treating Sexually Transmitted Infections*]
16. **Integrating HIV test kits with condom and contraceptive supplies may decrease stock-outs.**
  - ▶ In **Zimbabwe**, distribution of HIV tests was integrated with successful distribution of condoms and contraceptives. Delivery trucks act as a rolling warehouse visiting all 1,600 public sector health facilities once every four months and sites are topped up to maximum stock levels and logistics data is captured. Stock out of HIV tests kits dropped from 35% to 2% and stock reporting rates increased from 30% to 97% (Kajawu et al., 2008). (Abstract) (*HIV tests, condoms, contraception, Zimbabwe*)
17. **Integrating legal services into health care can help ensure that women retain their property.** [*See Chapter 11C. Strengthening the Enabling Environment: Transforming Legal Norms to Empower Women, including Marriage, Inheritance and Property Rights*]
18. **A combination of infection control strategies may significantly reduce the rate of TB transmission, including drug-resistant TB, in high-risk, low-resourced health care settings.**

- ▶ A mathematical model based on TB transmission patterns in Tugela Ferry district and at Church of Scotland Hospital in the Kwa Zulu Natal district in **South Africa**, was created to simulate TB transmission in high TB/HIV prevalent settings. If no new infection control interventions were introduced, about 1300 new cases of XDR-TB were predicted to occur by the end of 2012, more than half of which would likely be nosocomially transmitted or transmitted within health care settings. The model showed that masks alone would prevent 10% of new transmission in an overall epidemic, but could prevent a large proportion of XDR-TB cases among hospital staff. The combination of mask and reduced hospitalization with a shift to outpatient treatment could prevent nearly one-third of XDR-TB cases. Approximately 48% of XDR-TB cases could be averted by the end of 2012, if a combination of mask, reduced hospitalization with shift to outpatient treatment, improved ventilation, rapid drug resistance testing, HIV treatment and TB isolation facilities for highly infectious patients were implemented (Basu et al., 2007). (Gray III) (*TB, South Africa*)

#### 19. Implementing service-related changes based on needs assessments can result in improvements in HIV services.

- ▶ Surveys using the same standardized questionnaire given to 250 patients on one day in 2005 and 400 patients on one day in 2007 found that improvements made based on the 2005 survey resulted in significantly reduced waiting time for patients in **Uganda** (no sex disaggregated data). Nurse visits, rather than assessments by clinicians were instituted for minor complaints. Group counseling was instituted. A pharmacy only refill program was initiated for patients on ART for at least 12 months, who were asymptomatic with good adherence levels and CD4 counts above 200, with patients seeing a doctor or nurse very three months and monthly pharmacy visits. The median time spent at the clinic decreased from 157 minutes in 2005 (ranging from 22 minutes to 426 minutes to 124 minutes (15 minutes to 314 minutes) (Castelnuovo et al., 2009). (Gray III) (*health facilities, treatment, counseling, Uganda*)

## Gaps in Programming—Structuring Health Services to Meet Women’s Needs

1. Improved integration is needed between maternal health services and HIV treatment services.
2. Providers must have access to gowns, gloves and eye protection to decrease the risk of occupational exposure.
3. Ongoing efforts are needed for safe needle disposal.
4. Reliable drug and lab supplies are necessary to ensure adherence.
5. Improved record keeping on HIV counseling, serostatus, and treatment is needed to improve referrals and linkages with other health care services.
6. Health care provider training is needed to increase confidentiality and decrease discrimination against sex workers seeking health services.
7. Providers need training on contraception, including non-directive counseling and reducing stigma and discrimination for women living with HIV.
8. Health service providers must make additional efforts to ensure confidentiality regarding patient’s serostatus.
9. Health care settings must address the needs of transgender people and reduce barriers to services.
10. Where abortion is legal, providers should be trained not to discriminate against HIV-positive women who want to terminate their pregnancies.
11. Interventions are needed to improve quality of HIV treatment and care within health services.
12. Interventions are needed to screen and treat both male and female sexual partners for STIs.
13. Efforts are needed to ensure that providing family-focused HIV care within maternal and child health programs doesn’t discourage men from seeking HIV services.
14. Policy guidelines need to specify how contraception should be addressed in HIV prevention, treatment and care.
15. Additional efforts are needed to provide postpartum women with contraception information and methods so they may space or prevent their next pregnancy.
16. Additional efforts are needed to reduce the risk of TB transmission in high risk, low resource settings.

1. **Improved integration is needed between maternal health services and HIV treatment services.** A study found that even though 11.6% of 1,369 pregnant women were eligible for ARV treatment based on their low CD4 counts prior to delivery and 6 % were eligible postpartum, these women were not integrated into ARV treatment programs.
  - ▶ Gap noted, for example, in **South Africa** (Lebon et al., 2007).
  
2. **Providers must have access to gowns, gloves and eye protection to decrease the risk of occupational exposure.** [See also Chapter 9D. *Safe Motherhood and Prevention of Vertical Transmission: Delivery*] Studies noted that gowns, gloves and eye protection should be used in all deliveries and in examinations or procedures likely to generate the splashing of blood or amniotic fluid.
  - ▶ Gap noted, for example, in **Georgia** (Butsashvili et al., 2008); **Nigeria** (Ohajinwa, 2008); generally (Anderson, 2005).
  
3. **Ongoing efforts are needed for safe needle disposal.** Studies found that used sharp needles were observed inside and outside facilities and that neither adequate disposal methods nor separation of medical waste from domestic waster occurred in health facilities.
  - ▶ Gap noted, for example, in **South Africa** (Mulumba et al., 2008) and **Nigeria** (Bankole et al., 2008).
  
4. **Reliable drug and lab supplies are necessary to ensure adherence.** A study found that 10% of 578 people (27% female) reported missing doses of ARV therapy due to shortages in drug supplies.
  - ▶ Gap noted, for example, in **Peru** (Giron et al., 2008).
  
5. **Improved record keeping on HIV counseling, serostatus, and treatment is needed to improve referrals and linkages with other health care services.** [See Chapter 9C-1. *Safe Motherhood and Prevention of Vertical Transmission: Testing and Counseling*]
  
6. **Health care provider training is needed to increase confidentiality and decrease discrimination against sex workers seeking health services.** [See Chapter 4A. *Prevention for Key Affected Populations: Female Sex Workers*]
  
7. **Providers need training on contraception, including non-directive counseling and reducing stigma and discrimination for women living with HIV.** [See Chapter 8. *Meeting the Sexual and Reproductive Health Needs of Women Living With HIV*]
  
8. **Health service providers must make additional efforts to ensure confidentiality regarding patient's serostatus.** [See also Chapter 6. *HIV Testing and Counseling for Women*, Chapter 8. *Meeting the Sexual and Reproductive Health Needs of Women Living With HIV*, Chapter

9. *Safe Motherhood and Prevention of Vertical Transmission, and Chapter 11F. Strengthening the Enabling Environment: Reducing Stigma and Discrimination*] Numerous studies found that health workers and the structure of health services, such as services that are only for HIV-positive patients in physically separate parts of hospitals, violate patient confidentiality. In addition, health providers who brought services to women's homes also violated their confidentiality.

- ▶ Gap noted, for example, in **Malawi** (Chinkonde et al., 2009); **Dominican Republic** (CHANGE, 2009); a study in five countries—**South Africa, Malawi, Swaziland, Lesotho and Tanzania** (Greeff et al., 2008); and a review in **Argentina, Mexico, Peru, Poland, Botswana, Kenya, Lesotho, Namibia, Nigeria, South Africa and Swaziland** (de Bruyn, 2006a).

9. **Health care settings must address the needs of transgender people and reduce barriers to services.** [*See Chapter 4F. Prevention for Key Affected Populations: Transgender Women and Men*]

10. **Where abortion is legal, providers should be trained not to discriminate against HIV-positive women who want to terminate their pregnancies.** A study found that even where abortion is legal, women living with HIV who wanted an abortion experienced discrimination based on their HIV-positive serostatus.

- ▶ Gap noted, for example, in **Vietnam** (Nguyen et al., 2008f).

11. **Interventions are needed to improve quality of HIV treatment and care within health services.** Studies found that guidelines for counseling were missing from facilities and that clients were referred for VCT in geographically distant locations based on donor preference.

- ▶ Gap noted, for example, in **India** (Sogarwal et al., 2008); **Vietnam** (Nguyen et al., 2008b); **South Africa** (Orner et al., 2008); and **Zambia** (HRW, 2007).

12. **Interventions are needed to screen and treat both male and female sexual partners for STIs.** [*See Chapter 3D. Prevention for Women: Treating Sexually Transmitted Infections*]

13. **Efforts are needed to ensure that providing family-focused HIV care within maternal and child health programs doesn't discourage men from seeking HIV services.** A study found that men were excluded from PMTCT programs.

- ▶ Gap noted, for example, in **Côte d'Ivoire** (Tonwe-Gold et al., 2009).

14. **Policy guidelines need to specify how contraception should be addressed in HIV prevention, treatment and care.** [*See Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV*]

15. **Additional efforts are needed to provide postpartum women with contraception information and methods so they may space or prevent their next pregnancy.** [*See Chapter 9E. Safe Motherhood and Prevention of Vertical Transmission: Postpartum and Chapter 8. Meeting the Sexual and Reproductive Health Needs of Women Living With HIV*]
  
16. **Additional efforts are needed to reduce the risk of TB transmission in high risk, low resource settings.** Studies found that significant TB transmission occurs in health care settings, particularly among nurses.
  - ▶ Gap noted, for example, in a **global review** (Joshi et al., 2006); **Kenya** (Galgalo et al., 2008); **South Africa** (Naidoo and Jinabhai, 2006); **Romania** (Sotgiu et al., 2008); **Russia** (Dimitrova et al., 2005); **South Korea** (Jo et al., 2008).

# Glossary of Terms<sup>1</sup>

**Adolescents** are individuals who are between puberty and the completion of physical growth, roughly from 11 to 19 years of age.

**Adolescent/Youth-Friendly Services** refers to services that are: Available, accessible and equitable, so that the core interventions for HIV are provided in ways that all young people, including those most at risk of HIV, can use them. Acceptable; with health and related staff trained to provide services for young people with dignity and respect, also ensuring privacy and confidentiality; Appropriate and effective, so that the necessary skills, equipment and supplies are available to provide quality services for HIV prevention, treatment, care and support for young people.

**Antiretroviral Therapy (ARV)** consists of the use of at least three antiretroviral (ARV) drugs to maximally suppress the HIV virus and stop the progression of HIV disease. Huge reductions have been seen in rates of death and suffering when use is made of a potent ARV regimen.

**Behavior Change Communication** is an interactive process with communities (as integrated with an overall program) to develop tailored messages and approaches using a variety of communication channels to develop positive behaviors; promote and sustain individual, community and societal behavior change; and maintain appropriate behaviors.

**Combination Antiretroviral Treatment (cART)** refers to a patient taking two or more antiretroviral drugs at a time.

**CD4 Count:** CD4 cells are a type of lymphocyte (white blood cell) and are an important part of the immune system. HIV most often infects CD4 cells and over time, the number of CD4 cells drops, signaling that the immune system is becoming weak.

---

<sup>1</sup> For additional SRH-related term definitions, please see Center for Communication, 2007.

**Community-based Care** is holistic care, treatment, and psychological support for HIV and AIDS patients and their families provided by relatives, friends or community volunteers from non-governmental organizations who are in turn supported to a greater or lesser extent by health professionals, mostly nurses.

**Directly Observed Therapy (DOT)** is a strategy devised to help clients adhere to Tuberculosis (TB) treatment. A TB case manager or another designated person watches the TB client swallow each dose of the prescribed drugs. The goal of DOT is to ensure that clients with active tuberculosis receive and adequately complete their treatment to minimize the risk of spreading the disease to others and developing drug-resistant TB.

**Disclosure** refers to revealing one's HIV status after testing positive.

**Extensively-Drug Resistant Tuberculosis (XDR-TB)** occurs when TB becomes resistant to both first- and second-line drugs as result of misuse or mismanagement. XDR-TB is due to bacteria that are resistant to any fluoroquinolone, and at least one of three injectable second-line drugs (capreomycin, kanamycin and amikacin), in addition to isoniazid and rifampicin .

**Exclusive Breastfeeding** refers to feeding infants only breast milk, without any additional food or drink, including water, for at least 6 months after birth.

**Gender-based Violence** refers to violence on the basis of one's gender.

**Gender Equality** means equal treatment of women and men in laws and policies, and equal access to resources and services within families, communities and society at large.

**Gender Equity** is the process of being fair to women and men. To ensure fairness, measures must often be available to compensate for historical and social disadvantages that prevent women and men from otherwise operating on a level playing field. Equity leads to equality.

**Harm Reduction** refers to policies, programs and practices that aim to reduce the harms associated with the use of psychoactive drugs in people unable or unwilling to stop. The defining features are the focus on the prevention of harm, rather than on the prevention of drug use itself, and the focus on people who continue to use drugs.

**HIV ELISA Test** is a rapid immunochemical test that uses an enzyme to test for HIV antibody. If antibodies to HIV are present (positive), the test is usually repeated to confirm the diagnosis. ELISA stands for "enzyme-linked immunosorbent assay."

**Highly Active Antiretroviral Therapy (HAART)** is a combination of three or more antiretroviral drugs consisting of one or more PIs or one NNRTI or the NRTIs—Abacavir or Tenofovir, or an integrase or an entry inhibitor.

**HIV Testing** refers to immunologic tests for the identification of HIV antibodies.

**Home-based Care** is the care of persons living with HIV infection and AIDS in their homes. This involves the provision of comprehensive care by community members, NGOs, Community-based organizations (CBOs), health workers and family members. This type of care is complementary to the existing health care services.

**Human rights** are the rights to which one is just entitled as a human being.

**Injecting Drug Users (IDU)** refers to those who inject drugs into their bodies. The most commonly injected drugs are heroin and other opiates, cocaine and amphetamines.

**Intermittent Preventive Treatment (IPT)** refers to using the anti-malarial drug Sulfadoxine Pyrimethamine (SP) as a proactive and effective intervention that prevents and controls the effects of malaria on mothers and their unborn children.

**Internally Displaced Persons (IDP)** refers to those who are displaced within their own national borders and are therefore not covered by international refugee law.

**Legal Rights** are rights that exist under the rules of legal systems.

**Lesbians** are women who are sexually attracted to other women. Lesbians prefer intimate relationships with women.

**LGBT** is an acronym for “lesbian, gay, bisexual and transgender. LGBT can refer to individual people or a community of people. Lesbian: A homosexual woman. Gay: A homosexual person; can refer to both men and women, but more often to men. Bisexual: A person who is attracted to men and women. Transgender: An umbrella term for people whose gender presentation or identity is different from their biological sex—for example, a biological male who appears or identifies at least in some respects as female, or a biological female who appears or identifies in at least some respects as male.

**Mass media** are instruments or technological means of communication that reach large numbers of people with a common message; includes radio, television, newspapers, magazines, billboards, banners, posters, store windows and match covers.

**Men Who Have Sex With Men (MSM)** refers to all men who have sex with other men, regardless of how they identify themselves gay, bisexual, or heterosexual.

**Microcredit programs** extend small loans to very poor people for self-employment projects that generate income, allowing them to care for themselves and their families.

**Microfinance** is often defined as financial services for poor and low-income clients. In practice, the term is often used more narrowly to refer to loans and other services from providers that identify themselves as “microfinance institutions.”

**Millennium Development Goals (MDGs)** are eight goals to be achieved by 2015 that respond to the world’s main development challenges. The MDGs are drawn from the actions and targets contained in the Millennium Declaration that was adopted by 189 nations and signed by 147 heads of state and governments during the UN Millennium Summit in September 2000. The eight MDGs break down into 21 quantifiable targets that are measured by 60 indicators.

**Mixed Feeding** refers to feeding a baby both breast milk and other foods or liquids, such as water, glucose water, tea, infant formula, cow milk or other breast-milk substitutes, porridge or rice.

**Multi-Drug Resistant Tuberculosis (MDR-TB)** is defined as TB with resistance to isoniazid and rifampicin, the two most powerful first line drugs.

**Non-Nucleoside Reverse Transcriptase Inhibitor (NNRTI)** are one of the 3 component drug treatments for HAART. These drugs stop HIV from multiplying by blocking the reverse transcriptase enzyme. This enzyme changes HIV’s genetic material (RNA) into the form of DNA. This step has to occur before HIV’s genetic code gets combined with an infected cell’s own genetic codes. Non-nucleoside reverse transcriptase inhibitors, called NNRTIs or non-nukes, physically prevent the reverse transcriptase enzyme from working.

**Orphans and Vulnerable Children (OVC)** generally refers to orphans and other groups of children who are more exposed to risks than their peers. In an operational context, they are the children who are most likely to fall through the cracks of regular programs, or, using social protection terminology: OVC are groups of children that experience negative outcomes, such as the loss of their education, morbidity, and malnutrition, at higher rates than do their peers.

**Peer Education Training** people to teach people of their own age group or background.

**People Living with AIDS (PLWA)** refers to those both infected and affected by HIV/AIDS.

**Personal Protective Equipment (PPE)** is any type of face mask, glove, or clothing that acts as a barrier between infectious materials and the skin, mouth, nose, or eyes (mucous membranes). When used properly, personal protective equipment can help prevent the spread of infection from one person to another.

**Postpartum (PP)**, also termed puerperium, refers to the 6-week period following childbirth.

**Post-exposure prophylaxis (PEP)** is short-term antiretroviral treatment to reduce the likelihood of HIV infection after potential exposure, either occupationally or through sexual intercourse..

**Preventive therapy (PT)** is drug treatment to prevent opportunistic infections among people living with HIV/AIDS who have weakened immune systems. One example of PT is PT consisting of treatment with the antibiotics cotrimoxazole and isoniazid; the former is used to prevent a variety of bacterial infections and the latter is used to prevent and treat tuberculosis.

**Prophylaxis** is a measure taken to maintain health and prevent the spread of disease.

**Protective behavior** is any activity undertaken by a person believing himself to be healthy, for the purpose of preventing disease or detecting it in an asymptomatic stage.

**Providers** are health care personnel attending to those who seek health care.

**R<sub>0</sub>** refers to the number of secondary cases which one case would produce in a completely susceptible population. It depends on the duration of the infectious period, the probability of infecting a susceptible individual during one contact, and the number of new susceptible individuals contacted per unit of time. Therefore R<sub>0</sub> may vary considerably for different infectious diseases but also for the same disease in different populations.

**Replacement Feeding**, sometimes referred to as infant formula feeding, is the process of feeding a child who is not breastfeeding with a diet that provides all the nutrients the child needs, until the child is fully fed on family food. Replacement feeding includes replacement of breast milk with a suitable breast-milk substitute in the first 6 months of life, and ensuring adequate complementary food and replacement of breast milk from 6 months to 2 years.

**Risk Behavior** is a behavior whose outcomes may endanger either the individual engaging in it or those affected by it.

**Self-perception** is an individual's view of self.

**Seroconversion** refers to the development of detectable HIV antibodies in serum as a result of infection.

**Sex behavior** refers to the sexual behavior of humans.

**Sexual debut** refers to a person's first sexual intercourse.

**Sex education** is instruction in all aspects of human reproduction and sexuality.

**Sexuality** is a central aspect of being human throughout life encompassing sex, gender identities and roles, sexual orientation, eroticism, pleasure, intimacy and reproduction. Sexuality is experienced and expressed in thoughts, fantasies, desires, beliefs, attitudes, values, behaviors, practices, roles and relationships.

**Sexually transmitted infections** are infections that are spread primarily through person-to-person sexual contact.

**Social marketing** is the use of marketing techniques to improve social well-being by changing attitudes and behavior in regard to a specific product or concept.

**Squamous Intraepithelial Lesions (SIL)** are precancerous abnormalities of the cervix that can progress to cervical cancer.

**Training programs** are programs aimed at the acquisition of defined skills.

**Unintended Pregnancy** is one that is either mistimed or unwanted at the time of conception.

**Violence Against Women** can include physical, sexual, psychological and economic abuse, and it cuts across boundaries of age, race, culture, wealth and geography. It takes place in the home, on the streets, in schools, the workplace, in farm fields, refugee camps, during conflicts and crises. It has many manifestations — from the most universally prevalent forms of domestic and sexual violence, to harmful practices, abuse during pregnancy, so-called honour killings and other types of femicide.

**Viral Load** refers to the amount of HIV virus in the blood.

**Voluntary Counseling and Testing (VCT)**, the most widely implemented model of HIV counseling and testing, in which people specifically seek the HIV test. In this model, people receive counseling about their risks for HIV, obtain an HIV test, learn their HIV status, receive counseling on how to cope with the test results and implications, and develop a plan with a provider to minimize their risk of acquiring HIV or transmitting the virus to others. The VCT model emphasizes pretest counseling, a risk assessment, and the voluntary seeking of the test.

**Window Period** is the period of time between when a person is first infected with HIV and when they develop antibodies, usually between two weeks and three months, and sometimes up to six months. During the window period standard antibody tests would test negative, but the person is still infectious to others.

**Women's Empowerment** refers to the political, economic, and social advancement of women.

**Women Who Have Sex With Women (WSW)** is often used when discussing sexual behavior. It is inclusive of all women who participate in sex with women regardless of how they identify their sexual orientation..

**WHO Stages of HIV disease** is an approach for use in resource-poor communities where medical facilities are sometimes poorly equipped, and therefore is not possible to use CD4 and viral load test results to determine the right time to begin antiretroviral treatment. The four stages are Stage 1: HIV disease is asymptomatic and not categorized as AIDS. Stage 2: includes mild symptoms such as minor mucocutaneous manifestations and recurrent upper respiratory tract infections. Stage 3: includes advanced symptoms unexplained chronic diarrhea for longer than a month, severe bacterial infections and pulmonary tuberculosis. Stage 4: includes severe symptoms, such as toxoplasmosis of the brain, candidiasis of the esophagus, trachea, bronchi or lungs and Kaposi's sarcoma; these diseases are used as indicators of AIDS.

**Youth/Young people** are primarily people under age 21 (can include persons up to 25 years old).



# References<sup>1</sup>

- Aaron, E. and S. Criniti. 2007. "Preconception Health Care for HIV-Infected Women." *Topics in HIV Medicine* 15 (4): 137–141.
- Abalos, J. 2008. "Determinants of Extramarital Sex among Filipino Men." Abstract MOPE0331. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Abbu-Raddad, L., L. Patnaik and J. Kublin. 2006. "Dual Infection with HIV and Malaria Fuels the Spread of Both Diseases in Sub-Saharan Africa." *Science* 314: 1603–1606.
- Abdool Karim, S., G. Churchyard, Q. Abdool Karim and S. Lawn. 2009. "HIV Infection and Tuberculosis in South Africa: An Urgent Need to Escalate the Public Health Response." *Lancet* 374 (9693): 921–933.
- Abdool Karim, Q., S. Abdool Karim, and J. Nkomokazi. 1991. "Sexual Behaviour and Knowledge of AIDS among Urban Black Mothers. Implications for AIDS Intervention Programmes." *South African Medical Journal* 5; 80 (7): 340–343.
- Abdullahi, M., E. Dorbor and D. Tolfree. 2002. *Case Study of the Care and Protection of Separated Children in the Sinje Refugee Camp, Liberia*. London, UK: Save the Children.
- Abega, S., S. Loubiere, P. Peretti-Watel, S. Koulla-Shiro, S. Boyer, J. Blanche, F. Marcellin, M. Carrieri, B. Spire and J. Moatti. 2008. "HIV Disclosure and Unsafe Sex among HIV-Infected Women in Cameroon: Results from the ANRS-EVAL Study." Abstract THPE0692. XVII International AIDS Conference. Mexico City, August 3–8.
- Abiona, T., A. Onayade, K. Ijadunola, P. Obajunwa, O. Aina and L. Thairu. 2006. "Acceptability, Feasibility and Affordability of Infant Feeding Options for HIV-infected Women: A Qualitative Study in South-west Nigeria." *Maternal and Child Nutrition* 2: 135–144.
- Abrams, E. 2007. "Taking Stock: Triumphs and Challenges in the Field of Pediatric HIV Infection." *Therapy* 4 (6): 705–709.
- Abrams, E., L. Myer, A. Rosenfield and W. El-Sadr. 2007. "Prevention of Mother-to-Child Transmission Services as a Gateway to Family-Based Human Immunodeficiency Virus Care and Treatment in Resource-Limited Settings: Rationale and International Experiences." *American Journal of Obstetrics and Gynecology* (Supplement 1) 197 (3): S101–S106. doi: 10.1016/j.ajog.2007.03.068

---

1 References include all citations in the compendium as well as additional citations consulted and relevant to the topic.

- Achmat, Z. and J. Simcock. 2007. "Combining Prevention, Treatment and Care: Lessons from South Africa." *AIDS* 21 (Supplement 4): S11–S20.
- Adair, T. 2009. "Unmet Need for Contraception among HIV-Positive Women in Lesotho and Implications for Mother-to-Child Transmission." *Journal of Biosocial Science* 41: 269–278.
- Adam, Y., C. van Gelderen and K. Newell. 2008. "'Look and Lletz'—a Chris Hani Baragwanath Hospital Experience." *South African Medical Journal* 98 (2): 119–122.
- Adams, J, J. Bartram, Y. Chartier, and J. Sims (Eds.). 2009. *Water, Sanitation and Hygiene Standards for Schools in Low-cost Settings*. The World Health Organization. Geneva. [http://www.who.int/water\\_sanitation\\_health/publications/wash\\_standards\\_school.pdf](http://www.who.int/water_sanitation_health/publications/wash_standards_school.pdf).
- Adamchak, S., K. Kiragu, C. Watson, M. Muhwezi, T. Nelson, A. Akia-Fiedler, R. Kibombo and M. Juma. 2007. "The Straight Talk Campaign in Uganda: Impact of Mass Media Initiatives, Summary Report." *Horizons Final Report*. Washington, DC: Population Council.
- Adato, M. and L. Bassett. 2008. *What is the Potential of Cash Transfers to Strengthen Families Affected by HIV and AIDS? A Review of Evidence on Impacts and Key Policy Debates*. Boston, MA: Joint Learning Initiative on Children and HIV/AIDS (JLICA).
- Aderol, W., D. Soti, J. Penner, R. Marima, K. Oluoch, E. Bukusi and C. Cohen. 2008. "Towards Universal Access: Decentralization in Rural Kenya." Abstract MOPE0091. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Adhikari, M. 2009. "Tuberculosis and tuberculosis/HIV co-infection in pregnancy." *Seminars in Fetal & Neonatal Medicine* 14: 234–240.
- African Youth Alliance (AYA). 2007. *Improving Health Improving Lives: AYA End of Year Programme Report*. New York, NY: UNFPA.
- Agaba, P., T. Thacher, C. Ekwempu and J. Idoko. 2009. "Cervical Dysplasia in Nigerian Women Infected with HIV." *International Journal of Gynecology and Obstetrics*. 107(2):99–102. doi: 10.1016/j.ijgo.2009.06.006.
- Aggleton, P., E. Chase, K. Rivers and P. Tyrer. 2000. *Innovative Approaches to HIV Prevention: Selected Case Studies*. Geneva, Switzerland: UNAIDS.
- Agha, S. and R. Van Rossem. 2002. "Impact of Mass Media Campaigns on Intentions to Use the Female Condom in Tanzania." *International Family Planning Perspectives* 28 (3): 151–158.
- Agha, S. 2001. "Patterns of Use of the Female Condom After One Year of Mass Marketing." *AIDS Education and Prevention* 13 (1): 55–64.
- Agot, K., J. Kiarie, H. Nguyen, J. Odhiambo, T. Onyango and N. Weiss. 2007. "Male Circumcision in Siaya and Bondo Districts, Kenya: Prospective Cohort Study to Assess Behavioral Disinhibition Following Circumcision." *Journal of Acquired Immune Deficiency Syndromes* 44: 66–70.
- AIDS Accountability International. 2009. *The AIDS Accountability Scorecard on Women 2009: Are Governments Keeping their Promises?* Rating Centre, South Africa. [www.aidsaccountability.org](http://www.aidsaccountability.org)
- AIDS & Rights Alliance for Southern Africa (ARASA). 2009. *HIV/AIDS & Human Rights in Southern Africa*. Windhoek, Namibia. <http://www.arasa.info>.
- AIDS Vaccine Advocacy Coalition (AVAC). 2007. *Way to Protect against HIV? Understanding the Results of Male Circumcision Studies for HIV Prevention*. NY: AVAC. [www.avac.org](http://www.avac.org).
- Ajuwon, A., B. Olley, I. Akin-Jimoh and O. Akintola. 2001. "Sexual Coercion: Learning from the Perspectives of Adolescents in Ibadan, Nigeria." *Reproductive Health Matters* 9 (17): 128–136.

- Akabaysh, H. and G. Psacharopoulos. 1999. "The Trade-Off between Child Labor and Human Capital Formation: A Tanzanian Case Study." *Journal of Development Studies* 35 (5): 120–140.
- Akksilp, S., O. Karnawinpong, W. Wattanaamornkiat, D. Viriyakitja, P. Monkongdee, W. Sitti, D. Rienthong, T. Siraprasiri, C. Wells, J. Tappero and J. Varmas. 2007. "Antiretroviral Therapy During Tuberculosis Treatment and Marked Reduction in Death Rate of HIV-Infected Patients, Thailand." *Emerging Infectious Diseases* 13(7): 1001–1007.
- Akilu, L. 2008a. "Adolescents' Assessment of their Ability to Negotiate Safer Sex: Findings from the Democratic Republic of Congo." Abstract WEPE0836. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Akilu, A. 2008b. "Understanding the Role Gender and Culture Play in HIV/AIDS: Findings from a Quantitative Study on Gender Attitudes and Norms in Somalia." Abstract TUPE0692. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Aklilu, M., T. Messele, A. Tsegaye, T. Biru, D. Mariam, B. van Benthem, R. Coutinho, T. de Wit and A. Fontanet. 2001. "Factors Associated with HIV-1 Infection among Sex Workers of Addis Ababa, Ethiopia." *AIDS* 15 (1): 87–96.
- Akinmurele, T., J. Farley, C. Morris, M. Gambo, A. Mohammed, P. Edaflogho, C. Agboghroma, H. Galadanci, J. Ikechebelu and U. Nasir. 2008. "Scaling Up PMTCT Access Using a "Hub and Spoke" Model in Nigeria, Sub-Saharan Africa." Abstract TUAB0305. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Akintola, O. 2006. "Gendered Home-Based Care in South Africa: More Trouble for the Troubled." *African Journal of AIDS Research* 5 (3): 237–247.
- Akintola, O. 2003. "Health Consequences of Care-Giving for Caregivers of PLWAs in Semi-Rural South Africa." Paper Presented at the Canadian Conference on International Health. Ontario, Canada. October 26–29.
- Alekseeva, E., T. Gruchukhina, O. Barkalova and D. Alekseeva. 2008a. "Impact of Differential Approaches to Mass Media Campaigns: Moral or Effectiveness?" Abstract WEPE0463. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Alekseeva, D., C. Puplick, D. Stanley and A. Validas. 2008b. "Dispelling the Myths of HIV/AIDS Transmission amongst Russian Youth through Narrowcase Communications." Abstract WEPE0498. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Alemu, H., D. Mariam, K. Belay and G. Davey. 2007. "Factors Disposing Out-of-School Youth to HIV/AIDS-Related Risky Sexual Behavior in Northwest Ethiopia." *Journal of Health, Population and Nutrition* 3: 344–350.
- Alexander, M., L. Garcia and S. Kanade. 2008. "'Had to Be Done!' Gender Differences in Marital Sexual Initiation Experiences and Correlates of Positive Experiences among Young Men and Women in Urban and Rural Areas in Pune, India." Abstract TUPE0712. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ali, M. and J. Cleland. 2005. "Sexual and Reproductive Behaviour among Single Women Aged 15–24 in Eight Latin American Countries: A Comparative Analysis." *Social Science and Medicine* 60: 1175–1185.
- Alisheva, D., J. Aleshkina and F. Buhuceanu. 2007. *Access to Health Care for LGBT People in Kyrgyzstan*. Kyrgyzstan: Soros Foundation.
- All Party Parliamentary Group on AIDS. 2009. *The Treatment Timebomb: Report of the Inquiry of the All Party Parliamentary Group on AIDS into Long-Term Access to HIV Medicines in the Developing World*. London, UK. <http://www.appg-aids.org.uk/>.

- Allen, C., Y. Simon, J. Edwards and P. St. Bernard. 2008. "Factors Associated with Condom Use in the Caribbean Regional Network of People Living with HIV/AIDS (CRN+)." Abstract WEPE0423. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Allen, S., R. Stephenson, H. Weiss, E. Karita, F. Priddy, L. Fuller and A. Declercq. 2007a. "Pregnancy, Hormonal Contraceptive Use and HIV-Related Death in Rwanda." *Journal of Women's Health* 16 (7): 1017–1027.
- Allen, S., E. Karita, E. Chomba, D. Roth, J. Telfair, I. Zulu, L. Clark, N. Kancheya, M. Conkling, R. Stephenson, B. Bekan, K. Kimbrell, S. Dunahm, F. Henderson, M. Sinkala, M. Carael and A. Haworth. 2007b. "Promotion of Couples' Voluntary Counselling and Testing for HIV through Influential Networks in Two African Capital Cities." *BMC Public Health* 7: 349.
- Allen, S., J. Meinzen-Derr, M. Kaugman, I. Zulu, S. Trask, U. Fideli, R. Musonda, F. Kasolo, F. Gao and A. Haworth. 2003. "Sexual Behavior of HIV Discordant Couples after HIV Counseling and Testing." *AIDS* 17 (5): 733–740.
- Allotey, P. and M. Gyapong. 2008. "Gender in Tuberculosis Research." *International Journal of Tuberculosis and Lung Disease* 12 (7): 831–836.
- Almeleh, C. 2008. "A Comparison of Sexual Behaviour and Relationships between Long-Term Anti-retroviral Therapy (ART) Patients and the General Population over Time in Khayelitsha, South Africa." Abstract TUPE0674. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Althofer, E. 2009. "Reaping the Benefits of Needle Exchanges." <http://www.nowuc.com.au/2009/11/14/reaping-the-benefits-of-needle-exchanges/>.
- Alvarez, M., R. Baggaley and K. Hughes. 2008. "Does Life Skills Education Decrease Risky Sexual Behavior amongst OVC in Zambia?" Abstract WEPE0568. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Amuron, B., S. Foster, J. Amurwon, R. Kyomuhangi, G. Namara, S. Jaffar and H. Grosskurth. 2008. "Medicine Companions' and their Role in Antiretroviral Therapy in Uganda." Abstract TUPE0233. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Anand, A., R. Shiraishi, R. Bunnell, K. Jacobs, N. Solhdin, A. Abdul-Quader, L. Marum, J. Muttunga, K. Kamoto, J. Aberle-Grasso and T. Diaz. 2009. "Knowledge of HIV Status, Sexual Risk Behaviors and Contraceptive Need among People Living with HIV in Kenya and Malawi." *AIDS* 23: 1565–1573.
- Anastos, K. 2006. "Good News for Women Living with HIV." *The Journal of Infectious Diseases* 196: 971–973.
- Anderson, B. and S. Cu-Uvin. 2009. "Pregnancy and Optimal Care of HIV-Infected Patients." *Clinical Infectious Diseases* 48: 449–455.
- Anderson, J. (Ed.) 2005. *A Guide to the Clinical Care of Women Living with HIV*. Rockville, Maryland, USA: Department of Health and Human Services, Health Resources and Services Administration, HIV/AIDS Bureau. <http://hab.hrsa.gov/publications/womencare05/>.
- Anderson, R., F. Sewankambo and K. Vandergrift. 2004. *Pawns of Politics: Children, Conflict and Peace in Northern Uganda*. Federal Way, WA: World Vision.
- Andersson, K., D. Owens and D. Paltiel. 2009. "Gender Differences in Risk Behavior and the Power to Negotiate Safe Sex: Potential Complications in Scaling Up Adult Male Circumcision Programs in Southern Africa." Abstract WEPED212. Fifth IAS Conference on HIV Pathogenesis, Treatment and Prevention. Capetown, South Africa. July 19–22.
- Andersson, N., A. Cockcroft and B. Shea. 2008. "Gender-based Violence and HIV: Relevance for HIV Prevention in Hyperendemic Countries of Southern Africa." *AIDS* 22 (Supplement 4): S73–S86.

- Andia, I., A. Kaida, M. Maier, D. Guzman, N. Emenyonu, L. Pepper, D. Bangsberg and R. Hogg. 2009. "Highly Active Antiretroviral Therapy and Increased Use of Contraceptives among HIV-Positive Women during Expanding Access to Antiretroviral Therapy in Mbarara, Uganda." *American Journal of Public Health* 99 (2): 340–347.
- Anderson, K., A. Beutel and B. Maughan-Brown. 2007. "HIV Risk Perceptions and First Sexual Intercourse among Youth in Cape Town, South Africa." *International Family Planning Perspectives* 33 (3): 98–105.
- Andrade, H., M. de Mello, M. Sousa, M. Makuch, N. Bertoni and A. Faundes. 2009. "Changes in Sexual Behavior Following a Sex Education Program in Brazilian Public Schools." *Cadernos de Saude Publica* 25 (5): 1168–1176.
- Andrade, N., A. Atomiya, S. Santos, Y. Ho, R. Angnolo, J. Vidal, E Gutierrez and H. Li. 2008. "At-Home Insemination: A Safe, Inexpensive and Efficient Method to Warrant the Reproductive Rights of HIV Positive Women." Abstract LBPE1186. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Andresen, E., N. Rollins, A. Sturm, N. Conana and T. Greiner. 2007. "Bacterial Contamination and Over-Dilution of Commercial Infant Formula Prepared by HIV-Infected Mothers in a Prevention of Mother-to-Child Transmission (PMTCT) Programme, South Africa." *Journal of Tropical Pediatrics* 53 (6): 409–414.
- Ankomah, A., J. Anyanti, S. Adebayo and B. Ekwereadu. 2008. "Avoiding Relapse: The Impact of Peer Education Plus Model on Behavior Change and Behaviour Maintenance among Sex Workers in Nigeria." Abstract TUAC0103. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Anorlu, R. 2008. "Cervical Cancer: The Sub-Saharan African Perspective." *Reproductive Health Matters* 16 (32): 41–49.
- The Antiretroviral Therapy Cohort Collaboration. 2008. "Life Expectancy of Individuals on Combination Antiretroviral Therapy in High-Income Countries: A Collaborative Analysis of 14 Cohort Studies." *Lancet* 372: 293–299.
- The Antiretroviral Therapy in Lower Income Countries (ART-LINC) Collaboration and ART Cohort Collaboration (ART-CC) Groups [ART-LINC and ART-CC]. 2006. "Mortality of HIV-1-infected Patients in the First Year of Antiretroviral Therapy: Comparison between Low-income and High-income Countries." *The Lancet* 367(9513, 11 March): 817–824.
- The ART-LINC Collaboration of the International Databases to Evaluate AIDS (IeDEA). 2008. "Antiretroviral Therapy in Resource-Limited Settings 1996 to 2006: Patient Characteristics, Treatment Regimens and Monitoring in Sub-Saharan Africa, Asia and Latin America." *Tropical Medicine and International Health* 15 (7): 870–879.
- The Antiretroviral Therapy in Lower Income Countries (ART-LINC) Collaboration and ART Cohort Collaboration (ART-CC) Groups [ART-LINC and ART-CC], Brinkhof, M., M. Egger, A. Boulle, M. May, M. Housseinipour, E. Sprinz, P. Braitstein, F. Dabis, P. Reiss, D. Bangberg, M. Rickenbach, J. Miro, L. Myer, A. Mocroft, D. Nash, O. Keiser, M. Pascoe, S. van der Borgh and M. Schechter. 2007. "Tuberculosis after Initiation of Antiretroviral Therapy in Low-Income and High-Income Countries." *Clinical Infectious Diseases* 45: 1518–1521.
- Anyanti, J., A. Ankomah, S. Adebayo, O. Ladipo and P. Azubuike. 2008a. "Evaluation of a Radio Drama on HIV Prevention: Some Evidence from Nigeria." Abstract THPE0491. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Anyanti, J., T. Kawu, A. Bamigboye and B. Adedokun. 2008b. "To Be or Not To Be: Setting Priorities for Youth Interventions in Developing Countries." Abstract TUPE1087. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Apondi, R., R. Bunnell, A. Awor, N. Wamai, W. Bikaako-Kajura, P. Solberg, R. Stall, A. Coutinho and J. Mermin. 2007. "Home-Based Antiretroviral Care Is Associated with Positive Social Outcomes in a Prospective Cohort in Uganda." *Journal of Acquired Immune Deficiency Syndromes* 44 (1): 71–76.
- Apte, S., S. Kulkarni, V. Kulkarni, R. Parchure, S. Darak and V. Jori. 2008. "Patterns of Disclosure in HIV-Infected Women Detected during Pregnancy and their Consequences on Experiences of Stigma." Abstract WEAD0306. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Araya, S. 2008. "Sexuality and Reproduction of Women Living with HIV in Chile, A Human Rights Issue." Abstract WEPE0926. XVII International AIDS Conference. Mexico City, Mexico. August 3–8. [www.vivopositivo.org](http://www.vivopositivo.org).
- Armistead, L., F. Palin, P. Kokot-Luow, A. Pauw, D. Skinner, G. Lindner, B. Ketchen and A. Clayton. 2008. "Stigma and Parental Functioning among South African Mothers Living with HIV." Abstract THPE0736. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Arnott, J. and A.-L. Crago. 2009. *Rights Not Rescue: A Report on Female, Male and Trans Sex Workers' Human Rights in Botswana, Namibia and South Africa*. NY: Open Society Institute. [www.soros.org](http://www.soros.org).
- Arrivé, E., M. Newell, D. Ekouevi, M. Chaix, R. Thiebaut, B. Masquelier, V. Leroy, P. Van de Perre, C. Rouzioux and F. Dabis for the Ghent Group on HIV in Women and Children. 2007. "Prevalence of Resistance to Nevirapine in Mothers and Children after Single-Dose Exposure to Prevent Vertical Transmission of HIV-1: A Meta-Analysis." *International Journal of Epidemiology* 36: 1009–1021.
- Ashburn, K, N Oomman, D Wendt and S Rosenweig. 2009. *Moving Beyond Gender as Usual*. Washington, DC: Center for Global Development and International Center for Research on Women.
- Ashburn, K., D. Kerrigan and M. Sweat. 2007. "Micro-Credit, Women's Groups, Control of Own Money: HIV-Related Negotiation among Partnered Dominican Women." *AIDS Behavior* 12 (3): 396–403.
- Asiimwe, S., E. Muganzi, E. Tumwesgiye, M. Achom, D. Kabatesi and J. Tappero. 2008. "Low Condom Use among HIV Discordants in Rural Uganda." Abstract TUPE0420. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Asiimwe, D., R. Kibombo, J. Matsiko and K. Hardee. 2005. *Study of the Integration of Family Planning and VCT/PMTCT/ART Programs in Uganda*. Washington DC: USAID Policy Project.
- Askew, I. and M. Berer. 2003. "The Contribution of Sexual and Reproductive Health Services to the Fight against HIV/AIDS: A Review." *Reproductive Health Matters* 11 (22): 51–73.
- Askew, I. and N. Maggwa. 2002. "Integration of STI Prevention and Management with Family Planning and Antenatal Care in Sub-Saharan Africa—What More Do We Need to Know?" *International Family Planning Perspectives* 28 (2): 77–86.
- Assefa Y, Lera M. 2009. "Universal Voluntary HIV Testing and Immediate Antiretroviral Therapy. Letter Response to Granich et al." *The Lancet* 373(9669):1080. [http://www.projectinform.org/testandtreat/granich\\_letters.pdf](http://www.projectinform.org/testandtreat/granich_letters.pdf).
- Atienzo, E., D. Walker, L. Campero, H. Lamadrid-Figueroa and J. Gutierrez. 2008. "Parent-Adolescent Communication about Sex in Morelos, Mexico: Does it Impact Sexual Behavior?" Abstract WEPE0847. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Attia, S., M. Egger, M. Muller, M. Zwahlen and N. Low. 2009. "Sexual Transmission of HIV According to Viral Load and Antiretroviral Therapy: Systemic Review and Meta-Analysis." *AIDS* 23: 1397–1404.
- Attia, S., M. Egger and N. Low. 2008. "Can Unsafe Sex Be Safe? Review of Sexual Transmissibility of HIV-1 According to Viral Load, HAART, and Sexually Transmitted Infections." Abstract THAC0505. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Auvert, B., D. Taljaard, E. Lagarde, J. Sobnigwi-Tambekou, R. Sitta and A. Puren. 2005. "Randomized, Controlled Trial of Male Circumcision for Reduction of HIV Infection Risk: The ANRS 1265 Trial." *PLoS Medicine* 2 (11): e298.
- Awusabo-Asare, K., Biddlecom, A., Kumi-Kyereme, A., Patterson, K. 2006. "Adolescent Sexual and Reproductive Health in Ghana: Results from the 2004 National Survey of Adolescents." *Occasional Report*, No. 22. New York: Guttmacher Institute.
- Ayieko, A. 1998. "From Single Parents to Child-Headed Households: The Case of Children Orphaned in Kisumu and Siaya Districts, Kenya." *HIV and Development Programme Study Paper* No. 7. UNDP: New York. <http://www.undp.org/hiv/publications/study/english/sp7e.htm>.
- Ayisi, J., A. van Eijk, R. Newman, F. ter Kuile, Y. Shi, C. Yang, M. Kolczak, J. Otieno, A. Misore, P. Kager, R. Lal, R. Steketee and B. Nahlen. 2004. "Maternal Malaria and Perinatal HIV Transmission, Western Kenya." *Emerging Infectious Diseases* 10 (4): 643-652.
- Ayisi, J., A. van Eijk, F. ter Kuile, M. Kolczak, J. Otieno, A. Misore, P. Kagare, R. Steketee and B. Nahlen. 2003. "The Effect of Dual Infection with HIV and Malaria on Pregnancy Outcome in Western Kenya." *AIDS* 17 (4): 585-594.
- Ayles, H. 2009. "TB Diagnosis in the Community: Approaches and Outcomes." Presentation at Catalysing HIV/TB Research: Innovation, Funding and Networking Workshop. Cape Town, South Africa. July 18.
- Ayles, H and M Muyoyeta. 2006. "Isoniazid to Prevent First and Recurrent Episodes of TB." *Tropical Doctor* 36: 83-86.
- Azim, T., E. Chowdhury, M. Reza, M. Ahmed, M. Uddin, R. Khan, G. Ahmed, M. Rahman, I. Khandakar, S. Khan, D. Sack and S. Strathdee. 2006. "Vulnerability to HIV Infection among Sex Worker and Non-Sex Worker Female Injecting Drug Users in Dhaka, Bangladesh: Evidence from the Baseline Survey of a Cohort Study." *Harm Reduction Journal* 3: 33.
- Baek, C., V. Mathambo, S. Mkhize, I. Friedman, L. Apicella and N. Rutenberg. 2007. *Key Findings from an Evaluation of the Mothers2Mothers Program in KwaZulu-Natal, South Africa*. Final Report. Washington, DC: Population Council, Horizons Project.
- Baeten, J., C. Celum and T. Coates. 2009. "Male Circumcision and HIV Risk and Benefits for Women." *Lancet* 374: 182-183.
- Baeten, J., L. Lavreys and J. Overbaugh. 2007. "The Influence of Hormonal Contraceptive Use on HIV-1 Transmission and Disease Progression." *Clinical Infectious Diseases* 45: 360-369.
- Bahaa, A., M. Mourad, M. El Gudeneidy, Z. El Taher, T. Bahaa, N. Sedeek, A. Kandeel and N. El Sayed. 2008. "HIV/AIDS Hotline: An Important Intervention for a Country where High Levels of Stigma are Associated with the Disease." Abstract THPE0510. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Bahromov, M. S. Weine, A. Golobof and J. Luo. 2008. "Ethnographic Study of Wives of Tajik Migrant Workers." Abstract TUPE0700. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Bailey, R., S. Moses, C. Parker, K. Agot, I. Maclean, J. Krieger, C. Williams, R. Campbell and J. Ndyinya-Achola. "Male Circumcision for HIV Prevention in Young Men in Kisumu, Kenya: A Randomised Controlled Trial." *The Lancet* 369: 643-656.
- Bajunirwe, F., D. Tisch, E. Arts, C. King, S. Debanne and A. Seth. 2008. "Sexual Activity and High Risk Sexual Behavior among Patients Receiving Antiretroviral Therapy (ART) in Rural and Urban Western Uganda." Abstract THPE0837. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.

- Bakeera-Kitaka, S., N. Nabukeera-Barungi, C. Noestlinger, A. Kekitinwa and P. Colebunders. 2008. "Sexual Risk Reduction Needs of Adolescents Living with HIV in a Clinical Care Setting." Abstract MOPE0314. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Balaba, D., S. Kasolo, H. Ramadhan, R. Achola. 2008. "Extended-Family System: A Structure that Cannot be Ignored in the Support of People Living with AIDS, Orphans and Vulnerable Children." Abstract WEPE0601. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Balasubramanian, V., K. Oomen and R. Samuel. 2000. "Direct Observation of Anti-Tuberculosis Treatment and Patient Outcomes, Kerala State, India." *International Journal of Tuberculosis and Lung Disease* 45 (5): 409–413.
- Balkus, J., R. Bosier, G. John-Stewart, D. Mbori-Nagacha, M. Schiff, D. Wamalwa, C. Cichhi, E. Obimbo, G. Wariua and C. Farquhar. 2007. "High Uptake of Postpartum Hormonal Contraception among HIV-1 Seropositive Women in Kenya." *Sexually Transmitted Diseases* 34 (1): 25–29.
- Banda, H., Bradley, S. and K. Hardee. 2004. *Provision and Use of Family Planning in the Context of HIV/AIDS in Zambia: Perspectives of Providers, Family Planning and Antenatal Care Clients, and HIV-Positive Women*. Washington, DC: Futures Group, POLICY Project.
- Banda, M., C. Zulu, G. Chidawarume, V. Mrike, M. Tembo, Y. Ferguson, J. Levy, B. Luwinda, G. Mdala and J. Winnie. 2008. "Nurses and What HIV Positive Mothers Share with them during Infant Counseling Sessions." Abstract TUPDD107. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Bangsberg, D. 2008. "The Achilles Heel of HIV Treatment in Resource-Limited Settings." *Journal of Acquired Immune Deficiency Syndromes* 47 (2): 266–167.
- Bankole, M., M. Bankole, R. Olusanya and F. Odunaiye. 2008. "Inadequate Medical Waste Disposal—A Major Risk Factor in HIV/AIDS and HBV Transmission in Lagos." Abstract WEPE0241. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Bankole, A., F. Ahmed, S. Neema, C. Ouedraogo and S. Konyani. 2007. "Knowledge of Correct Condom Use and Consistency of Use among Adolescents in Four Countries in Sub-Saharan Africa." *African Journal of Reproductive Health* 11 (3): 197–220.
- Banura, C., S. Franceschi, L. van Doorn, A. Arslan, F. Wabwire-Mangen, E. Mbidde, W. Quint and E. Weiderpass. 2008. "Infection with Human Papillomavirus and HIV among Young Women in Kampala, Uganda." *The Journal of Infectious Diseases* 197: 555–562.
- Baramov, M., S. Weine, A. Golobof and J. Luo. 2008. "Ethnographic Study of Wives of Tajik Migrant Workers." Abstract TUPE0700. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Baranda-Sepulveda, J., S. Sanchez-Roman, J. Sierra-Madero, D. Jaime-Velasco and L. Gonzalez de Jesus. 2008. "Psychiatric Symptoms and Psychosocial Variable in Patients with HIV/AIDS." Abstract THPE0863. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Barasa, S., G. Gakii, J. Kimani, M. Akollo, R. Leister, A. Kariri, W. Jaoko, J. Embree and L. Gelmon. 2008. "What Influences Time between Testing Positive for HIV and Seeking Care in Nairobi, Kenya." Abstract MOPE0644. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Barbosa, R., A. Pinho, N. Seabra, E. Filipe and W. Villela. 2008. "Contraceptive Choices and Induced Abortion among Brazilian HIV-Infected Women." Abstract TUPDD105. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Barbosa, R., S. Kalckmann, E. Berquo and Z. Stein. 2007. "Notes on the Female Condom: Experiences in Brazil." *International Journal of STD & AIDS* 18: 261–266.

- Barker, P., C. McCanno, N. Mehta, C. Green, M. Youngleson, J. Yarrow, B. Bennett and D. Berwick. 2007a. "Strategies for the Scale-Up of Antiretroviral Therapy in South Africa through Health System Optimization." *Journal of Infectious Diseases* 196 (Supplement 3): S457–S463.
- Barker, G., C. Ricardo and M. Nascimento. 2007b. *Engaging Men and Boys in Changing Gender-based Inequity in Health: Evidence from Programme Interventions*. Geneva, Switzerland: WHO.
- Barker, G., M. Greene, E. Siegel, M. Nascimento, C. Ricardo, J. Figueroa, J. Redpath, R. Morrell, R. Jeskes, De. Peacock, F. Aguayo, M. Sadler, A. Das, S. Singh, A. Pawar and P. Pawlak. 2010. *What Men Have to Do with It: Public Policies to Promote Gender Equality*. Washinton, DC and Rio de Janeiro, Brazil: International Center for Research on Women and Instituto Promundo.
- Barker, G. 2009. "Engaging Men in Ending Violence against Women: What Do We Know about Causes? What Do We Know about What Works?" Presentation to the USAID Interagency Gender Working Group. Washington, DC. December 3.
- Barker, G. 2000a. "Boys, Men and HIV." *UNAIDS Briefing Paper*. Geneva, Switzerland, UNAIDS.
- Barker, G. 2000b. "Gender Equitable Boys in a Gender Inequitable World: Reflections from Qualitative Research and Programme Development in Rio de Janeiro." *Sexual and Relationship Therapy* 15 (3): 263–282.
- Bärnighausen, T., V. Hosegood, I. Timaeus and M. Newell. 2007. "The Socioeconomic Determinants of HIV Incidence: Evidence from a Longitudinal, Population-Based Study in Rural South Africa." *AIDS* 21 (Supplement 7): S29–38.
- Basu, S., J. Andrews, E. Poolman, N. Gandhi, S. Shah, A. Moll, P. Moodley, A. Glavani and G. Friedland. 2007. "Prevention of Nosocomial Transmission of Extensively Drug-resistant Tuberculosis in Rural South African District Hospitals: An Epidemiological Modeling Study." *The Lancet* 370 (9597): 1500–1507.
- Basu, I., S. Jana, M. Rotheram-Borus, S. Swendeman, S. Lee, P. Newman and R. Weiss. 2004. "HIV Prevention among Sex Workers in India." *Journal of Acquired Immune Deficiency Syndromes* 36 (3): 845–852.
- Bateganya, M., O. Abdulwadud and S. Kiene. 2007. "Home-Based HIV Voluntary Counseling and Testing in Developing Countries." *Cochrane Database of Systematic Reviews* 4. Art. No.: CD006493.
- Bateganya, M., G. Colfax, L. Shafer, C. Kityo, P. Mugenyi, D. Serwadda, H. Mayanja and D. Bangsberg. 2005. "Antiretroviral Therapy and Sexual Behavior: A Comparative Study between Antiretroviral-Naïve and – Experienced Patients at an Urban HIV/AIDS Care and Research Center in Kampala, Uganda." *AIDS Patient Care and STDs* 19 (11): 760–768.
- Batura, D., H. Makadon, R. Nair and L. Varghese. 2008. "Identifying Preparedness and Bringing HIV/AIDS Education to the Clinicians and People of District India." Abstract THPE0509. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Bautista, C., J. Sanchez, S. Montano, A. Laguna-Torres, L. Suarez, J. Sanchez, P. Campost, C. Gallardo, C. Mosquera, M. Villafane, N. Aguayo, M. Avila, M. Weissenbacher, E. Ramirez, R. Child, M. Serra, C. Aponte, A. Mejia, N. Velazques, A. Gianella, J. Perez, J. Olson and J. Carr. 2006. "Seroprevalence and Risk Factors for HIV-1 Infection among Female Commercial Sex Workers in South America." *Sexually Transmitted Infections* 82: 311–316.
- Bechange, S., R. Bunnell, A. Awor, D. Moore, R. King, J. Mermin, J. Tappero, K. Khana and B. Bartholow. 2008. "Two-Year Follow-Up of Sexual Behavior among HIV-Uninfected Household Members of Adults Taking Antiretroviral Therapy in Uganda: No Evidence of Disinhibition." *AIDS Behavior* doi: 10.1007/s10461-008-9481-2.

- Beck, E. and N. Mays. 2006. "The HIV Pandemic and Health Systems: An Introduction." In E. Beck, N. Mays, A. Whiteside, J. Zuniga and L. Holland (Eds.). *The HIV Pandemic: Local and Global Implications*. Oxford, UK: Oxford University Press. Pp. 4–20.
- Becker, S., R. Mlay, H. Schwandt and E. Lyamuya. 2009. "Comparing Couples' and Individual Voluntary Counseling and Testing for HIV at Antenatal Clinics in Tanzania: A Randomized Trial." *AIDS Behavior* 2010 Jun;14(3): 558–66. Epub September 10, 2009.
- Behrendt, A., M. Mbaye, R. Darago, E. Wellback, Y. Ayena and N. Lare. 2008. "Sexual Abuse and HIV Vulnerability of Trafficked Girls in Togo." Abstract TUPE0623. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Bell, E., P. Mthembu and S. O'Sullivan on behalf of the International Community of Women Living with HIV/AIDS and Kevin Moody on behalf of the Global Network of People Living with HIV/AIDS. 2007. "Sexual and Reproductive Health Services and HIV Testing: Perspectives and Experiences of Women and Men Living with HIV and AIDS." *Reproductive Health Matters* 15 (29 Supplement): 113–135.
- Bemelmans, M., M. Massaquoi, B. Mwangomba, O. Pasulanni, W. Jalsai and M. Phillips. 2008. "'Fear of Stigma is Stronger than Fear of Death:' A Workplace Initiative to Reduce Sickness and Death Due to HIV/AIDS among Health Staff in Malawi." Abstract WEPE1019. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Becquet, R., D. Ekouevi, H. Menan, C. Amani-Bosse, L. Bequet, I. Viho, F. Dabis, M. Timite-Konan, V. Leroy and ANRS 1201/1202 Ditrane Plus Study Group. 2008. "Early Mixed Feeding and Breastfeeding Beyond 6 Months Increase the Risk of Postnatal HIV Transmission: ANRS 1201/1202 Ditrane Plus, Abidjan, Côte d'Ivoire." *Preventive Medicine* 47: 27–33.
- Becquet, R., L. Bequet, D. Ekouevi, I. Viho, C. Sakarovitch, P. Fassinou, G. Bedikou, M. Timite-Konan, F. Dabis, V. Leroy and ANRS 1201/1202 Ditrane Plus Study Group. 2007. "Two-Year Morbidity-Mortality and Alternatives to Prolonged Breast-Feeding among Children Born to HIV-Infected Mothers in Cote d'Ivoire." *PLoS Medicine* 4 (1): e17. doi: 10/1371/journal/pmed.0040017.
- Becquet, R., V. Leroy, D. Ekoevi, I. Viho, K. Castetbon, P. Fassinou, F. Dabis, M. Timite-Konan and ANRS 1201/1202 Ditrane Plus Study Group. 2006. "Complementary Feeding Adequacy in Relation to Nutritional Status among Early Weaned Breastfed Children who are Born to HIV-infected Mothers: ANRS 1201/1202 Ditrane Plus, Abidjan, Cote d'Ivoire." *Pediatrics* 117 (4): e701–e710.
- Bell, D. 1997. "Occupational Risk of Human Immunodeficiency Virus Infection in Healthcare Workers: An Overview." *American Journal of Medicine* 102(S5B): 9–15.
- Belsey, M. 2008. *The Family as the Locus of Actions to Protect and Support Children Affected By or Vulnerable to the Effects of HIV/AIDS: A Conundrum at Many Levels*. Technical report. Boston, MA: Joint Learning Initiative on Children and HIV/AIDS (JLICA).
- Bera, E. 2009. "Maternal Outcomes following Introduction of Antiretroviral Therapy in the Public Sector: A Prospective Study at a Tertiary Hospital in the Eastern Cape." *South African Journal of Obstetrics and Gynecology* 15 (1): 26–33.
- Bera, E., K. McClausland, R. Nonkwelo, B. Mgudlwa, S. Chacko and B. Majeke. 2009. "Birth Defects Following Exposure to Efavirenz-Based Antiretroviral Therapy during Pregnancy: A Study at a Regional South African Hospital." *AIDS* 24(2): 283–289 doi: 10.1097/QAD.0b013e328333af32.
- Berer, M. 2008a. "Male Circumcision for HIV Prevention: What About Protecting Men's Partners?" *Reproductive Health Matters* 16 (32): 171–175.

- Berer, M. 2008b. "Male Circumcision: To Cut or Not to Cut: The Implications for Women and for Men who have Sex with Men." Session THBS0104. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Berer, M. 2004. "HIV/AIDS, Sexual and Reproductive Health: Intersections and Implications for National Programmes." *Health Policy and Planning* 19 (Supplement 1): i62–i70.
- Berman, C. 2002. Cindy Berman on gender, HIV and the Caring Economy. Excerpted from the Women at Barcelona Care Economy Listserv Discussion. Cited in Ogden et al., 2006.
- Bernal, A., S. Walters, R. Paulson and M. Mubasher. 2008. "Effect of Patient Adherence to Antiretroviral Therapy on the Progression of Cervical Dysplasia among HIV-Infected Women." *AIDS Reader* 18 (7): 382–385.
- Bertozi, S., M. Laga, S. Bautista-Arredondo and A. Coutinho. 2008. "Making HIV Prevention Programmes Work." *Lancet* 372: 831–844.
- Bertrand, J., K. O'Reilly, J. Denison, R. Anhang and M. Sweat. 2006. "Systematic Review of the Effectiveness of Mass Communication Programs to Change HIV/AIDS-Related Behaviors in Developing Countries." *Health Education Research* 21 (4): 567–97.
- Betances, B. and W. Alba. 2009. *Vidas Vividas en Riesgo: Caracterizando el Vinculo entre Violencia contra la Mujer y el VIH/SIDA en la Republica Dominicana, Resumen de Investigacion. [Lives at Risk: Characterizing the Links between Violence against Women and HIV/AIDS in the Dominican Republic]*. Santo Domingo, Dominican Republic: Margaret Sanger Center International, ONUSIDA, UNFPA and UNICEF.
- Beusekom, I. and M. Iguchi. 2001. *Review of Recent Advances in Knowledge about Methadone Maintenance Treatment*. Rand Europe and Rand Drug Policy Research Center. <http://www.rand.org/publications/MR/MR1396/>.
- Beyrer, C., A. Terzian, S. Lowther, J. Zambrano, N. Galai and M. Melchior. 2007. "Civil Conflict and Health Information: The Democratic Republic of Congo." Beyrer, C. and H. Pizer (Eds.), *Public Health and Human Rights: Evidence-Based Approaches* (268–285). Baltimore, MD: Johns Hopkins University Press.
- Bhutta, Z., G. Darmstadt, B. Hasan and R. Haws. 2005. "Community-Based Interventions for Improving Perinatal and Neonatal Outcomes in Developing Countries: A Review of the Evidence." *Pediatrics* 115 (Supplement 2): 519–617.
- Biddlecom, A., L. Hessburg, S. Singh, A. Bankole and L. Darabi. 2007. *Protecting the Next Generation in Sub-Saharan Africa: Learning from Adolescents to Prevent HIV and Unintended Pregnancy*. New York, NY: Guttmacher Institute. [www.guttmacher.org](http://www.guttmacher.org).
- Bignami-Van Asshe, S. and V. Mishra. 2008. "The Adverse Effects of Orphan Status on Mosquito Net Use: Evidence from Five National Surveys in Sub-Saharan Africa." Abstract WEPE0610. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Bila, B. and M. Egrot. 2009. "Gender Asymmetry in Healthcare-Facility Attendance of People Living with HIV/AIDS in Burkina Faso." *Social Science and Medicine* 69: 854–861.
- Bilonda, M. and M. Njau. 2008. "Integration of PMTCT, ANC and MCH Services." Abstract WEPE0051. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Binagwaho, A., J. Nouguchi, M. Senyana-Mottier and M. Fawzi. 2008. *Community-Centered Integrated Services for Orphans and Vulnerable Children in Rwanda*. Boston, MA: Joint Learning Initiative on Children and HIV/AIDS (JLICA).
- Birdthistle, J., F. Sian, M. Auxillia, M. Netsai, G. Simon and R. Judith. 2008. "From Affected to Infected? Orphanhood and HIV Risk among Female Adolescents in Urban Zimbabwe." *AIDS* 22: 759–766.

- Birungi, H., F. Obare, J. Mugisha, H. Evelia and J. Nyombi. 2009a. "Preventive Service Needs of Young People Perinatally Infected with HIV in Uganda." *AIDS Care* 21 (6): 725–731.
- Birungi, H., J. Mugisha, F. Obare and J. Nyombi. 2009b. "Sexual Behavior and Desires among Adolescents Perinatally Infected with Human Immunodeficiency Virus in Uganda: Implications for Programming." *Journal of Adolescent Health* 44:184–187.
- Birungi, H. and F. Obare. 2009c. "Expanding Access to RH and Maternal Health Services for Adolescent Girls Living with HIV." Presentation and Powerpoint for Maternal Health Task Force and UNFPA. Washington, DC. December 3.
- Bjorklund, K., T. Mutyaba, E. Nabunya and F. Mirembe. 2005. "Incidence of Postcesarean Infections in Relation to HIV Status in a Setting with Limited Resources." *Acta Obstetrica et Gynecologica Scandinavica* 84 (10): 967–971.
- Black, V., R. Hoffman, C. Sugar, P. Menon, F. Venter, J. Currier and H. Rees. 2008. "Safety and Efficacy of Initiating Highly Active Antiretroviral Therapy in an Integrated Antenatal and HIV Clinic in Johannesburg, South Africa." *Journal of Acquired Immune Deficiency Syndromes* 49 (3): 276–281.
- Bland, R., N. Rollins, H. Coovadia, A. Coutsooudis and M. Newell. 2007. "Infant Feeding Counselling for HIV-Infected and Uninfected Women: Appropriateness of Choice and Practice." *Bulletin of the World Health Organization* 85 (4): 289–296.
- Blass, J., R. Flores and J. Aguilar. 2008. "Transgender Sex Workers Educating Policemen to Avoid Violence." Abstract WEPE0711. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ble C., M. Florida, C. Muhale, S. Motto, M. Guiliano, A. Gabbuti, L. Giuman and F. Mazzotta. 2007. "Efficacy of Highly Active Antiretroviral Therapy in HIV-Infected Institutionalized Orphaned Children in Tanzania." *Acta Paediatrica* 96: 1088–1094.
- Bobrow, E., C. Chasela, E. Kamanga, L. Adair, M. Bentley, S. Bloom, G. Angeles, K. Moracco, S. Bangdiwala, Y. Ahmed, D. Jamieson, C. van der Horst, BAN and Call to Action Teams. 2008. "Factors Associated with HIV Disclosure Patterns by Pregnant HIV-Positive Women in Lilongwe, Malawi." Abstract THPE0703. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Boerma, J. and S. Weir. 2005. "Integrating Demographic and Epidemiological Approaches to Research on HIV/AIDS: The Proximate Determinants Framework." *Journal of Infectious Diseases*. 191 (Suppl 1): S61–S67.
- Boilly, M.-C., R. Baggaley, L. Wang, B. Masse, R. White, R. Hayes and M. Alary. 2009. "Heterosexual Risk of HIV-1 Infection per Sexual Act: Systematic Review and Meta-Analysis of Observational Studies." *Lancet* 9: 118–129.
- Bollen, L., R. Chuachoowong, P. Kilmarx, P. Mock, M. Culnane, N. Skunodom, T. Chaowanachan, B. Jetswang, K. Neeyapun, S. Asavapiriyant, A. Roongpisuthipong, T. Wright and J. Tappero. 2006. "Human Papillomavirus (HPV) Detection among Human Immunodeficiency Virus-Infected Pregnant Thai Women: Implications for Future HPV Immunization." *Sexually Transmitted Diseases* 33 (4): 259–264.
- Bollinger, L., K. Cooper-Arnold and J. Stover. 2004. "What Are the Gaps? The Effects of HIV-Prevention Interventions on Behavioral Change." *Studies in Family Planning* 35 (1): 27–38.
- Bolton, P., J. Bass, R. Neugebauer, H. Verdelli, K. Clougherty, P. Wickaramaratne, L. Speelman, L. Ndogoni and M. Weissman. 2003. "Group Interpersonal Psychotherapy for Depression in Rural Uganda: A Randomized Controlled Trial." *Journal of the American Medical Association* 289 (23): 3117–3124.
- Boneham, MA and JA Sixsmith. 2006. "The Voices of Older Women in a Disadvantaged Community: Issues of Health and Social Capital." *Social Science and Medicine*. 62: 269–279.

- Bong, C-N., S. Chen, Y-J. Jong, T-S. Tok, C-F. Hsu, E. Schouten, S. Makombe, J. Yu and A. Harries. 2007. "Outcomes of HIV-infected Children with Tuberculosis Who are Started on Antiretroviral Therapy in Malawi." *The International Journal of Tuberculosis and Lung Disease* 11(5): 534–538.
- Boonstra, H. 2007. "Young People Need Help in Preventing Pregnancy and HIV: How Will the World Respond?" *Guttmacher Policy Review* 10 (3): 2–8.
- Boonstra, H. 2006. "Meeting the Sexual and Reproductive Health Needs of People Living with HIV." *In Brief*. No. 6. New York, NY: Guttmacher Institute.
- Borgdorff, M., N. Nagelkerke, C. Dye and P. Nunn. 2000. "Gender and Tuberculosis: A Comparison of Prevalence Surveys with Notification Data to Explore Sex Differences in Case Detection." *International Journal of Tuberculosis and Lung Disease* 4 (2): 123–132.
- Boris, N., L. Brown, T. Thurman, J. Rice, L. Snider, J. Ntaganira and L. Nyirazinyoye. 2008. "Depressive Symptoms in Youth Heads of Household in Rwanda: Correlates and Implications for Intervention." *Archives of Pediatric Adolescent Medicine* 162 (9): 836–843.
- Boungou Bazika, J. 2007. "Effectiveness of Small Scale Income Generating Activities in Reducing Risk of HIV in Youth in the Republic of Congo." *AIDS Care* 19 (Supplement 1): S23–S24.
- Bourdillon, F., B. Cadore, J.-P. Dozon, P. Guadin, C. Kapusta-Palmer, W. Rozenbau, N. Hesnault-Prunaiaux, M. Celse, M. Dixneuf and L. Geffroy. 2008. *Global Care: Statement Followed by Recommendations on the Appropriateness of Treatment as an Innovative Tool for Fighting the Epidemic of HIV Infections*. Paris, France: Conseil National du Sida. <http://www.cns.sante.fr>.
- Bosch, F., Y. Qiao and X. Castellsague. 2006. "The Epidemiology of Human Papillomavirus Infection and its Association with Cervical Cancer." *Journal of Gynecology and Obstetrics* 94 (Supplement 1): S8–S21.
- Bossemeyer, D., J. Cardoso, A. Maranquene, M. Maleuga, I. Benech, D. Milagre, A. Assan, E. Necochea, C. Raposo and K. Curran. 2008. "Partnering with the Community to Expand Integrated Health Counseling and Testing Services in Mozambique." Abstract TUPE0404. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Bossou, S., A. Gbaguidi, Y. Djahan, H. Kouassi, L. N'zain and B. Irie. 2008. "Income-Generating Activities to Overcome Stigma and Discrimination." Abstract TUPDE102. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Bove, R. and C. Vaggia. 2009. "Polygyny and Women's Health in Sub-Saharan Africa." *Social Science and Medicine* 68: 21–29.
- Brabin, L. and B. Brabin. 2005. "HIV, Malaria and Beyond: Reducing the Disease Burden of Female Adolescents." *Malaria Journal* 4: 2.
- Bracher, M., G. Santow and S. Watkins. 2004. "Assessing the Potential of Condom Use to Prevent the Spread of HIV: A Microsimulation Study." *Studies in Family Planning* 35 (1): 48–64.
- Bradac, J. and C. Dieffenbach. 2009. "HIV Vaccine Development: Lessons from the Past, Informing the Future." *IDrugs* 12 (7): 435–439.
- Bradley, H., D. Gillespie, A. Kidanu, Y.-T. Bonnenfant and S. Karklins. 2009. "Providing Family Planning in Ethiopian Voluntary HIV Counseling and Testing Facilities: Client, Counselor and Facility-level Considerations." *AIDS* 23 (Supplement 1): S105–S114.
- Bradley, H., A. Bedada, A. Tsui, H. Brahmabhatt, D. Gillespie and A. Kidanu. 2008a. "HIV and Family Planning Service Integration and Voluntary HIV Counselling and Testing Client Composition in Ethiopia." *AIDS Care* 20 (1): 61–71.

- Bradley, H., D. Gillespie, A. Kidanu, H. Brahmbhatt and A. Tsui. 2008b. "Pre-Marital HIV Testing among Young People in Ethiopia: Implications for HIV Prevention." Abstract TUPE0406. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Bradley, H., A. Bedada, H. Brahmbhatt, A. Kidamu, D. Gillespie and A. Tsui. 2007. "Educational Attainment and HIV Status among Ethiopian Voluntary and Testing Clients." *AIDS Behavior* 11: 736–742.
- Brady, M., K. Austrian, S. Geibel, D. Mwangi, S. Sudha, N. Kilonzo, H. Ngari, E. Njoki, G. Khisa, and C. Ajema. 2009. *Female-initiated Prevention: Integrating Female Condoms into HIV Risk-reduciton Activities in Kenya*. Nairobi, Kenya: Population Council.
- Brahmbhatt, H., D. Sullivan, G. Kigozi, F. Askin, F. Wabwire-Mangen, D. Serwadda, N. Seankambo, M. Wawer and R. Gray. 2008a. "Association of HIV and Malaria with Mother-to Child Transmission, Birth Outcomes and Child Mortality." *Journal of Acquired Immune Deficiency Syndromes* 47 (4): 472–476.
- Brahmbhatt, H., S. Haberen, D. Sullivan, G. Kigozi, J. Kagaayi, D. Serwadda, N. Seankambo, M. Wawer and R. Gray. 2008b. "Placental Malaria and MTCT among HIV-Positive Women Before and After sdNVP Availability." Abstract MOPE0505. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Brahmbhatt, H., G. Kigozi, F. Wabwire-Mangen, D. Serwadda, N. Sewandambo, T. Lutalo, M. Wawer, C. Abramowsky, D. Sullivan and R. Gray. 2003. "The Effects of Placental Malaria on Mother-to-Child HIV Transmission in Rakai, Uganda." *AIDS* 17 (17): 2539–2541.
- Braitstein, P., A. Siika, R. Kosgei, E. Sanga, J. Sidle, K. Wools-Kaloustian, C. Yiannoussos, W. Tierney, J. Mamlin and S. Kimaiyo. 2008a. "Early Survival and Clinic Retention among High Risk HIV-Infected Patients Initiating Combination Antiretroviral Treatment (cART) in a Pilot Express System Compared to Routine Care in Western Kenya." Abstract TUAB204. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Braitstein, P., A. Boulle, D. Nash, M. Brinkhof, F. Dabis, C. Laurent, M. Schechter, S. Tuboi, E. Sprinz, P. Miotti, M. Hosseinipour, M. May, M. Egger, D. Bangsberg, N. Low and The Antiretroviral Therapy in Lower Income Countries (ART-LINC) Study Group. 2008b. "Gender and the Use of Antiretroviral Treatment in Resource-Constrained Settings: Findings from a Multicenter Collaboration." *Journal of Women's Health* 17 (1): 47–55.
- Bravo-Garcia, E., C. Magis-Rodriguez and E. Rodriguez-Nolasco. 2008. "The First 15 Years of Mexican Experience for Scaling Up Universal Access to Antiretroviral Drugs (1992–2006)." Abstract TUAB03004. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Brentlinger, P., C. Behrens and J. Kublin. 2007. "Challenges in the Prevention, Diagnosis, and Treatment of Malaria in Human Immunodeficiency Virus-Infected Adults in Sub-Saharan Africa." *Archives of Internal Medicine* 167 (17): 1827–1836.
- Brentlinger, P., C. Behrens and M. Micek. 2006. "Challenges in the Concurrent Management of Malaria and HIV in Pregnancy in Sub-Saharan Africa." *Lancet* 6: 100–111.
- Bretas, J., C. Ohara and D. Jardim. 2008. "The Sexual Behavior of Adolescents in Some Schools in the City of Embu, Sao Paulo, Brazil." *Revista Gaucha de Enfermagem* 29 (4): 581–587.
- Brickley, D., D. Hanh, L. Nguyet, J. Mandel, L. Giang and A. Sohn. 2008. "Community, Family, and Partner-Related Stigma Experienced by Pregnant and Postpartum Women with HIV in Ho Chi Minh City, Vietnam." *AIDS and Behavior* 13 (6): 1197–1204.
- Brou, H., I. Viho, G. Djohan, D. Ekoevi, B. Zanou, V. Leroy and A. Degress-du-Lou pour le groupe Ditrane Plus ANRS 1202/1201/1253. 2009. "Contraceptive Use and Incidence of Pregnancy among Women after HIV Testing in Abidjan, Ivory Coast." *Revue D'Epidemiologie et de la Sante Publique* 57: 77–86.

- Brou, H., G. Djohan, R. Becquet, G. Allou, D. Ekouevi, B. Zanou, V. Leroy and A. Degrees-Du-Lou. 2008. "Sexual Prevention of HIV within the Couple after Prenatal HIV-Testing in West Africa." *AIDS Care* 20 (4): 413-418.
- Brou, H., G. Djohan, R. Becquet, G. Allou, D. Ekouevi, I. Viho, V. Leroy, A. Desgrees-du-Lou and ANRS 1201/1202/1253 Ditrane Plus Group. 2007. "When do HIV-Infected Women Disclose their HIV Status to their Male Partner and Why? A Study in a PMTCT Programme, Abidjan." *PLOS Medicine* 4 (12): e342.
- Brouard, P. and C. Wills. 2006. "A Closer Look: The Internalization of Stigma Related to HIV." Washington, DC: The Futures Group, POLICY Project.
- Brown, G., V. Raghavendran and S. Walker. 2007. "Planning for Microbicide Access in Developing Countries: Lessons from the Introduction of Contraceptive Technologies." International Partnership for Microbicides. [http://www.ipmglobal.org/pdfs/english/ipm\\_publications/2007/ipm\\_rh\\_paper\\_en\\_20070730v6.pdf](http://www.ipmglobal.org/pdfs/english/ipm_publications/2007/ipm_rh_paper_en_20070730v6.pdf).
- Brown, L., T. Thurman, L. Snider, N. Boris, J. Rice, J. Ntaganira, E. Kalisa and S. Hutchinson. 2008. "Impact of Mentoring on the Psychosocial Wellbeing of Vulnerable Youth: Results from a Longitudinal Evaluation in Rwanda." Abstract WEPE0599. *XVII International AIDS Conference. Mexico City, Mexico*. August 3-8.
- Brown, L., K. MacIntyre and L. Trujillo. 2003. "Interventions to Reduce HIV/AIDS Stigma: What Have We Learned?" *AIDS Education and Prevention* 15 (1): 49-69.
- Brown, N., V. Luna, M. Ramirez, K. Vail and C. Williams. 2005. "Developing an Effective Intervention for IDU Women: A Harm Reduction Approach to Collaboration." *AIDS Education and Prevention* 17 (4): 317-33.
- Bryceson, D., J. Fonseca and J. Kadzandira. 2004. *Social Pathways from the HIV/AIDS Deadlock of Disease, Denial and Desperation in Rural Malawi*. Lilongwe, Malawi: RENEWAL/CARE Malawi.
- Bujan, L., L. Hollander, M. Coudert, C. Gilling-Smith, A. Vucetich, J. Guibert, P. Vernazza, J. Ohl, M. Weigel, Y. Englert and A. Semprini for the CREATH Network. 2007. "Safety and Efficacy of Sperm Washing in HIV-1-Serodiscordant Couples where the Male is Infected: Results from the European CREATH Network." *AIDS* 21 (14): 1909-1914.
- Bun Hor, L., R. Detels, S. Heng and P. Mun. 2005. "The Role of Sex Worker Clients in Transmission of HIV in Cambodia." *International Journal of STD and AIDS* 15: 170-174.
- Bunnell, R., A. Opio, J. Musinguzi, W. Kirungi, P. Ekwaru, V. Mishra, W. Hladik, J. Kafuko, E. Madraa and J. Mermin. 2008. "HIV Transmission Risk Behavior among HIV-Infected Adults in Uganda: Results of a Nationally Representative Survey." *AIDS* 22: 671-624.
- Bunnell, R., J. Ekwaru, P. Solberg, N. Wamai, W. Bikaako-Kajura, W. Were, A. Coutinho, C. Liechty, E. Madraa, G. Rutherford and J. Mermin. 2006a. "Changes in Sexual Behavior and Risk of HIV Transmission after Antiretroviral Therapy and Prevention Interventions in Rural Uganda." *AIDS* 20 (1): 85-92.
- Bunnell, R., J. Mermin and K. de Cock. 2006b. "HIV Prevention for a Threatened Continent: Implementing Positive Prevention in Africa." *Journal of the American Medical Association* 296 (7): 855-858.
- Bunnell, R., J. Nassozi, E. Marum, J. Mubangizi, S. Malamba, B. Dillon, J. Kalule, J. Bahizi, N. Musoke and J. Mermin. 2005. "Living with Discordance: Knowledge, Challenges, and Prevention Strategies of HIV-Discordant Couples in Uganda." *AIDS Care* 17 (8): 999-1012.
- Burns, L., R. Mattick, K. Lim and C. Wallace. 2006. "Methadone in Pregnancy: Treatment and Retention and Neonatal Outcomes." *Addiction*. 102(2): 264 - 270 doi: 10.1111/j.1360-0443.2006.01651.x
- Burns, B., A. Mingat and R. Rakotomalala. 2003. *Achieving Universal Primary Education by 2015: A Chance for Every Child*. Washington, DC: World Bank.
- Burrows, D. 2004. "HIV/AIDS, Injecting Drug Use and Human Rights in the Asia-Pacific Region." Presentation at the Expert Meeting on HIV/AIDS and Human Rights in Asia-Pacific. Bangkok, Thailand. March 23-24.

- Burrows, D., and the AIDS Project Management Group (APMG). 2003. *Training Guide for HIV Prevention Outreach to Injecting Drug Users: Workshop Manual*. Geneva, Switzerland: World Health Organization.
- Burton, J., L. Darbes and D. Operario. 2008. "Couples-Focused Behavioral Interventions for Prevention of HIV: Systematic Review of the State of the Evidence." *AIDS Behavior* 14(1): 1-10. doi: 10.1007/s10461-008-9471-4
- Buskens, I. and A. Jaffe. 2008. "Demotivating Infant Feeding Counselling Encounters in Southern Africa: Do Counsellors Need More or Different Training?" *AIDS Care* 20 (3): 337-45.
- Bussmann, H., C. Wester, C. Wester, B. Lekoko, O. Okezie, A. Thomas, S. DeGruttola, J. Makhema, M. Essex and R. Marlink. 2007. "Pregnancy Rates and Birth Outcomes among Women on Efavirenz-Containing Highly Active Antiretroviral Therapy in Botswana." *Journal of Acquired Immune Deficiency Syndromes* 45(3): 269-273.
- Butcher, K. 2003. "Confusion between Prostitution and Sex Trafficking." *Lancet* 361 (9373): 1983.
- Butsashvili, M., G. Kamkamidze, M. Kajala, M. Topuridze, W. Triner and L. McNutt. 2008. "Moving Toward Universal Precautions in Practice: Understanding the Hospital Environment in Georgia, 2006-2007." Abstract MOPE0284. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Buve, A., K. Bishikwabo-Nsaarhaza and G. Mutangadura. 2002. "The Spread and Effect of HIV-1 Infection in Sub-Saharan Africa." *Lancet* 359: 2011-2017.
- Buve, A., M. Carael, R. Hayes, B. Auvert, B. Ferry, N. Robinson, S. Anangonou, L. Kanhonou, M. Laourou, S. Abega, E. Akam, L. Zekeng, J. Chege, M. Kahindon, N. Rutenberg, F. Kaona, R. Musonda, T. Sukwa, L. Morison, H. Weiss and M. Laga. 2001. "Multicentre Study on Factors Determining Differences in Rate Spread of HIV in Sub-Saharan Africa: Methods and Prevalence of HIV Infection" *AIDS* 4 (Supplement 4): 5-14.
- Bwirire, L., M. Fitzgerald, R. Zachariah, V. Chikafa, M. Massaquoi, M. Moens, K. Kamoto and E. Schouten. 2008. "Reasons for Loss to Follow-Up among Mothers Registered in a Prevention-of-Mother-to-Child Transmission Program in Rural Malawi." *Royal Society of Tropical Medicine and Hygiene* 102: 1195-1200.
- Cain, K, D Kimberly, M McCarthy, C Helig, P Monkongdee, T Tasaneeyapan, N Kanara, M Kimerling, P Chheng, S Thai, B Sar, P Phanuphak, N Teeratakulpisarn, N Phanuphak, N Huy Dung, H Thi Quy, LThai, and J Varma. 2010. "An Algorithm for Tuberculosis Screening and Diagnosis in People with HIV." *The New England Journal of Medicine* 362: 707-716.
- Cakwe, M., T. Quinlan, M. Bachman, J. Simon, T. Zhuwau and A. Skalicky. 2008. "A Baby from Heaven' Gender Differences in Sexual Health Knowledge, Beliefs and Attitudes of Adolescent Children." Abstract TUPE0704. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Callegari, L., C. Harper, A. van der Straten, M. Kamba, T. Chipato and N. Padian. 2008. "Consistent Condom Use in Married Zimbabwean Women after a Condom Intervention." *Sexually Transmitted Diseases* 35 (6): 624-630.
- Calmy, A., L. Pinoges, E. Szumilin, R. Zachariah, N. Ford and L. Ferradini on Behalf of Medicins Sans Frontieres. 2006. "Generic Fixed-Dose Combination Antiretroviral Treatment in Resource-Poor Settings: Multicentric Observational Cohort." *AIDS* 20: 1163-1169.
- Campbell, J., Baty, M., R. Ghandour, J. Stockman, L. Francisco and J. Wagman. 2008a. "The Intersection of Violence against Women and HIV/AIDS: A Review." *International Journal of Injury Control and Safety Promotion* 15 (4): 221-231.
- Campbell, J., Baty, M., R. Ghandour, J. Stockman, L. Francisco and J. Wagman. 2008b. "The Intersection of Violence against Women and HIV/AIDS." Background paper for IOM. 2008. *Violence Prevention in Low-and Middle-Income Countries: Finding a Place on the Global Agenda*. Washington, DC: National Academies Press. www.nap.edu.

- Campbell, L. and M. Lambey. 2002. "How a Family Planning Association Turned its Approach to Sexual Health on its Head: Collaborating with Communities in Belize." In Haberland, N. and D. Measham (Eds.). *Responding to Cairo: Case Studies of Changed Practice in Reproductive Health and Family Planning*. New York: Population Council. Pp. 321–328
- Canadian HIV/AIDS Legal Network. 2009. *Respect, Protect and Fulfill: Legislating for Women's Rights in the Context of HIV/AIDS*. <http://www.aidslaw.ca/EN/womensrights/english.htm>.
- Cao, H. and L. Li. 2008. "Service Providers' Sympathy toward Patients Living with HIV/AIDS in China." Abstract THPE0789. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Carael, M., H. Marais, J. Polksy and A. Mendoza. 2009. "Is There a Gender Gap in the HIV Response? Evaluating National HIV Responses from the United Nations General Assembly Special Session on HIV/AIDS Country Reports." *Journal of Acquired Immune Deficiency Syndrome* 52 (2): S111–S118.
- Cardo, D., D. Culver, C. Ciesielski, P. Srivastava, R. Marcus, D. Abiteboul, J. Heptonstall, G. Ippolito, F. Lot, P. McKibber, D. Bell and the Centers for Disease Control and Prevention Needlestick Surveillance Group. 1997. "A Case Control Study of HIV Seroconversion in Health Care Workers after Percutaneous Exposure." *New England Journal of Medicine* 337: 1485–90.
- Caretta, C. 2008. "Domestic Violence: A Worldwide Exploration." *Journal of Psychological Nursing* 46 (3): 26–35.
- Carries, S., Fritse Muller, Frederick Muller, C. Morroni and D. Wilson. 2007. "Characteristics, Treatment, and Antiretroviral Prophylaxis Adherence of South African Rape Survivors." *AIDS* 46 (10): 68–71.
- Carter, M., J. Kraft, T. Koppenhaver, C. Galavotti, T. Roels, P. Kilmarx and B. Fidzani. 2007. "A Bull Cannot Be Contained in a Single Kraal: Concurrent Sexual Partnerships in Botswana." *AIDS Behavior* 11: 822–830.
- Cascante, M. 2008. "A Community-Based Research Approach to Understanding the Needs of Transgender Sex Workers in the Dominican Republic." Abstract WEPE0785. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Cash, K., J. Sanguansermisri and W. Busayawong. 1997. *AIDS Prevention through Peer Education for Northern Thai Single Migratory Factory Workers*. Washington, DC: International Center for Research on Women.
- Castelnuovo, B., J. Babigumira, M. Lamorde, A. Muwanga, A. Kambugu and R. Colebunders. 2009. "Improvement of Patient Flow in a Large Urban Clinic with High HIV Seroprevalence in Kampala, Uganda." *International Journal of STD and AIDS* 20: 123–124.
- Castle, S. 2004. "Rural Children's Attitudes to People with HIV/AIDS in Mali: The Causes of Stigma. [Comportement des enfants des zones rurales face aux personnes atteintes du VIH / SIDA au Mali : les fondements mêmes du stigmat]." *Culture, Health and Sexuality* 6 (1): 1–18.
- Castro, A., Y. Khawja and I. Gonzalez-Nunez. 2007. "Sexuality, Reproduction, and HIV in Women: The Impact of Antiretroviral Therapy in Elective Pregnancies in Cuba." *AIDS* 21 (Supplement 5): S49–S54.
- Cates, W. and C. Morrison. 2007. "Hormonal Contraception and HIV." *Network* 24 (1): 3.
- Cates, W. 2002. "The Condom Forgiveness Factor: The Positive Spin." Editorial. *Sexually Transmitted Diseases*. 29(6): 350–352.
- Cejtin, H. 2008. "Gynecologic Issues in the HIV-infected Woman." *Infectious Disease Clinics of North America* 22: 709–739.
- Celum, C., A. Wald, J. Lingappa, A. Magaret, R. Wang, N. Mugu, et al. 2010. "Acyclovir and Transmission of HIV-1 from Persons Infected with HIV-1 and HSV-2." *New England Journal of Medicine* 362:427–439.

- Center for Advocacy on Stigma and Marginalization (CASAM). 2008. *Rights-based Sex Worker Empowerment Guidelines: An Alternative to HIV/AIDS Intervention Approach to the 100% Condom Use Programme*. Sangli, Maharashtra, India: SANGRAM. [www.sangram.org](http://www.sangram.org).
- Center for Communication Programs. 2007. *A User's Guide to POPLINE Keywords*. Baltimore: Johns Hopkins Bloomberg School of Public Health, The Info Project. Eighth Edition.
- Center for Reproductive Rights and Federation of Women Lawyers, Kenya. 2007. *At Risk: Rights Violations of HIV-Positive Women in Kenyan Health Facilities*. New York, NY. Websties: [www.reproductiverights.org](http://www.reproductiverights.org) and [www.fidakenya.org](http://www.fidakenya.org).
- Center for Reproductive Rights. 2005. *Pregnant Women Living with HIV/AIDS: Protecting Human Rights in Programs to Prevent Mother-to-Child Transmission of HIV*. New York, NY. Website: [www.reproductiverights.org](http://www.reproductiverights.org).
- Centers for Disease Control and Prevention (CDC). 2009a. "Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-infected Adults and Adolescents." *Morbidity and Mortality Weekly Report* 58: RR-4.
- Centers for Disease Control and Prevention (CDC). 2009b. *Syphilis*. Atlanta, GA: CDC. <http://www.cdc.gov/std/syphilis/STDFact-Syphilis.htm#HIV>.
- Centers for Disease Control and Prevention (CDC). 2001b. "Serious Adverse Events Attributed to Nevirapine Regimens for Post-Exposure Prophylaxis after HIV Exposures Worldwide, 1997-2000." *Morbidity and Mortality Weekly Report* 49: 1153-1156.
- Centers for Disease Control and Prevention (CDC). 2000. *Resource Book of the Behavioral Interventions and Research Branch*. Atlanta, Georgia: CDC.
- Centers for Disease Control and Prevention (CDC). 1998a. "Public Health Service Statement. Management of Possible Sexual, Injecting-Drug-Use, or Other Nonoccupational Exposure to HIV, Including Considerations Related to Antiretroviral Therapy." *Morbidity and Mortality Weekly Report* 47 (RR17): 1-14.
- Centers for Disease Control and Prevention (CDC). 1998b. Public Health Services Report Summarizes Current Scientific Knowledge on the Use of Post-Exposure Antiretroviral Therapy for Non-Occupational Exposures. Atlanta, GA: CDC. Website: [www.cdc.gov/hiv/pubs/facts/petfact.htm](http://www.cdc.gov/hiv/pubs/facts/petfact.htm).
- Centre for Population and Development Activities (CEDPA). 2001. *Adolescent Girls in India Choose a Better Future: An Impact Assessment*. Washington, DC: CEDPA.
- Centre on Housing Rights and Evictions (COHRE). 2009. *Shelter from the Storm: Women's Housing Rights and the Struggle against HIV/AIDS in Sub-Saharan Africa*. Geneva: COHRE. Website: <http://www.cohre.org>.
- Centre on Housing Rights and Evictions (COHRE). 2004. *Bringing Equality Home: Promoting and Protecting the Inheritance Rights of Women: A Survey of Law and Practice in Sub-Saharan Africa*. Geneva: COHRE. Website: <http://www.cohre.org>.
- Chabikuli, N., D. Awi, O. Chukwujewu, U. Gwarzo, M. Ibrahim, M. Merrigan and C. Hamelmann. 2009. "The Use of Routine Monitoring and Evaluation Systems to Assess a Referral Model of Family Planning and HIV Service Integration in Nigeria." Abstract. International Conference on Family Planning. Muyonyo, Uganda. November 15-18. [www.fpconference.org](http://www.fpconference.org).
- Chakrapani, V., H. Mhaprolkar, P. Newman, V. Anand and A. Kavi. 2008. "Social Hierarchy, Community Norms and HIV Risk among Hijra (Transwomen) Communities in India." Abstract WEPE0708. XVII International Conference on AIDS. Mexico City, Mexico. August 3-8.
- Chama, C. and J. Morruga. 2008. "The Safety of Elective Caesarean Section for the Prevention of Mother-to-Child Transmission of HIV-1." *Journal of Obstetrics and Gynaecology* 28 (2): 194-197.

- Chama, C., W. Gashau and S. Oguiche. 2007. "The Value of Highly Active Antiretroviral Therapy in the Prevention of Mother-to-Child Transmission of HIV." *Journal of Obstetrics and Gynaecology* 27 (2): 134–137.
- Chan, K., B. Yip, R. Hogg, J. Monanter and M. O'Shaughnessy. 2002. "Survival Rates after the Initiation of Antiretroviral Therapy Stratified by CD4 Cell Counts in Two Cohorts in Canada and the United States." *AIDS* 16: 1693–1695.
- Chandrasekaran, V., K. Rupp, R. George and P. Mahivanan. 2007. "Determinants of Domestic Violence among Women Attending an Human Immunodeficiency Virus among Voluntary Counseling and Testing Center in Bangalore, India." *Indian Journal of Medical Sciences* 61 (5): 253–262.
- Chang, K. 2008. "HIV Susceptibility and Risk Behaviors amongst HIV-negative Female Heroin Offenders in Taiwan." Abstract MOPE0320. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Center for Health and Gender Equity (CHANGE). 2009. *Investing in Reproductive Justice for All: Toward a U.S. Foreign Policy on Comprehensive Sexual and Reproductive Health and Rights. A Field Report on the Advantages and Challenges to Comprehensive Approaches to Sexual and Reproductive Health and Rights in the Dominican Republic, Ethiopia and Botswana*. Takoma Park, MD: Center for Health and Gender Equity.
- Center for Health and Gender Equity (CHANGE). 2008. *Saving Lives Now: Female Condoms and the Role of U.S. Foreign Aid*. Takoma Park, MD: Center for Health and Gender Equity. Written by J. Gay, L. Sisson and M. Hastings.
- Charurat, M., P. Datong, B. Matawal, A. Ajene, W. Blattner and A. Abimiku. 2009. "Timing and Determinants of Mother-to-Child Transmission of HIV in Nigeria." *International Journal of Gynecology and Obstetrics* 106: 8–13.
- Chase, E., P. Aggleton, V. Bond, S. Maitra, A. Golubov and I. Ouedraogo. 2001. *Stigma, HIV/AIDS and Prevention of Mother-to-Child Transmission: A Pilot Study in Zambia, India, Ukraine and Burkina Faso*. London, UK: PANOS and UNICEF.
- Chasela, C., Hudgens, M., Jamieson, D., Kayira, D., Hosseinipour, M., Ahmed, Y., Tegha, G., Knight, R., Kourtis, A.P., Kamwendo, D., Hoffman, I., Ellington, S., Kacheche, Z., Wiener, J., Martinson, F., Kazembe, P., Mofolo, I., Long, D., Soko, A., Smith, S.B. & van der Horst, C. 2009. "Both Maternal HAART and Daily Infant Nevirapine (NVP) Are Effective in Reducing HIV-1 Transmission during Breastfeeding in a Randomized Trial in Malawi: 28 Week Results of the Breastfeeding, Antiretroviral and Nutrition (BAN) Study." 5<sup>th</sup> IAS Conference on HIV Pathogenesis, Treatment and Prevention. Abstract WELBC103. July 19–22.
- Chasela, C., Y. Chen, S. Fiscus, I. Hoffman, A. Young, M. Valentine, L. Emel, T. Taha, R. Goldenberg and J. Read. 2008. "Risk Factors for Late Postnatal Transmission of Human Immunodeficiency Virus Type 1 in Sub-Saharan Africa." *Pediatric Infectious Disease Journal* 27 (3): 251–256. doi: 10.1097/INF.0b013e31815b4960
- Chatterjee, N. and G. Hosain. 2006. "Perceptions of Risk and Behavior Change for Prevention of HIV among Married Women in Mumbai, India." *Journal of Health, Population and Nutrition* 24 (1): 81–88.
- Chatterji, M., L. Dougherty, T. Ventimiglia, Y. Mulenga, A. Jones, A. Mukaneza, N. Murray, K. Buek, W. Winfrey, and J. Amon. 2005. "The Well-Being of Children Affected by HIV/AIDS in Lusaka, Zambia and Gitarama Province, Rwanda: Findings from a Study." *Community REACH Working Paper No. 2*. Washington, DC: PACT, Community REACH Program.
- Chaturvedi, A., M. Madeleine, R. Biggar and E. Engels. 2009. "Risk of Human Papillomavirus-Associated Cancers among Persons with AIDS." *Journal of the National Cancer Institute* 101 (16): 1120–1130.
- Cheluget, B. G. Baltazar, P. Orege, M. Ibrahim, L. Marum and J. Stover. 2006. "Evidence for Population Level Declines in Adult HIV Prevalence in Kenya." *Sexually Transmitted Infections* 82 (Supplement 1): ii21–ii26.

- Chen, X., Y. Yin, J. Tucker, X. Gao, F. Cheng, T. Wang, H. Wang, P. Huang and M. Cohen. 2007a. "Detection of Acute and Established HIV Infections in Sexually Transmitted Disease Clinics in Guangxi, China: Implications for Screening and Prevention of HIV Infection." *Journal of Infectious Diseases* 196: 1654–1661.
- Chen, L., P. Jha, B. Stirling, S. Sgaier, T. Daid, R. Kaul and N. Nagelkerke for the International Studies of HIV/AIDS (ISHA) Investigators. 2007b. "Sexual Risk Factors for HIV Infection in Early and Advanced HIV Epidemics in Sub-Saharan Africa: Systematic Overview of 68 Epidemiological Studies." *PLoS One* 10: e1001.
- Chen, H., S. Liang, Q. Liao, S. Wang, J. Schumacher, T. Creger, C. Wilson, B. Dong and S. Vermund. 2007c. "HIV Voluntary Counseling and Testing among Injection Drug Users in South China: A Study of Non-Governmental Organization Based Program." *AIDS Behavior* 11: 778–788.
- Cheng, Y., C. Lou, L. Mueller, S. Zhao, J. Yang, Z. Tu and E. Gao. 2008. "Effectiveness of a School-based AIDS Education Program among Rural Students in HIV High Epidemic Area of China." *Journal of Adolescent Health* 42: 184–191.
- Chersich, M., S. Luchters, M. Othigo, E. Yard, K. Mandaliya and M. Temmerman. 2008a. "HIV Testing and Counselling for Women Attending Child Health Clinics: An Opportunity for Entry to Prevent Mother-to-Child Transmission and HIV Treatment." *International Journal of STD and AIDS* 19 (1): 42–6.
- Chersich, M., S. Luchters, E. Yard, J. Othigo, N. Kley and M. Temmerman. 2008b. "Morbidity in the First Year Postpartum among HIV-Infected Women in Kenya." *International Journal of Gynecology and Obstetrics* 100: 45–51.
- Chersich, M. and H. Rees. 2008. "Vulnerability of Women in Southern Africa to Infection with HIV: Biological Determinants and Priority Health Sector Interventions." *AIDS* 22 (4): S27–S40.
- Chersich, M. and M. Temmerman. 2008. "Increasing Access to HIV Testing for Women by Simplifying Pre- and Post-Test Counseling." *Current Women's Health Reviews* 4: 172–179.
- Chersich, M., S. Luchters, I. Malonza, P. Mwarogo, N. King'ola and M. Temmerman. 2007. "Heavy Episodic Drinking among Kenyan Female Sex Workers is Associated with Unsafe Sex, Sexual Violence and Sexually Transmitted Infections." *International Journal of STD and AIDS* 18: 764–769.
- Chigwedere, P. G. Seage, S. Gruskin, T. Lee and M. Essex. 2008. "Estimating the Lost Benefits of Antiretroviral Drug Use in South Africa." *Journal of Acquired Immune Deficiency Syndromes* 49 (4): 410–415.
- Chileshe, M. and V. Bond. 2008. "Experiences of Patients Co-Infected with TB and HIV in Rural Zambia." Abstract MOPE0672. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Chimango, J., C. Kaponda, A. Chimwaza, D. Jere, J. Norr and K. Norr. 2008. "Effects of Peer Intervention on Work-Related HIV Prevention for Urban Health Workers in Malawi." Abstract WEAC0205. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Chimba Kasoma, J. 2008. "Mobile VCT and Village Concept: Ideal for Reaching Out to the Invisible and Excluded." Abstract TUPE0434. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Chimbiri, A. 2007. "The Condom is an 'Intruder' in Marriage: Evidence from Rural Malawi." *Social Science and Medicine* 64: 1102–1115.
- Chimzizi R., A. Harries, F. Gausi, C. Golombe, E. Manda, A. Khonyongwa, F. Salaniponi, E. Libamba, E. Schouten, A. Mwansambo and R. Mpazanje. 2004. "Scaling up HIV/AIDS and joint HIV-TB services in Malawi." *The International Journal of Tuberculosis and Lung Disease* 9(5): 582–584.
- Chimuka, D. 2002. Interview with Human Rights Watch. National Coordinator of the Forum for African Women Educationalists Zambia National Chapter (FAWEZA): Lusaka, Zambia. May 31.

- Chimwaza, A., J. Chimango, C. Kaponda and L. McCreary. 2008. "Peer Group Intervention for Urban Health Workers in Malawi: Impacts on Personal HIV Prevention." Abstract TUPE0487. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Chin, J. 2007. *The AIDS Pandemic. The Collision of Epidemiology with Political Correctness*. Oxford: Radcliff Publishing.
- Chin, J. and A. Bennett. 2007. "Heterosexual HIV Transmission Dynamics: Implications for Prevention and Control." *International Journal of STD and AIDS* 18: 509–513.
- China Tuberculosis Control Collaboration. 2004. "The Effect of Tuberculosis Control in China." *Lancet* 364 (9432): 417–422.
- Chinkonde, J., J. Sundby and F. Martinson. 2009. "The Prevention of Mother-to-Child HIV Transmission Programme in Lilongwe, Malawi: Why Do So Many Women Drop Out?" *Reproductive Health Matters* 17 (33): 143–151.
- Choi, S., Y. Cheung and K. Chen. 2006. "Gender and HIV Risk Behavior among Intravenous Drug Users in Sichuan Province, China." *Social Science and Medicine* 62: 1672–1684.
- Chopra, M., T. Doherty, S. Mehatru and M. Tomlinson. 2009a. "Rapid Assessment of Infant Feeding Support to HIV-Positive Women Accessing Prevention of Mother-to-Child Transmission Services in Kenya, Malawi and Zambia." *Public Health Nutrition* 12 (12): 2323–2328. doi: 10.1017/S1368980009005606.
- Chopra, M., E. Daviaud, R. Pattinson, S. Fonn and J. Lawn. 2009b. "Saving the Lives of South Africa's Mothers, Babies, and Children: Can the Health System Deliver?" *Lancet* 374: 835–846.
- Chopra, M., J. Lawn, D. Sanders, P. Barron, S. Abdool Karim, D. Bradshaw, R. Jewkes, Q. Abdool Karim, A. Flisher, B. Mayosi, S. Tollman, G. Churchyard and H. Coovadia for The Lancet South Africa Team. 2009c. "Achieving the Health Millennium Development Goals for South Africa: Challenges and Priorities." www.thelancet.com. 12: 2323–2328 doi:10.1016/S0140-6736(09)61122-3.
- Chowdhury, D., B. Dey, S. Jana, S. Mukopadhyay and R. Steen. 2008. "Self-Regulatory Boards (SRBs)—An Innovative and Effective Anti-Trafficking Initiative of DMSC, Sex Workers Organization of West Bengal, India." Abstract THPE1084. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Christie, C., J. Steel-Duncan, P. Palmer, R. Pierre, K. Harvey, L. Samuels, J. Dunkley-Thompson, N. Johnson, I. Singh-Minott, M. Anderson-Allen, C. Billings, T. Evans-Gilbert, B. Rodriguez, J. Moore, C. McDonald-Kerr, F. Taylor, M. Smikle, E. Williams, S. Whorms, D. Davis, A. Mullings, O. Morgan, D. Macdonald, G. Alexander, A. Onyonyur, T. Hylton-Kong, P. Weller, M. Harris, D. Haughton, A. Woodham, D. Carrington and J. Figueroa. 2008. "Effectiveness of Highly Active Antiretroviral Drugs in Preventing Mother-to-Child HIV Transmission and Reducing HIV-Attributable Mortality in Jamaican Children." Abstract WEPE0053. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Churchman, E., M. Craven, E. Mackey, R. Saloner, A. Amede and S. Upstil. 2008. "Evaluation of an HIV Prevention Program by Tanzanian and International Volunteers." Abstract TUPE0447. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Churchyard, G., F. Scano, A. Grant and R. Chaisson. 2007. "Tuberculosis preventive therapy in the era of HIV infection: overview and research priorities." *Journal of Infectious Disease* 196: s52–s62.
- Choi, S., K. Chen and Z. Jiang. 2008. "Client-Perpetuated Violence and Condom Failure among Female Sex Workers in Southwestern China." *Sexually Transmitted Diseases* 35 (2): 141–146.
- Choi, S., Y. Cheung and K. Chen. 2006. "Gender and HIV Risk Behavior among Intravenous Drug Users in Sichuan Province, China." *Social Science and Medicine* 62: 1672–1684.

- Chomba, E., S. Allen, W. Kanweka, A. Tichacek, G. Cos, E. Shutes, I. Zulu, N. Kancheya, M. Sinkala, R. Stephenson, A. Haworth and the Rwanda Zambia HIV Research Group. 2008. "Evolution of Couples' Voluntary Counseling and Testing for HIV in Lusaka, Zambia." *Journal of Acquired Immune Deficiency Syndromes* 47 (1): 108–115.
- Chopra, M., J. Lawn, D. Sanders, P. Barron, S. Abdool Karim, D. Bradshaw, R. Jewkes, Q. Abdool Karim, A. Flisher, B. Mayosi, S. Tollman, G. Churchayrd and H. Coovadia for The Lancet South Africa team. 2009. "Achieving the health Millennium Development Goals for South Africa: challenges and priorities." [www.thelancet.com](http://www.thelancet.com). 374(9694): 1023–1031. doi:10.1016/S0140-6736(09)61122-3.
- Chopra, M. and N. Rollins. 2008. "Infant Feeding in the Time of HIV: Rapid Assessment of Infant Feeding Policy and Programmes in Four African Countries Scaling Up Prevention of Mother to Child Transmission Programmes." *Archives of Disease in Childhood* 93: 288–291.
- Chotpitayasunondh, T., N. Vanprapar, R. Simonds, K. Chokephaibulkit, N. Waranawat, P. Mock, M. Stat, R. Chuachowong, N. Young, T. Mastro and N. Shaffer. 2001. "Safety of Late In Utero Exposure to Zidovudine in Infants Born to Human Immunodeficiency Virus-infected Mothers: Bangkok. Bangkok Collaborative Perinatal HIV Transmission Study Group." *Pediatrics* 107 (1): E5.
- Churchman, E., M. Craven, E. Mackey and R. Saloner. 2008. "When HIV Care is Only a Bus Ride Away: Access to Testing and Treatment in Rural Tanzania." Abstract TUPE0378. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Churchyard, G., F. Scano, A. Grant and R. Chaisson. 2007. "Tuberculosis preventive therapy in the era of HIV infection: overview and research priorities." *Journal of Infectious Disease* 196: s52–s62.
- Cianelli, R., L. Ferrer and B. McElmurry. 2008. "HIV Prevention and Low-Income Chilean Women: Machismo, Marianismo and HIV Misconceptions." *Culture, Health and Sexuality* 10 (3): 297–306.
- Clark, S., J. Bruce, A. Dude. 2006. "Protecting Young Women from HIV/AIDS: The Case against Child and Adolescent Marriage." *International Family Planning Perspectives* 32 (2): 79–88.
- Clark S. 2004. "Early Marriage and HIV Risks in Sub-Saharan Africa." *Studies in Family Planning* 35 (3): 149–160.
- Clark, S. 2003. *Early Marriage and HIV Risks in Sub-Saharan Africa*. Harris Graduate School of Public Policy, University of Chicago: Chicago, IL.
- Clayton, P. 2009. "Safety of Antiretrovirals in Pregnancy." *Southern African Journal of HIV Medicine* Summer: 15–18.
- Clayton, M., R. Schleifer and L. Gernholtz. 2008. "Criminalising HIV Transmission: Is this What Women Really Need?" Abstract WEAEO102. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Cleland, C., D. Des Jarlais, T. Perlis, G. Stimson, V. Poznyak and the WHO Phase II Drug Injection Collaborative Study Group. 2007. "HIV Risk Behaviors among Female IDUs in Developing and Transitional Countries." *BMC Public Health* 7: 271.
- Cleland, J., M. Ali and I. Shah. 2006a. "Trends in Protective Behavior among Single vs. Married Young Women in Sub-Saharan Africa: The Big Picture." *Reproductive Health Matters* 14 (28): 17–22.
- Cleland, J., S. Bernstein, A. Ezeh, A. Faundes, A. Glasier and J. Innis. 2006b. "Family Planning: The Unfinished Agenda." *Lancet* 368 (9549): 1810–1827.
- Clifford, G., M. Goncalves and S. Franceschi. 2006. "Human Papillomavirus Types among Women Infected with HIV: A Meta-Analysis." *AIDS* 20: 2337–2344.
- Cluver L., F. Gardner, and D. Operario. 2007. "Psychological Distress amongst AIDS-orphaned Children in Urban South Africa." *Journal of Child Psychology and Psychiatry* 48 (8): 755–763.

- Cluver L. and F. Gardner. 2007. "Risk and Protective Factors for Psychological Well-Being of Children Orphaned by AIDS in Cape Town: A Qualitative Study of Children and Caregivers' Perspectives." *AIDS Care*, 19 (3): 318–325.
- Coates, T., L. Richter and C. Caceres. 2008. "Behavioural Strategies to Reduce HIV Transmission: How to Make them Work Better." *Lancet* 372: 669–684.
- The Cochrane Collaborative Review Group on HIV Infection and AIDS. 2004. "Evidence Assessment: Strategies for HIV/AIDS Prevention, Treatment and Care." London, UK: Cochrane.
- Coetzee, D., K. Hilderbrand, A. Boulle, B. Draper, F. Abdullah and E. Goemaere. 2005. "Effectiveness of the First District-Wide Programme for the Prevention of Mother-to-Child Transmission of HIV in South Africa." *Bulletin of the World Health Organization* 83: 489–494.
- Coetzee, D., K. Hildebrand, A. Boulle, G. Maartens, F. Louis, V. Labatala, H. Reuter, N. Ntwana and E. Goemaere. 2004. "Outcomes after Two Years of Providing Antiretroviral Treatment in Khayelitsha, South Africa." *AIDS* 18: 887–895.
- Coffie, P., D. Ekouevi, M.-L. Chaix, B. Tonwe-Gold, A.-B. Clarisse, R. Becquet, I. Viho, T. N'dri-Yoman, V. Leroy, E. Abrams, C. Rouzioux and F. Dabis. 2008. "Maternal 12-Month Response to Antiretroviral Therapy following Prevention of Mother-to-Child Transmission of Type 1, Ivory Coast, 2003–2006." *Clinical Infectious Diseases* 46: 611–621.
- Cohee, L., L. Mills, J. Kagaayi, I. Jacobs, R. Gailwango, J. Ludigo, J. Sekasanvu and S. Reynolds. 2008. "High Retention and Appropriate Usage of Insecticide-Treated Nets Distributed to HIV-Affected Households in Rakai, Uganda." Abstract WEPE0043. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Cohen, C., M. Montandon, A. Carrico, S. Shiboski, A. Bostrom, A. Oburre, Z. Kwena, R. Bailey, R. Nguti and E. Bukusi. 2009. "Association of Attitudes and Beliefs towards Antiretroviral Therapy with HIV-Seroprevalence in the General Population of Kisumu, Kenya." *PLoS One* 4 (3): e4573.
- Cohen, J. and J. Amon. 2008. "Human Rights Abuses and Threats to Health: Recent Experiences of Chinese Drug Users in Detoxification and Re-Education through Labor Centers in Guangxi Province, China." Abstract THPE1085. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Cohen, M. 2009a. "HIV Treatment as Prevention?" Presentation to WHO Informal Working Group Meeting on "Modeling the Impact of ART on TB and HIV." Geneva, Switzerland: WHO.
- Cohen, M. 2009b. Phone interview with Jill Gay, September 25, 2009.
- Cohen M., T. Mastro and W. Cates W Jr. 2009. "Universal Voluntary HIV Testing and Immediate Antiretroviral Therapy. Letter Response to Granich et al." *The Lancet* 373 (9669): 1077. [http://www.projectinform.org/testandtre/granich\\_letters.pdf](http://www.projectinform.org/testandtre/granich_letters.pdf).
- Cohen, M. 2008. "Prevention of the Sexual Transmission of HIV-1: A View from the 21<sup>st</sup> Century." Plenary Presentation. Abstract WEPE0043. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Cohen, M., N. Hellman, J. Levy, K. DeCock and J. Lange. 2008. "The Spread, Treatment, and Prevention of HIV-1: Evolution of a Global Pandemic." *Journal of Clinical Investigation* 118 (4): 1244–1254.
- Cohen, M. 2007. "Preventing Sexual Transmission of HIV." *Clinical Infectious Diseases* 45: S287–292.
- Cohen, M. 2006a. "When People with HIV Get Syphilis: Triple Jeopardy." *Sexually Transmitted Diseases* 33 (3): 149–150.
- Cohen, M. 2006b. "Amplified Transmission of HIV-1: Missing Link in the HIV Pandemic." *Transactions of the American Clinical and Climatological Association* 117: 213–225.

- Cohen, J. 2006c. "HIV/AIDS: Latin America and the Caribbean." *Science* Vol. 313, pp. 467-490.
- Cohen, S. 2002. "Flexible but Comprehensive: Developing Country HIV Prevention Efforts Show Promise." *Guttmacher Report* 14: 1-2.
- Cohen, S. and M. Burger. 2000. "Partnering: A New Approach to Sexual and Reproductive Health." *Technical Paper* No. 3. December. New York, NY: UNFPA.
- Cohn, S., J. Park, D. Watts, A. Stek, J. Hitti, P. Clax, S. Yu and J. Lertora for the ACTG A5093 Protocol Team. 2007. "Depo-medroxyprogesterone in Women on Antiretroviral Therapy: Effective Contraception and Lack of Clinically Significant Interactions." *Clinical Pharmacology & Therapeutics* 81 (2): 222-227.
- Coker, A. 2007. "Does Physical Intimate Partner Violence Affect Sexual Health?: A Systematic Review." *Trauma, Violence, and Abuse* 8 (2): 149-177.
- Coll, O., M. Lopez and S. Hernandez. 2008. "Fertility Choices and Management for HIV-Positive Women." *Current Opinion in HIV and AIDS* 3 (2): 186-192.
- Collins, C., T. Coates and J. Curran. 2008. "Moving Beyond the Alphabet Soup of HIV Prevention." *AIDS* 22 (Supplement 2): S5-S8.
- Collins, J. and B. Rau. 2000. "AIDS in the Context of Development." *Social Policy and Development Paper* No. 4. Geneva: UNRISD and UNAIDS.
- Collins, K. and R. Harding. 2007. "Improving HIV Management in Sub-Saharan Africa: How Much Palliative Care is Needed?" *AIDS Care* 19 (10): 1304-6.
- Colvin, C. 2009. *Report on the Impact of Sonke Gender Justice Network's 'One Man Can' Campaign in the Limpopo, Eastern Cape and KwaZulu Natal Provinces, South Africa*. Johannesburg, South Africa: Sonke Gender Justice Network.
- Community Development Services. 2002. *Acceptability of the Female Condom among Street Based Commercial Sex Workers in Colombo*. Supported by UNAIDS. Colombo, Sri Lanka: Community Development Services.
- Conde, D., E. Silva, W. Amaral, M. Finotti, R. Ferreira, L. Costa-Paiva and A. Pinto-Neto. 2009. "HIV, Reproductive Aging, and Health Implications in Women: A Literature Review." *Menopause: The Journal of North American Menopause Society* 16 (1): 199-213.
- Constantine, N., C. Abesamis and M. Dayrit. 1999. "Intervening in the Blood Supply and Use Systems: HIV Testing." In Gibney L., R. DiClemente and S. Vermund (Eds.). *Preventing HIV in Developing Countries: Biomedical and Behavioral Approaches*. New York: Kluwer Academic/Plenum Publishers. Pp. 71-85
- Cooper, D., J. Moodley, V. Zeigenthal, L. Bekker, I. Shah and L. Myer. 2009. "Fertility Intentions and Reproductive Health Care Needs of People Living with HIV in Cape Town, South Africa: Implications for Integrating Reproductive Health and HIV Care Services." *AIDS Behavior* 13: S38-S46.
- Cooper, D., J. Harries, L. Myer, P. Orner and H. Bracken. 2007. "'Life Is Still Going On': Reproductive Intentions among HIV-Positive Women and Men in South Africa." *Social Science and Medicine* 65: 274-283.
- Coovadia, H. and G. Kindra. 2008. "Breastfeeding, HIV Transmission and Infant Survival: Balancing Pros and Cons." *Current Opinion in Infection Diseases* 21: 11-15.
- Coovadia, H., N. Rollins, R. Bland, K. Little, A. Coutsoodis, M. Bennish and M. Newell. 2007. "Mother-to-Child Transmission of HIV-1 Infection during Exclusive Breastfeeding in the First 6 Months of Life: An Intervention Cohort Study." *Lancet* 367 (9567): 1107-16.
- Coovadia, H. and A. Coutsoodis. 2007. "HIV, Infant Feeding, and Survival: Old Wine in New Bottles, but Brimming with Promise." *AIDS* 21 (14): 1837-1840.

- Coovadia, H. 2004. "Antiretroviral Agents—How Best to Protect Infants from HIV and Save their Mothers from AIDS." *New England Journal of Medicine* 351 (3): 289–292.
- Corbett, E., E. Dauya, R. Matambo, Y. Cheung, B. Makamure, M. Bassett, S. Chandiwana, S. Muyati, P. Mason, A. Butterworth, P. Godfrey-Faussett and R. Hayes. 2006. "Uptake of Workplace HIV Counselling and Testing: A Cluster-Randomised Trial in Zimbabwe." *PLoS Medicine* 3 (7): e238.
- Corbett, E., G. Churchyard, T. Clayton, B. Williams, D. Mulder, R. Hayes, and K. de Cock. 2000. "HIV and Silicosis: The Impact of Two Risk Factors on the Incidence of Mycobacterial Disease in South African Miners." *AIDS* 14: 2759–2768.
- Cornia, G. (Ed.). 2002. *AIDS, Public Policy and Child Well-Being*. Innocenti Research Centre. Florence: UNICEF.
- Cornman, D., S. Christie, L. Shepherd, S. MacDonald, P. Shuper, G. Mahlase, S. Pillay, W. Fisher, S. Kiene, M. Kristnasamy, U. Lailoo and J. Fisher. 2008. "Challenges of Providing HIV Risk Reduction Counselling to PLHIV in Clinical Care in KwaZulu-Natal (KZN), South Africa." Abstract WEPE0293. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Coutsodis, A., H. Coovadia and C. Wilfert. 2008. "HIV, Infant Feeding and More Perils for Poor People: New WHO Guidelines Encourage Review of Formula Milk Policies." *Bulletin of the World Health Organization* 86: 210–214.
- Cowan, F., J. Humphrey, R. Ntozini, K. Mutasa, R. Morrow and P. Illiff. 2008. "Maternal Herpes Simplex Virus Type 2 Infection, Syphilis and Risk of Intra-partum Transmission of HIV-1: Results of a Case Control Study." *AIDS* 22: 193–201.
- Coyle, K., K. Basen-Engquist, D. Kircy, G. Parcel, S. Banspach, R. Harriet, E. Baumler and M. Weil. 1999. "Short Term Impact of Safer Choices: A Multi-Component School-Based HIV, Other STD and Pregnancy Prevention Program." *Journal of School Health* 69 (5): 181–188.
- Crago, A. 2009. *Arrest the Violence: Human Rights Abuses against Sex Workers in Central and Eastern Europe and Central Asia*. Sex Worker Rights Advocacy Network.
- Crago, A., A. Rakhmetova, M. Karadafov, S. Islamova, I. Maslova and The Sex Workers' Advocacy Network of Central Eastern Europe and Central Asia. 2008. "Sex Workers' Experience of Police Raids and Violence in Central and Eastern Europe and Central Asia (CEE/CA): Implications for HIV Transmission." Abstract THAE0304. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Crampin, A., S. Floyd, J. Glynn, N. Madise, A. Nyondo, M. Khondowe, C. Njoka, H. Kanyongoloka, B. Ngwira, B. Zaba and P. Fine. 2003. "The Long-Term Impact of HIV and Orphanhood on the Mortality and Physical Well-Being of Children in Rural Malawi." *AIDS* 17 (3): 389–397.
- Creek, T., R. Ntuny, L. Mazhani, J. Moore, M. Smith, G. Han, N. Shaffer and P. Kilmarx. 2009. "Factors Associated with Low Early Uptake of a National Program to Prevent Mother to Child Transmission (PMTCT): Results of a Survey of Mothers and Providers, Botswana, 2003." *AIDS Behavior* 356–364.
- Creek, T., R. Ntuny, K. Seipone, M. Smith, M. Mogodi, M. Smit, K. Legwaila, I. Molokwane, G. Tebele, L. Mazhani, N. Shaffer and P. Kilmarx. 2007. "Successful Introduction of Routine Opt-Out HIV Testing in Antenatal Care in Botswana." *Journal of Acquired Immune Deficiency Syndromes* 45 (1): 102–107.
- Creek, T., M. Alswano, R. Molsiwa, T. Roels, T. Kenyon, V. Mwasalla, E. Lloyd, M. Modkomame, P. Hastings, A. Taylor and P. Kilmarx. 2006. "Botswana's *Tebelopele* Voluntary HIV Counseling and Testing Network Use and Client Risk Factors for HIV Infection, 2000–2004." *Journal of Acquired Immune Deficiency Syndromes* 43 (2): 210–218.

- Crepaz, N., C. Lyles, R. Wolitski, W. Passin, S. Rama, J. Herbst, D. Purcell, R. Malow and R. Stall for the HIV/AIDS Prevention Research Synthesis Team. 2006. "Do Prevention Interventions Reduce HIV Risk Behaviours among People Living with HIV? A Meta-Analytic Review of Controlled Trials." *AIDS* 20: 143–157.
- Crepaz, N., T. Hart and G. Marks. 2004. "Highly Active Antiretroviral Therapy and Sexual Risk Behavior: A Meta-Analytic Review." *Journal of the American Medical Association* 292 (2): 224–236.
- Crichton, J., C. Musembi and A. Ngugi. 2008. *Painful Tradeoffs: Intimate Partner Violence and Sexual and Reproductive Health Rights in Kenya*. Brighton, UK: Institute of Development Studies. [www.ids.ac.uk/ids/bookshop](http://www.ids.ac.uk/ids/bookshop).
- Cripe, S., S. Sanchez, M. Perales, N. Lam, P. Garcia and M. Williams. 2008. "Association of Intimate Partner Violence with Unintended Pregnancy among Pregnant Women in Peru." *International Journal of Gynecology & Obstetrics* 100(2): 104–108.
- Croce-Galis, M. 2008. *Strategies for CHANGE: Breaking Barriers to HIV Prevention, Treatment and Care for Women*. New York, NY: Open Society Institute. Website: [www.soros.org](http://www.soros.org).
- Cross, H., K. Hardee, and N. Jewell. 2001. "Reforming Operational Policies: A Pathway to Improving Reproductive Health Programs." *Policy Occasional Paper* 7. Washington, DC: The Futures Group International, POLICY Project. Website: [www.policyproject.com](http://www.policyproject.com).
- Cummings, B., M. Mengistu, W. Negash, A. Bekele and T. Ghile. 2006. "Barriers to and Facilitators for Female Participation in an HIV Prevention Project in Rural Ethiopia: Findings from a Qualitative Evaluation." *Culture, Health & Sexuality* 8 (3): 251–266.
- Curtis, KM., K. Nanda, and N. Kapp. 2009. "Safety of Hormonal and Intrauterine Methods of Contraception for Women with HIV/AIDS: A Systematic Review." *AIDS* 23(suppl 1): S55–S67.
- Dafarty, A., N. Padayatchi and M. Padilla. 2007. "HIV testing and disclosure: a qualitative analysis of TB patients in South Africa." *AIDS Care* 19(4): 572–577.
- Dageid, W. and F. Duckert. 2007. "The Process of Evaluating a Capacity-Building Support Initiative for HIV Positive South Africans." *Evaluation and Program Planning* 30: 381–391.
- Dahl, V., L. Mellhammar, F. Bajunirwe and P. Bjorkman. 2008. "Acceptance of HIV Testing among Women Attending Antenatal Care in Southwestern Uganda: Risk Factors and Reasons for Test Refusal." *AIDS Care* 20 (6): 746–752.
- Damalie, N. 2001. "Communication between Mothers and Their Adolescent Daughters on the Subject of Sexuality and HIV/AIDS in Uganda." *Organization for Social Research in Eastern and Southern Africa—Gender Issues Research Report Series* (14): 1–23.
- Dames, D., C. Ragin, A. Griffith-Bowe, P. Gomez and R. Butler. 2009. "The Prevalence of Cervical Cytology Abnormalities and Human Papillomavirus in Women Infected with Human Immunodeficiency Virus." *Infectious Agents and Cancer* 4 (Supplement 1): S8.
- Datta, M., P. Gopi, B. Appegowanda, K. Bhima and B. Gopalan. 2000. "Tuberculosis in North Ascot District of Tamil Nadu: A Sample Survey." *Indian Journal of Tuberculosis* 47: 147–154.
- Davidson, A., E. Dukhovlina, N. Zaller, O. Toussova, L. Niccolai, R. Helmer and A. Kozlov. 2008. "HIV Serostatus Disclosure Practices and Attitudes among HIV-Infected Patients in St. Petersburg, Russia." Abstract THPE0700. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Davis, K. and S. Weller. 1999. "The Effectiveness of Condoms in Reducing Heterosexual Transmission of HIV." *Family Planning Perspectives* 31 (6): 272–279.

- De Bruyn, M. 2006a. *There's Nothing You Could Do If Your Rights Were Being Violated.* Monitoring Millennium Development Goals in Relation to HIV-Positive Women's Rights. Chapel Hill, NC: Ipas. www.ipas.org.
- De Bruyn, M. 2006b. B. "Women, Reproductive Rights, and HIV/AIDS: Issues on Which Research and Interventions are Still Needed." *Journal of Health, Population and Nutrition* 24 (4): 413–425.
- De Bruyn, M. 2005. *HIVAIDS and Reproductive Health: Sensitive and Neglected Issues.* Chapel Hill, NC: Ipas. www.ipas.org.
- De Bruyn, M. and S. Paxton. 2005. "HIV Testing of Pregnant Women—What is Needed to Protect Positive Women's Needs and Rights?" *Sexual Health* 2: 143–151.
- De Bruyn, M. 2003. *HIV/AIDS, Pregnancy and Abortion: A Review of the Literature.* Carrboro, NC: Ipas.
- De Cock, K., E. Marum and D. Mbori-Ngacha. 2003. "A Serostatus-based Approach to HIV/AIDS Prevention and Care in Africa." *Lancet* 362: 1847–1849.
- Du Cros, P. and A. Kamarulzaman. 2006. "HIV and Tuberculosis Coinfection." In Curtis, M (Ed.). *Delivering HIV Care and Treatment for People Who Use Drugs: Lessons from Research and Practice.* NY: Open Society Institute. Pp. 111–131.
- Degenhardt, L., B. Mathers, A. Roberts, B. Phillips and I. Toskin. 2008. "Knowledge Behaviour and HIV Prevention Coverage among Injecting Drug Users (IDU) in Low and Middle Income Countries (LMIC): Lessons from the 2005 UNGASS Reporting Round." Abstract MOPE0902. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Dehne, K. and G. Riedner. 2005. *Sexually Transmitted Infections among Adolescents: The Need for Adequate Health Services.* Geneva: World Health Organization. Cited in: Bearinger, L., R. Sieving, J. Ferguson and V. Sharma. 2007. "Global Perspectives on the Sexual and Reproductive Health of Adolescents: Patterns, Prevention, and Potential." *Lancet* 369: 1220–1231.
- Deininger, K. 2003. "Does Cost of Schooling Affect Enrollment by the Poor? Universal Primary Education in Uganda." *Economics of Education Review* 22 (3): 291–305.
- Del Romero, J., B. Marinovich, J. Castilla, G. Soledad, J. Campo, V. Hernando and C. Rodriguez. 2002. "Evaluating the Risk of HIV Transmission through Unprotected Orogenital Sex." *AIDS* 16 (9): 1296–1297.
- DeLuca, A., R. Chaisson and N. Martinson. 2009. "Intensified Case Finding for Tuberculosis in Prevention of Mother-to-Child Transmission Programs: A Simple and Potentially Vital Addition for Maternal and Child Health." *Journal of Acquired Immune Deficiency Syndromes* 50 (2): 196–199.
- Delva, W., L. Mutunga, A. Quaghebeur and M. Temmerman. 2006. "Quality and Quantity of Antenatal HIV Counselling in a PMTCT Programme in Mombasa, Kenya." *AIDS Care* 18 (3): 189–193.
- Delvaux, T., J. Konan, O. Aké-Tano, V. Gohou-Kouassi, P. Bosso, A. Buvé and C. Ronsmans. 2008. "Quality of Antenatal and Delivery Care Before and After the Implementation of a Prevention of Mother-to-Child HIV Transmission Programme in Côte d'Ivoire." *Tropical Medicine and International Health* 13 (8): 970–979.
- Delvaux, T. and C. Nöstlinger. 2007. "Reproductive Choice for Women and Men Living with HIV: Contraception, Abortion and Fertility." *Reproductive Health Matters* 15 (29 Supplement): 46–66.
- Demographic Health Survey (DHS). 2009. Stat compiler. Accessed Nov. 4, 2009. All surveys; indicator: other proximate determinants of fertility; median age of first sexual intercourse for those age 20–25.
- Denison, J., K. O'Reilly, G. Schmid, C. Kennedy and M. Sweat. 2008. "HIV Voluntary Counseling and Testing and Behavioral Risk Reduction in Developing Countries: A Meta-analysis, 1990–2005." *AIDS Behavior* 12: 363–373.

- Denny, L., R. Boa, A. Williamson, B. Allan, D. Hardie, R. Stan and L. Myer. 2008. "Human Papillomavirus Infection and Cervical Disease in Human Immunodeficiency Virus-1-Infected Women." *Obstetrics and Gynecology* 111 (6): 1380–1387.
- Deribe, K., K. Woldemichae, M. Wondafrash, A. Amberbir and A. Halle. 2008. "High Risk Behaviors and Associated Factors among HIV-Positive Individuals in Clinical Care in Southwest Ethiopia." Abstract THPE0823. Abstract THPDD106. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Deschamps, M., F. Noel, J. Bonhomme, J. Devieux, G. Saint-Jean, Y. Zhu, P. Wright, J. Pape and R. Malow. 2009. "Prevention of Mother-to-Child Transmission of HIV in Haiti." *Pan American Journal of Public Health* 25 (1): 24–30.
- Deschamps, M., F. Fernand, R. Jiha, V. Suire, A. Marcelin, C. Richie, A. Young and J. Pape. 2008. "Impact of Micro Credit Program on HIV-Infected Women in Haiti." Abstract THPDD106. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Desai, M., F. ter Kuile, F. Nosten, R. McGready, K. Asamoah, B. Brabin and R. Newman. 2007. "Epidemiology and Burden of Malaria in Pregnancy." *The Lancet Infectious Diseases* 7(2, February): 93–104.
- Desclaux, A. and C. Alfieri. 2009. "Counseling and Choosing between Infant-Feeding Options: Overall Limits and Local Interpretations by Health Care Providers and Women Living with HIV in Resource-Poor Countries (Burkina Faso, Cambodia, Cameroon)." *Social Science and Medicine* 69: 821–829.
- Desgrées-Du-Loû, A., H. Brou, G. Djohan, R. Becquet, D. Ekouevi, B. Zanou, I. Viho, G. Allou, F. Dabis, V. Leroy and ANRS 1201/1202/1253 Ditrane Plus Study Group. 2009. "Beneficial Effects of Offering Prenatal HIV Counselling and Testing on Developing a HIV Preventive Attitude among Couples. Abidjan, 2002–2005." *AIDS Behavior* 13: 348–355.
- Desgrées-du-Loû, A. and J. Orne-Gliemann. 2008. "Couple-Centered Testing and Counselling for HIV Serodiscordant Heterosexual Couples in Sub-Saharan Africa." *Reproductive Health Matters* 16 (3): 151–161.
- Desgrées-Du-Loû, A., P. Msellati, I. Viho, A. Yao, D. Yapi, P. Kassi, C. Weiffens-Ekra, L. Mandlebort and F. Dabis for the Dtrane Study Group. 2002. "Contraceptive Use, Protected Sexual Intercourse and Incidence of Pregnancies among African HIV-Infected Women." *International Journal of STDs & AIDS* 13 (7): 462–468.
- Desmond, C., K. Michael and J. Gow. 2000. *The Hidden Battle: HIV/AIDS in the Family and Community*. Health Economics & HIV/AIDS Research Division (HEARD). Durban, South Africa: University of Natal.
- Devasahayam, G., S. Abraham, J. Somani, P. Nodal and R. Sikhamani. 2008. "Psycho-social-economic Problems Faced by HIV+ Widows: Experiences Sharing from Government Hospital of Thoracic Medicine (GHTM)—Tambaram Chennai—Tamilnadu—India." Abstract TUPE0727. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- de Vries, B. and M. Peek. 2008. "Exploring the Mechanisms of Intrapartum Transmission of HIV. Does Elective Caesarean Section Hold the Key." *British Journal of Obstetrics & Gynecology* 115: 677–680.
- De Vuyst, H., F. Lillo, N. Broutet and J. Smith. 2008. "HIV, Human Papillomavirus, and Cervical Neoplasia and Cancer in the Era of Highly Active Antiretroviral Therapy." *European Journal of Cancer Prevention* 17: 545–554.
- De Vuyst, H. and S. Franceschi. 2007. "Human Papillomavirus Vaccines in HIV-Positive Men and Women." *Current Opinion in Oncology* 19: 470–475.
- De Walque, D. 2007. "Sero-Discordant Couples in Five African Countries: Implications for Prevention Strategies." *Population and Development Review* 33 (3): 501–523.

- Dharmadhikari, A., J Gupta, M. Decker, A. Raj and J. Silverman. 2009. "Tuberculosis and HIV: a Global Menace Exacerbated via Sex Trafficking." *International Journal of Infectious Diseases* 13: 543–546. August 3–8.
- Dhlamini, R., K. Hatzgold, N. Tauberekera and K. Chatora, 2008. "Impact of Social Marking on Uptake of HIV Testing and Counseling (T&C) by Couples." Abstract THPE0478. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Dia, A., A. Bounik, F. Marcellin, S. Boyer, P. Ongolo-Zogo, S. Koulia-Shira, S. Abega, J. Moatti, M. Carrieri, B. Spire and EVAL Study Group. 2008. "Unsafe Sexual Behaviors with Steady Partner among Men and Women Living with HIV/AIDS in Cameroon: Results from the National Survey EVAL (ANRS 12-116)." Abstract TUPE0843. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Dias, P., K. Souto and K. Page-Shafer. 2006. "Long Term Female Condom Use among Vulnerable Populations in Brazil." *AIDS and Behavior* 10 (1): 67–75.
- Dickson, N., C. Paul, P. Berbison and P. Silva. 1998. "First Sexual Intercourse: Age, Coercion and Later Regrets Reported by a Birth Cohort." *British Medical Journal* 316: 29–33.
- Dickson-Gomez, J., M. Weeks, M. Martinez and M. Convey. 2006. "Times and Places: Process Evaluation of a Peer-Led HIV Prevention Intervention." *Substance Use & Misuse* 41 (5): 669–90.
- DiClemente, R., G. Wingood, K. Harrington, D. Lang, S. Davies, E. Hook, M. Oh, R. Crosby, V. Hertzberg, A. Gordon, J. Hardin, S. Parker and A. Robillard. 2004. "Efficacy of an HIV Prevention Intervention for African American Adolescent Girls: A Randomized Controlled Trial." *Journal of the American Medical Association* 292 (2): 171–179.
- Dieffenbach, C. and A. Fauci. 2009. "Universal Voluntary Testing and Treatment for Prevention of HIV Transmission." *Journal of the American Medical Association* 301 (22): 2380–2382.
- Dieffenbach, C. 2009. "Universal Voluntary Testing and Treatment: When to Start ART and Other Research Issues." Presentation to WHO Informal Working Group Meeting on "Modeling the Impact of ART on TB and HIV." Geneva, Switzerland: WHO.
- Dietz, K. 1993. "The Estimation of the Basic Reproductive Number for Infectious Diseases." *Statistical Methods in Medical Research*. 2(1): 23–41.
- Dim, C., N. Dim, H. Ezegwui and A. Ikeme. 2009. "An Unmet Cancer Screening Need of HIV-Positive Women in Southeastern Nigeria." *Medscape Journal of Medicine* 11 (1): 19.
- Dimitrova, B., A. Hutchings, R. Atun, F. Drobniewski, G. Marchenko, S. Zakharova, I. Fedorin and R. Cokeer. 2005. "Increased Risk of Tuberculosis among Health Care Workers in Samara Oblast, Russia: Analysis of Notification Data." *International Journal of Tubercular Lung Disease* 9 (1): 43–48.
- Di Noia, J. and S. Schinke. 2007. "Gender-Specific HIV Prevention with Urban Early-Adolescent Girls: Outcomes of the Keepin' It Safe Program." *AIDS Education and Prevention* 19 (6): 479–88.
- Ditmore, M. 2008. "Raids and Vulnerability to HIV: A Meta-Analysis of Reports of Raids Affecting Sex Workers." Abstract MOPE1002. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Diwan, V. and A. Thorson. 1999. "Sex, Gender and Tuberculosis." *Lancet* 353: 1000–1001.
- Dixon-Mueller, R. 2009. "Starting Young: Sexual Initiation and HIV Prevention in Early Adolescence." *AIDS Behavior* 13: 100–109.
- Dixon-Mueller, R. 2007. "Sexual and Reproductive Transitions of Adolescents in Developing Countries." *Policy & Research Paper* No. 20. Paris, France: International Union for the Scientific Study of Population.

- Dixon-Mueller, R. and A. Germain. 2007. "Fertility Regulation and Reproductive Health in the Millennium Development Goals: The Search for a Perfect Indicator." *American Journal of Public Health* 97 (1): 45–52.
- Doherty, T., M. Chopra, L. Nkonki, D. Jackson and T. Greiner. 2006. "Effect of the HIV Epidemic on Infant Feeding in South Africa: 'When They See Me Coming with the Tins They Laugh at Me.'" *Bulletin of the World Health Organization* 84 (2): 90–96.
- Dolan, K., B. Kite, E. Black, C. Aceijas, G. Stimson for the Reference Group on HIV/AIDS Prevention and Care among Injecting Drug Users in Developing and Transitional Countries. 2007. "HIV in Prison in Low-Income and Middle-Income Countries." *Lancet* 7: 32–41.
- Dong, K., Z. Thabethe, R. Hurtado, T. Sibaya, H. Dlwati, B. Walker and D. Wilson. 2007. "Challenges to the success of HIV and tuberculosis care and treatment in the public health sector in South Africa." *Journal of Infectious Disease* 196: s491–496.
- Donini, A., M. Adriaio, I. Botao, J. Felix, T. De Lamare, M. Malheiro, D. Ligerio, M. Otero, M. Sousa and F. Lopes. 2008. "Health and Prevention in Schools—Innovative Approach to HIV Prevention in the Brazilian Health Sector." Abstract TUPE1020. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Donnell, D., J. Kiarie, K. Thomas, J. Baeten, J. Lingappa, C. Cohen and C. Celum. 2010. "ART and Risk of Heterosexual Transmission in HIV-1 Serodiscordant African Couples: A Multinational Prospective Study." Abstract 136. Seventeenth Conference on Retroviruses and Opportunistic Infections. San Francisco, CA. February 16–19.
- Doupe, A. 2008. Guidelines for Integrating Sexual and Reproductive Health into the HIV/AIDS Component Country Coordinated Proposals to be Submitted to the Global Fund to Fight AIDS, Tuberculosis and Malaria: Round 8 and Beyond. Washington, DC: Interact Worldwide, International HIV/AIDS Alliance, Global AIDS Alliance, Population Action International, IPPF, and Friends of the Global Fund Africa. [http://www.globaidsalliance.org/page/-/PDFs/Round\\_8\\_GFATM\\_SRH-HIV\\_Proposal\\_Guidelines.pdf](http://www.globaidsalliance.org/page/-/PDFs/Round_8_GFATM_SRH-HIV_Proposal_Guidelines.pdf).
- Dover, C. and C. Levy. 2008. "Challenges in Increasing Women's Ability to Negotiate for Safer Sex in Rural Papua New Guinea." Abstract TUPE0830. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Dowdy, D., M. Sweat and D. Holtgrave. 2006. "Country-Wide Distribution of the Nitrile Female Condom (FC2) in Brazil and South Africa: A Cost-Effectiveness Analysis." *AIDS* 20 (16): 2091–2098.
- Dowsett, G., P. Aggleton, S. Abega, C. Jenkins, T. Marshall, A. Runganga, J. Schifter, M. Tan and C. Tarr. 1998. "Changing Gender Relations among Young People: The Global Challenge for HIV/AIDS Prevention." *Critical Public Health* 8 (4): 291–309.
- Dreyer, A., J. Kim, and N. Schaay. 2001. "What Do We Want to Tell Our Children About Violence Against Women? Evaluation Report for the Project Developing a Model 'Gender and Conflict' Component of the Primary School Curriculum." South Africa: School of Public Health, University of the Western Cape.
- Drezin, J., M. Torres and K. Daly. 2007. "Barriers to Condom Access: Setting an Agenda." *ICASO Advocacy Briefing*. International Council of AIDS Service Organizations (ICASO).
- Drimie, S. 2002a. *The Impact of HIV/AIDS on Land: Case Studies from Kenya, Lesotho and South Africa*. Synthesis Report prepared for the FAO Southern African Regional Office. Pretoria: Human Sciences Research Council. [http://www.sarpn.org.za/documents/d0000147/P143\\_Impact\\_of\\_HIVAIDS.pdf](http://www.sarpn.org.za/documents/d0000147/P143_Impact_of_HIVAIDS.pdf).
- Drimie, S. 2002b. "The Impact of HIV/AIDS on Rural Households and Land Issues in Southern and Eastern Africa." Background Paper prepared for the FAO Sub-regional Office for Southern and Eastern Africa. Pretoria: Human Sciences Research Council. [http://www.sarpn.org.za/documents/d0000152/P142\\_HIVAIDS\\_Households\\_Land.pdf](http://www.sarpn.org.za/documents/d0000152/P142_HIVAIDS_Households_Land.pdf).

- Druce, N. and A. Nolan. 2007. "Seizing the Big Missed Opportunity: Linking HIV and Maternity Care Services in Sub-Saharan Africa." *Reproductive Health Matters* 15 (30): 190–201.
- Drummond Cordeiro, I., A. Pires Pinto, E. Barbarosa, A. Prado Silveira and M. Araujo de Freitas. 2008. "HIV/AIDS & Disabilities: The Experience of the Brazilian National AIDS Program." Abstract WEPE0997. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Dude, A. 2009. "Spousal Intimate Partner Violence Is Associated with HIV and other STIs among Married Rwandan Women." *AIDS Behavior* doi: 10.1007/s10461-009-9526-1
- Duerr, A., S. Hurst, A. Kourtis, N. Rutenberg and D. Jamieson. 2005. "Integrating Family Planning and Prevention of Mother-to-Child HIV Transmission in Resource-Limited Settings." *Lancet* 366: 261–263.
- Duflo, Esther et al. 2007. "Education and HIV Prevention: Evidence from a Randomized Evaluation in Western Kenya." Background paper to the 2007 World Development Report. World Bank Publications. <http://books.google.com/books?hl=en&lr=&id=ai3tAJxawQAC&oi=fnd&pg=PT26&dq=providing+girls+with+uniforms+%2B+attending+school+%2B+africa&ots=uB8voSPoAJ&sig=1HEojQUmNW2CTEFWafZC-en3QjA#v=onepage&q=&f=false>.
- Dultra, D., G. Santos, L. Seara, A. Miranda and A. Figueredo. 2008. "The Participation of Persons Living with HIV/AIDS in Educational Programs in Legal Matters—A Response to Stigma and Discrimination." Abstract WEPE0931. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Dunbar, M., C. Morrison, T. Chipato, J. Byamugisha and R. Salata. 2008. "Hormonal Contraception and the Risk of HIV-1 Acquisition among Young African Women." Abstract MOPE0270. XVII International AIDS Conference. Mexico City, Mexico.
- Dunkle, K., R. Stephenson, E. Karita, E. Chomba, K. Kayitenkore, C. Vwalika and S. Allen. 2008. "Estimating the Proportion of New HIV Infections that Occur within Married/Cohabiting Couples in Urban Zambia and Rwanda." Abstract TUAC0202. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Dunkle, K. and R. Jewkes. 2007. "Effective HIV Prevention Requires Gender-Transformative Work with Men." *Sexually Transmitted Infections* 83: 173–174.
- Dunkle, K., R. Jewkes, M. Nduna, J. Levin, N. Jama, N. Khuzwayo, M. Koss and N. Duvvury. 2006. "Perpetration of Partner Violence and HIV Risk Behaviour among Young Men in the Rural Eastern Cape, South Africa." *AIDS* 20 (16): 2107–14.
- Dunkle, K., R. Jewkes, H. Brown, G. Gray, J. McIntyre and S. Harlow. 2004. "Gender-Based Violence, Relationship Power, and the Risk of HIV Infection in Women Attending Antenatal Clinics in South Africa." *Lancet* 363: 1415–1421.
- Dutse, N., B. Bubakar and K. Yaro. 2008. "Improving Access through Brothel Based Mobile HIV Counseling and Testing (HCT)." Abstract THPE0918. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Dworkin, S. and K. Blankenship. 2009. "Microfinance and HIV/AIDS Prevention: Assessing its Promise and Limitations." *AIDS Behavior* 13: 462–469.
- Dworkin, S., T. Exner, R. Melendez, S. Hoffman and A. Ehrhardt. 2006. "Revisiting "Success": Posttrial Analysis of a Gender-Specific HIV/STD Prevention Intervention." *AIDS and Behavior* 10 (1): 41–51.
- Eaton, L. and S. Kalichman. 2009. "Behavioral Aspects of Male Circumcision for the Prevention of HIV Infection." *Current HIV/AIDS Reports* 6: 187–193.
- Ebrahim, S., S. Lo, J. Zhuo, J. Han, P. Delvoeye and L. Zhu. 2006. "Models of Preconception Care Implementation in Selected Countries." *Maternal and Child Health Journal* 10: S37–S32.

- Eckman, A. and B. Hersted. 2006. *Advancing the Reproductive Health of HIV-Positive Women: Policy Barriers and Opportunities for Change: A Synthesis of Findings from POLICY Project Activities*. Washington DC: Constella Futures. [www.constellagroup.com/international\\_development/publications](http://www.constellagroup.com/international_development/publications).
- Edathodu, J., B. Ali and A. Alrajhi. 2009. "CD4 Validation for the World Health Organization Classification and Clinical Staging of HIV/AIDS in a Developing Country." *International Journal of Infectious Diseases* 13: 243–246.
- Efuntoye, M., O. Okonkwo, G. Omorgeie and B. Musa. 2008. "Increasing Access to HIV Counselling and Testing: A Demonstration Project Trialling the Greater Involvement of People Living with HIV/AIDS (GIPA) in the Workplace." Abstract TUZX0405. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Eisele, T., C. Mathews, M. Chopra, L. Brown, E. Silvestre, V. Daries and C. Kendall. 2008. "High Levels of Risk Behaviors among People Living with HIV Initiating and Waiting to Start Antiretroviral Therapy in Cape Town South Africa." *AIDS Behavior* 12: 570–577.
- Ellath, V., S. Gandrakota, V. Velagala and V. Bhavani. 2008. "Group Enterprise for Women Living with HIV and Their Families—The Impact of Participation in India." Abstract MOPE0754. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ellsberg, M., H. Jansen, L. Heise, C. Watts, and C. Garcia-Moreno on behalf of the WHO Multicountry Study on Women's Health and Domestic Violence against Women Study Team. 2008. "Intimate Partner Violence and Women's Physical and Mental Health in the WHO Multi-country Study on Women's Health and Domestic Violence: An Observational Study." *The Lancet* 371: 1165–1172.
- Ellsberg, M. 2006. "Violence against Women and the Millennium Development Goals: Facilitating Women's Access to Support." *International Journal of Gynecology and Obstetrics* 94: 325–332.
- Ellsberg, M., A. Winkvist, R. Pena and H. Stenlund. 2001. "Women's Strategic Responses to Violence in Nicaragua." *Journal of Epidemiology and Community Health* 55 (8): 547–555.
- Ellsberg, M., R. Pena, A. Herrera, J. Liljestrand and A. Winkvist. 2000. "Candies in Hell: Women's Experiences of Violence in Nicaragua." *Social Science and Medicine* 51: 1595–1610.
- Elson, D. 1999. Gender-Neutral, Gender-Blind, or Gender-Sensitive Budgets? Changing the Conceptual Framework to Include Women's Empowerment and the Economy of Care. In: Gender Budget Initiative, Background Papers. London: Commonwealth. Cited in Ogden et al., 2006.
- Emusu, D., N. Ivankova, P. Jolly, R. Kirby, H. Foushee, F. Wabwire-Mangen, D. Katongole and J. Ehri. 2009. "Experience of Sexual Violence among Women in HIV Discordant Unions after Voluntary HIV Counselling and Testing: A Qualitative Critical Incident Study in Uganda." *AIDS Care* 21 (11): 1363–1370.
- EngenderHealth and International Community of Women Living with HIV/AIDS (ICW). 2006. *Sexual and Reproductive Health for HIV-Positive Women and Adolescent Girls: Manual for Trainers and Programme Managers*. New York and London: Engenderhealth and ICW.
- Engenderhealth and UNFPA. 2006. *Sexual and Reproductive Health Needs of Women and Adolescent Girls Living with HIV: Research Report on Qualitative Findings from Brazil, Ethiopia and Ukraine*. NY: EngenderHealth.
- Engl, I., L. Stloukal and J. du Guerny. 2000. *HIV/AIDS in Namibia: The Impact on the Livestock Sector*. Rome: Food and Agriculture Organization of the United Nations (FAO), Sustainable Development Department.
- Engle, P. 2008. "National Plans of Action for Orphans and Vulnerable Children in Sub-Saharan Africa. Where are the Youngest Children?" *Working Papers in Early Childhood Development*. The Netherlands: Bernard Leer Foundation.

- Epstein H. 2009. "Universal voluntary HIV testing and immediate antiretroviral therapy. Letter Response to Granich et al." *Lancet* 373(9669): 1078–79. [http://www.projectinform.org/testandtre/granich\\_letters.pdf](http://www.projectinform.org/testandtre/granich_letters.pdf).
- Epstein, J. 2007. "Oral Malignancies Associated with HIV." *Journal of the Canadian Dental Association* 73 (10): 953–6.
- Ersoy, N. and A. Akpınar. 2008. "Attitudes about Prenatal HIV Testings in Turkey." *Nursing Ethics* 15 (2): 222–233.
- Erulkar, A. and E. Muthengi. 2009. "Evaluation of Berhane Hewan: A Program to Delay Child Marriage in Rural Ethiopia." *International Perspectives on Sexual and Reproductive Health* 35 (1): 6–14.
- Erulkar, A., T. Mekbid, N. Simie and T. Gulema. 2006. "Differential Use of Adolescent Reproductive Health Programs in Addis Ababa, Ethiopia." *Journal of Adolescent Health* (38): 253–260.
- Erulkar, A. 2004. "The Experience of Sexual Coercion among Young People in Kenya." *International Family Planning Perspectives* 30 (4): 182–189.
- Escombe, R., D. Moore, R. Gilman, W. Pan, M. Navincopa, E. Ticona, C. Martinez, L. Caviedes, P. Sheen, A. Gonzalez, C. Noakes, J. Friedland and C. Evans. 2006. "The Infectiousness of Tuberculosis Patients Coinfected with HIV." *PLoS Medicine* 5(9): e188.
- Escombe, R. 2009. "TB Infection Control Among People Living with HIV: What Do We Know?" Presentation at Catalysing HIV/TB Research: Innovation, Funding and Networking Workshop. Cape Town, South Africa. July 18.
- Escuder, M., A. Grangeiro, R. Alencar and P. Teixeira. 2008. "Survival of HIV-Positive People after Anti-Retroviral Therapy (ART) 2003–2006." Abstract MOPE0228. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Eskenazi, B., J. Chevrier, L. Rosas, H. Anderson, M. Bornman, H. Bouwman, A. Chen, B. Cohn, C. de Jager, D. Henshel, F. Leipzig, J. Leipzig, E. Lorenz, S. Snedeker and D. Stapleton. 2009. "The Pine River Statement: Human Health Consequences of DDT Use." *Environmental Health Perspectives* 117 (9): 1359–1367.
- Esparza, J. 2009. Interview with Jill Gay, April 15. Dr. Esparza is Senior Advisor, HIV Vaccines, Gates Foundation, Seattle.
- Esplen, E. 2009. "Gender and Care Overview Report." *BRIDGE Development and Gender Report*. Sussex: Institute for Development Studies.
- Esplen, E. 2007. *Women and Girls Living with HIV/AIDS: Overview and Annotated Bibliography*. Brighton, UK: Institute of Development Studies/BRIDGE, University of Sussex and ICW. [www.ids.ac.uk/bridge](http://www.ids.ac.uk/bridge)
- Esu-Williams E., K. Schenk, S. Geibel, J. Motsepe, A. Zulu, P. Bweupe and E. Weiss. 2006. "'We are No Longer Called Club Members but Caregivers': Involving Youth in HIV and AIDS Caregiving in Rural Zambia." *AIDS Care* 18 (8): 888–894.
- Ettiebet, M., D. Fransman, B. Forsyth, N. Coetzee and G. Hussey. 2004. "Integrating Prevention of Mother-to-Child HIV Transmission into Antenatal Care: Learning from the Experiences of Women in South Africa." *AIDS Care* 16 (1): 37–46.
- European Mode of Delivery Collaboration. 1999. "Elective Cesarean-Section Versus Vaginal Delivery in Prevention of Vertical HIV-1 Transmission: A Randomized Clinical Trial." *Lancet* 353: 1035–1039.
- European AIDS Clinical Society, November 2009. *Guidelines: Clinical Management and Treatment of HIV-Infected Adults in Europe*. Available at: <http://europeanaidscinicalsociety.org/guidelinespdf/EACS-EuroGuidelines2009FullVersion.pdf>. Accessed on March 17, 2010.

- Eyakuze, C., D. Jones, A. Starrs and N. Sorkin. 2008. "From PMTCT to a More Comprehensive AIDS Response for Women: A Much Needed Shift." *Developing World Bioethics* 8 (1): 33–42.
- Ezechi, O., C. Gab-Okafor, D. Onwujekwe, R. Adu, E. Amadi and E. Herbertson. 2009. "Intimate Partner Violence and Correlates in Pregnant HIV Positive Nigerians." *Archives of Gynecology and Obstetrics* 280 (5): 745–752 doi: 10.1007/s00404-009-0956-9
- Ezer, T., A. Glasford, E. Hollander, L. Poole, G. Rabenn and A. Tindall. 2007. "Report: Divorce Reform: Rights Protections in the New Swaziland." *The Georgetown Journal of Gender and the Law* 8 (883): 889.
- Ezer, T., K.Kerr, K. Major, A. Polavarapu and T. Tolentino. 2006. "Report: Child Marriage and Guardianship in Tanzania: Robbing Girls of their Childhood and Infantilizing Women." *The Georgetown Journal of Gender and the Law* 7 (357): 362.
- Ezire, O., O. Ladipo and N. Igbinoba. 2008. "Law Enforcement, Sex Work, Crime and HIV: Working with Police and Sex Workers within an Illegal Context in Edo State, Nigeria." Abstract THPDD203. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Fadnes, L., I. Engebretsen, H. Wamani, J. Wangisi, J. Tumwine and T. Tylleskär. 2009. "Need to Optimise Infant Feeding Counselling: A Cross-Sectional Survey among HIV-Positive Mothers in Eastern Uganda." *BMC Pediatrics* 9:2.
- Fadnes, L., I. Engebretsen, H. Wamani, N. Semiyaga, J. Wangisi, J. Tumwine and T. Tylleskär. 2008. "Is Replacement Feeding a Feasible Option for HIV-Positive Mothers in Rural Uganda." Abstract CDD0136. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Fair, E., A. Islam and A. Chowdhury. 1997. "Tuberculosis and Gender: Treatment Seeking Behavior and Social Beliefs of Women with Tuberculosis in Rural Bangladesh." *Working Paper No. 1*. Bangladesh: BRAC.
- Fairall, L., M. Bachmann, M. Goedele, C. Louwagie, C. van Vuuren, P. Chikobvu, D. Steyn, G. Staniland, V. Timmermann, M. Msimanga, C. Seebregts, A. Boule, R. Nhiwatiwa, E. Batemen, M. Zwarenstein and R. Chapman. 2008. "Effectiveness of Antiretroviral Treatment in a South African Program." *Archives of Internal Medicine* 168: 86–93.
- Fajola, A., O. Chendu, B. Faseru, O. Fajola and D. Sangowawa. 2008. "Sexual Practices and HIV/AIDS Knowledge among Out-of-School Youths in an Inner City Bus Terminus in Ibadan, Nigeria." Abstract WEPE0845. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Family Health International (FHI). 2008. "Contraceptives and HIV." [www.fhi.org/en/RH/FAQs/contraHIV\\_faqs.htm](http://www.fhi.org/en/RH/FAQs/contraHIV_faqs.htm). Accessed on July 23, 2008.
- Farabee, D. and C. Leukefield. 1999. "Opportunities for AIDS Prevention in a Rural State in Criminal Justice and Drug Treatment Programs." *Substance Use & Misuse* 34 (4–5): 617–631.
- Farmer, P. 2001. *Infections and Inequalities: The Modern Plague*. Berkeley, California: University of California Press.
- Farmer, P. 1999. "Cruel and Unusual: Drug-resistant Tuberculosis as Punishment." In Stern, V. and R. Jones. *Sentenced to Die? The Problem of TB in Prisons in East and Central Europe and Central Asia*. London, UK: Penal Reform International.
- Farquhar, C., J. Kiarie, B. Richardson, M. Kabura, F. John, R. Nduati, D. Mbori-Ngacha and G. John-Stewart. 2004. "Antenatal Couple Counseling Increases Uptake of Interventions to Prevent HIV-1 Transmission." *Journal of Acquired Immune Deficiency Syndromes* 37 (5): 1620–1626.
- Farrell, B. 2007. *Family Planning-Integrated HIV Services: A Framework for Integrating Family Planning and Antireviral Therapy Services*. New York, NY: Engenderhealth, The Acquire Project.

- Farrell, B. and N. Rajani. 2007. "Integrating Family Planning with Antiretroviral Therapy Services in Uganda." *Acquiring Knowledge*. No. 5. New York: The Acquire Project for USAID.
- Fauci, A. 2009a. "The Future of Global HIV Treatment and Prevention." Presentation at the Center for Strategic and International Studies. Washington, DC. December 14.
- Fauci, A. 2009b. "U.S.-Supported HIV/AIDS Research on Pathogenesis, Treatment, and Prevention: Science and Policy." Presentation to IAS Conference, Capetown, South Africa. July 20.
- Feacham, R. 2009. "Malaria: Yesterday, Today and Tomorrow." Presentation for The Henry J. Kaiser Family Foundation, Washington, DC. June 17.
- Feachem, R. and O. Sabot. 2007. "The Global Fund 2001–2006: A Review of the Evidence." *Global Public Health* 2 (4): 325–341.
- Federation of Women Lawyers FIDA Kenya and Georgetown University Law Center. 2009. *Women's Land and Property Rights in Kenya: Promoting Gender Equality*. Nairobi, Kenya and Washington, DC: FIDA. ([www.fidakenya.org](http://www.fidakenya.org)) and Georgetown University Law Center.
- Federation of Women Lawyers FIDA Kenya. 2007. *Documenting Human Rights Violation of Sex Workers in Kenya: A Report Based on Findings of a Study Conducted in Nairobi, Kisumu, Busia, Nanyuki, Mombasa and Malindi*. Nairobi, Kenya: FIDA. [www.fidakenya.org](http://www.fidakenya.org)
- Feldblum, P., M. Welsh and M. Steiner. 2003. "Don't Overlook Condoms for HIV Prevention." *Sexually Transmitted Infections* 79: 268–269.
- Feldblum, P., M. Kuyoh, J. Mwayo, M. Omari, E. Wong, K. Tweedy, and M. Welsh. 2001. "Female Condom Introduction and Sexually Transmitted Infection Prevalence: Results of a Community Intervention Trial in Kenya." *AIDS* 15: 1037–1044.
- Feldman, R. and C. Masopere. 2003. "Safer Sex and Reproductive Choice: Findings from 'Positive Women: Voices and Choices' in Zimbabwe." *Reproductive Health Matters* 11 (22): 162–173.
- Fernandez, C., F. Martin, J. Engel and P. Rivas. 2008. "Angola, Site Based VCT. Which is the Target Population?" Abstract TUPE0467. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Fernandez, M., J. Garrido, A. Alvarez and Y. Castro. 2006. "A Qualitative Study of the Viability of Usage of the Female Condom among University Students." *International Journal of Clinical and Health Psychology* 6 (1): 189–199.
- Ferradini, L., A. Jeannin, L. Pinoges, J. Izopet, D. Odhiambo, L. Mankhambo, G. Karungi, E. Szumilin, S. Balandine, G. Fedida, M. Carrieri, B. Spire, N. Ford, J. Tassie, P. Guerin and C. Brasher. 2006. "Scaling up of Highly Active Antiretroviral Therapy in a Rural District of Malawi: An Effectiveness Assessment." *Lancet* 367 (9519): 1335–1342.
- Ferrand, R., e. Corbett, R. Wood, J. Hargrove, C. Ndhlovu, F. Cowan, E. Gouws and B. Williams. 2009. "AIDS among Older Children and Adolescents in Southern Africa: Projecting the Time Course and Magnitude of the Epidemic." *AIDS* 23: 2039–2046.
- Ferrara, A. and I. Franca-Junior. 2008. "Understanding HIV Positive Adolescents' Decision to Disclose, or Not to Disclose their HIV Status to Intimate Partners in Sao Paulo, Brazil." Abstract WEPE0901. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Fikree, F., S. Jafarey, R. Korejo, A. Khan and J. Durocher. 2004. "Pakistani Obstetricians' Recognition of and Attitude towards Domestic Violence Screening." *International Journal of Gynecology and Obstetrics* 87: 59–65.

- Filler, S., P. Kazembe, M. Thigpen, A. Macheso, M. Parise, R. Newman, R. Steketee and M. Hamel. 2006. "Randomized Trial of 2-Dose Versus Monthly Sulfadoxine-Pyrimethamine Intermittent Preventive Treatment for Malaria in HIV-Positive and HIV-Negative Pregnant Women in Malawi." *Journal of Infectious Diseases* 194: 286–293.
- Filteau, S. 2009. "The HIV-Exposed, Uninfected African Child." *Tropical Medicine and International Health* 14 (3): 276v287.
- Fine, P. 1993. "Immunities in and to Tuberculosis: Implications for Pathogenesis and Vaccination." In Porter J. and K. Mcadams (Eds.). *Tuberculosis Back to the Future*. Chichester: Wiley & Sons, 1993: 53–78.
- Finkelhor, D. 1994. "The International Epidemiology of Child Sexual Abuse." *Child Abuse & Neglect* 18 (5): 409–417.
- Finnegan, J., K. Nobel and R. Lodha. 2009. "Evidence Behind the WHO Guidelines: Hospital Care for Children: What is the Role of HIV Antigen Testing in Infants under 12 Months Old?" *Journal of Tropical Pediatrics* 55 (4): 216–218.
- Finnegan, K., J. Zeladita, M. Munoz, A. Caldas, E. Sanchez, M. Callacna, C. Rojas, J. Arevalo, J. Sebastian, L. Lecca, J. Bayona and S. Shin. 2008. "Preliminary Outcomes of DOT-HAART Accompaniment in an Urban Resource-Poor Setting." Abstract TUPE0211. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Fisher, J., H. Bang and S. Kapiga. 2007. "The Association Between HIV Infection and Alcohol Use: A Systematic Review and Meta-Analysis of African Studies." *Sexually Transmitted Diseases* 34 (11): 856–863.
- Fitzgerald, D., F. Behets, A. Caliendo, D. Roberfroid, C. Lucet, J. Fitzgerald and L. Kuyens. 2000. "Economic Hardship and Sexually Transmitted Diseases in Haiti's Rural Arbonite Valley." *American Journal of Tropical Medicine and Hygiene* 62 (4): 496–501.
- Fleischman, J. 2005. *Strengthening HIV/AIDS Programs for Women: Lessons for U.S. Policy from Zambia and Kenya*. Washington, D.C.: the Center for Strategic and International Studies.
- Fleischman, J. 2002. *Suffering in Silence: The Links between Human Rights Abuses and HIV Transmission to Girls in Zambia*. New York, NY: Human Rights Watch.
- Fleming, D. and J. Wasserheit. 1999. "From Epidemiological Synergy to Public Health Policy and Practice: The Contribution of Other Sexually Transmitted Diseases to Sexual Transmission of HIV Infection." *Sexually Transmitted Infections* 75: 3–17.
- Fletcher, F., P. Ndebele and M. Kelly. 2008. "Infant Feeding and HIV in Sub-Saharan Africa: What Lies Beneath the Dilemma?" *Theoretical Medicine and Bioethics* 29: 307–330.
- Flores, R., J. Blass and S. Ramirez. 2008. "The Participation of Transgender Sex Workers in Peer Prevention Strategies and Lobbying Activities." Abstract THPE0407. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Florida, M., M. Giuliano, L. Palmisano and S. Vella. 2008. "Gender Differences in the Treatment of HIV Infection." *Pharmacological Research* 58: 172–182.
- Fontanet, A., J. Saba, V. Chandelying, C. Sakordhvat, P. Buiraleus, S. Ruggao, C. Chongsonchai, O. Kiriwato, S. Toranabutra, L. Dally, J. Lange and W. Rojanapithayakorn. 1998. "Protection Against Sexually Transmitted Diseases by Granting Sex Workers in Thailand the Choice of Using the Male or Female Condom: Results from a Randomized Controlled Trial." *AIDS* 12: 1851–9.
- Fontes, M., F. Coelho Neto, M. Carvalho, I. Melo and R. Laro. 2008. "AIDS in the Workplace: Predictors of Inconsistent Condom Use by Brazilian Industrial Workers." Abstract TUPE0486. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Ford, N., D. Wilsono, P. Cawthorne, A. Kumphitak, S. Kasi-Sedapan, S. Kaetkaew, S. Teemanaka, B. Donmon and C. Preuanbuapan. 2009a. "Challenge and Co-operation: Civil Society Activism for Access to HIV Treatment in Thailand." *Tropical Medicine and International Health* 14 (3): 258–266.
- Ford, N., E. Mills and A. Calmy. 2009b. "Rationing Antiretroviral Therapy in Africa—Treating Too Few, Too Late." *New England Journal of Medicine* 360 (18): 1808–1810.
- Ford, N., D. Wilson, G. Chaves, M. Lotrowska and K. Kijtiwatchakul. 2007. "Sustaining Access to Antiretroviral Therapy in the Less-Developed World: Lessons from Brazil and Thailand." *AIDS* 21 (4): S21–S29.
- Ford, K. and A. Chamrathirithrong. 2007. "Sexual Partners and Condom Use of Migrant Workers in Thailand." *AIDS Behavior* 11: 905–914.
- Foreman, M. 1999. (ed). *AIDS and Men: Taking Risks or Taking Responsibility*. London, UK. The Panos Institute and Zed Books.
- Forsyth, B., S. Barringer, T. Walls, M. Landry, D. Ferguson, T. Tinghitella, M. Unfricht, E. Luchansky and U. Magriples. 2004. "Rapid HIV Testing of Women in Labor: Too Long a Delay." *Journal of Acquired Immune Deficiency Syndromes* 35: 151–154.
- Foss, A., M. Hossain, P. Vickerman and C. Watts. 2007. "A Systematic Review of Published Evidence on Intervention Impact on Condom Use in Sub-Saharan Africa and Asia." *Sexually Transmitted Infections* 83: 510–516.
- Foster, G. 2003. "Understanding Community Responses to the Situation of Children Affected by AIDS: Lessons for External Agencies." In Sisask, A. (Ed.). *One Step Further—Responses to HIV/AIDS*. Stockholm, Sweden: SIDA Studies. Website: www.sida.se. Pp. 91–115.
- Fox, A., S. Jackson, N. Hansen, N. Gasa, M. Crewe and K. Sikkema. 2007. "In Their Own Voices: A Qualitative Study of Women's Risk for Intimate Partner Violence and HIV in South Africa." *Violence against Women* 13: 583–602.
- Fox, A. 2007. "Gender Transformation Requires Poulation Approaches to Addressing Gender-Based Violence and HIV." *Sexually Transmitted Infections* 83: 499.
- Fox, M., D. Brooks, L. Kuhn, G. Aldrovandi, M. Sinkala, C. Kankasa, R. Horsburgh and D. Thea. 2009. "Role of Breastfeeding Cessation in Mediation the Relationship between Maternal HIV Disease Stage and Increased Child Mortality among HIV-Exposed Uninfected Children." *International Journal of Epidemiology* 38: 569–576.
- Franca-Junior, I., E. Zucchi, G. Calazans and Group of Population, Sexuality and AIDS Studies. 2008. "HIV Testing and Counseling: Challenges for the Brazilian Response to the AIDS Epidemic." Abstract TUPE0407. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Franceschi, S. and H. Jaffe. 2007. "Cervical Cancer Screening of Women Living with HIV Infection: A Must in the Era of Antiretroviral Therapy." *Clinical Infectious Disease* 45: 510–513.
- Franco, L., A. De Wagt, B. Burkhalter, A. Kelley and L. Jennings. 2008. "The Evidence Base for Programming for Children Affected by HIV and AIDS in Low Prevalence and Concentrated Epidemic Countries: What Do We Know and What Should We Do?" Abstract TUPE0993. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Fraser, C. 2009. "The Effect of HIV Treatment on Transmission." Symposium Plenary. 16<sup>th</sup> Conference on Retroviruses and Opportunistic Infections. Montreal, Canada. February 8–11.
- Fredrick, J., S. Raghavan, V. Alex, P. Manivannan, A. Kumar, L. Ramakrishnan, O. Gayathri, S. Sahu and S. Vidya. 2008. "Reducing Geographic Overlap and Service Duplication—Mapping as an Essential Tool." Abstract MOPE0664. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Freedman, L., R. Waldman, H. de Pinho, M. Wirth, A. Chowdhury and A. Rosenfield. 2005. *Who's Got the Power? Transforming Health Systems for Women and Children*. London, UK: Earthscan.
- Freeman, M. and N. Nkomo. 2006. "Assistance Needed for the Integration of Orphaned and Vulnerable Children- Views of South African Family and Community Members." *Journal of Social Aspects of HIV/AIDS* 3 (3): 502–509.
- French, A., C. Evans, K. Anastos, R. Greenblatt, R. Hershow, R. Huebner, M. Augenbraun, M. Young, H. Lopez-Gatell and D. Passaro. 2006. "Incidence of Tuberculin Test Conversion Among HIV-infected and –uninfected Women: Results of a 6-year Study." *Journal of Acquired Immune Deficiency Syndromes* 42: 592–596.
- Fried, S. and S. Kowalski-Morton. 2008. "Sex and the Global Fund: How Sex Workers, Lesbians, Gays, Bisexuals, Transgender People, and Men Who Have Sex with Men are Benefitting from the Global Fund, or Not." *Health and Human Rights* 10 (2): 127–136. www.hhrjournal.org.
- Friedland, G., S. Khoo, C. Jack and U. Laloo. 2006. "Administration of Efavirenz (600mg/day) with Rifampicin Results in Highly Variable Levels but Excellent Clinical Outcomes in Patients Treated for Tuberculosis and HIV." *Journal of Antimicrobial Chemotherapy* 58: 1299–1302.
- Friedman, M., R. Beatty, M. Marshal and L. Heerten. 2008. "HIV Prevalence and Correlates among Male and Transgender Sex Workers: An International Meta-Analytic Review." Abstract WEPE0782. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Funk-Brentano, I., C. Dalban, F. Veber, P. Quartier, S. Hefez, D. Costagliola and S. Blanche. 2005. "Evaluation of a Peer Support Group Therapy for HIV-Infected Adolescents." *AIDS* 19 (14): 1501–1508.
- Furin, J., J. Rigodon, C. Cancedda, S. Keshavjee, K. Seung, M. Letsie, J. Kim and J. Joseph. 2007. "Improved Case Detection of Active Tuberculosis Associated with an Antiretroviral Treatment Program in Lesotho." *The International Journal of Tuberculosis and Lung Disease* 11(10): 1154–1156.
- The Future II Study Group. 2007. Quadrivalent Vaccine against Human Papillomavirus to Prevent High-Grade Cervical Lesions." *New England Journal of Medicine* 356 (19): 1915–1927.
- Futterman, D. 2001. "Adolescents." In Anderson, J. (Ed.). *A Guide to the Clinical Care of Women with HIV*. Rockville, MD: US Department of Health and Human Services.
- Fylkesnes, K., R. Musonda, M. Sichone, Z. Ndhlovu, F. Tembo and M. Monze. 2001. "Declining HIV Prevalence and Risk Behaviors in Zambia: Evidence from Surveillance and Population-Based Surveys." *AIDS* 15: 907–916.
- Gabelnick, H. 2007. Interview with Jill Gay and Lauren Sisson. Washington, DC, November 16 for CHANGE 2008.
- Gaddi, B., K. Pottur, M. Gopalakrishnan, M. Agarwal, E. Bayliss and Female Sex Workers. 2008. "Female Condom Breaks Gender Barriers—India- A Case Study." Abstract MOAC0204. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Gaga, T., Y. Getachew and D. Jerene. 2008. "Child Feeding Options Associated Stigma against HIV Positive Mothers, Soddo Town, South Ethiopia." Abstract CDB0613. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Gakidou, E., S. Nordhagen and Z. Obermeyer. 2008. "Coverage of Cervical Cancer Screenings in 57 Countries: Low Average Levels and Large Inequalities." *PLoS Medicine* 5 (6): e132 0863–0868.
- Galgalo, T., S. Dalal, K. Cain, J. Oeltmann, C. Tetteh, J. Kamau, M. Njenga, R. Breiman, J. Chakaya, H. Irimu, B. Miller, K. De Cock, N. Bock and K. Ijaz. 2008. "Tuberculosis Risk among Staff of a Large Public Hospital in Kenya." *Int J Tuberc Lung Dis* 12 (7): 949–954.

- Galvez-Buccollini, J., S. DeLea, P. Herrera, R. Gilman and V. Paz-Soldan. 2009. "Sexual Behavior and Drug Consumption among Young Adults in a Shantytown in Lima, Peru." *BMC Public Health* 9: 23.
- Galvin, S. and M. Cohen. 2004. "The Role of Sexually Transmitted Diseases in HIV Transmission." *Microbiology* 2: 33-42.
- Gamble, C., J. Ekwaru, P. Garner and F. ter Kuile. 2007. "Insecticide-treated Bednets for Prevention of Malaria in Pregnancy: A Systematic Review of Randomised Controlled Trials." *PLoS Medicine* 43 (3): e107.
- Gandhi, N., A. Moll, U. Lallo, R. Pawinski, K. Zeller, P. Moodley, E. Meyer and G. Friedland. 2009. "Successful integration of tuberculosis and HIV treatment in rural South Africa." *Journal of Acquired Immune Deficiency Syndromes* 50(1): 37-43.
- Gandhi N., N. Shah, J. Andrews, V. Vella, A. Moll, M. Scott, D. Weissman, C. Marra, U. Laloo, G. Friedland and Tugela Ferry Care and Research (TF CARES) Collaboration. 2010. "HIV Coinfection in Multidrug- and Extensively Drug-resistant Tuberculosis Results in High Early Mortality." *American Journal of Respiratory Critical Care Medicine*. 181(1, January 1): 80-86. Epub October 15, 2009.
- Gange, S., Y. Barron, R. Greenblatt, K. Anastos, H. Minkoff, M. Young, A. Kovacs, M. Cohen, A. Meyer and A. Munoz. 2002. "Effectiveness of Highly Active Antiretroviral Therapy among HIV-1 Infected Women." *Journal of Epidemiology and Community Health* 56: 153-159.
- Garcia, S., E. Yam and M. Firestone. 2006. "'No Party Hat, No Party': Successful Condom Use in Sex Work in Mexico and the Dominican Republic." *Reproductive Health Matters* 14 (28): 53-62.
- Garcia-Moreno, C. 2002. "Violence against Women: Consolidating a Public Health Agenda." In Sen, G., A. George and P. Ostlin. *Engendering International Health: The Challenge of Equity*. Cambridge, Massachusetts: MIT Press. Pp. 111-142
- Gardner, L., G. Marks, C. O'Daniels, T. Wilson, C. Golin, J. Wright, E. Quinlivan, L. Bradley-Springer, M. Thompson, S. Raffanti and M. Thrun. 2008. "Implementation and Evaluation of a Clinic-Based Behavioral Intervention: Positive STEPS for Patients with HIV." *AIDS Patient Care and STDs* 22 (8): 627-635.
- Garner P, and AM Gülmezoglu. 2006. "Drugs for Preventing Malaria in Pregnant Women." *Cochrane Database of Systematic Reviews* Issue 4. Art. No.: CD000169. DOI: 10.1002/14651858.CD000169.pub2
- Gauri, V., C. Beyrer and D. Vaillancourt. 2007. "From Human Rights Principles to Public Health Practice: HIV/AIDS Policy in Brazil." Pp. 289-329 in Edited by C. Beyrer and H. Pizer. 2007. *Public Health and Human Rights: Evidence-based Approaches*. Baltimore, MD: Johns Hopkins University Press.
- Gay, J., K. Hardee, N. Judice, K. Agarwal, K. Flemming, A. Hairston, B. Walker and M. Wood. 2003. What Works: A Policy and Program Guide to the Evidence on Family Planning, Safe Motherhood, and STI/HIV/AIDS Interventions, Module 1: Safe Motherhood. Washington, DC: The POLICY Project. [www.policyproject.com/pubs/generalreport/SM\\_WhatWorksps2.pdf](http://www.policyproject.com/pubs/generalreport/SM_WhatWorksps2.pdf).
- Gaym, A., M. Mashego, A. Kharsay, J. Walldorf, J. Frohlich and Q. Karim. 2007. "High Prevalence of Abnormal Pap Smears Among Young Women Co-Infected with HIV in Rural South Africa—Implications for Cervical Cancer Screening Policies in High HIV Prevalence Populations." *South African Medical Journal* 97 (2): 120-123.
- Geanuracos, C., S. Cunningham, G. Weiss, D. Forte, L. Reid and J. Ellen. 2007. "Use of Geographic Information Systems for Planning HIV Prevention Interventions for High-Risk Youths." *American Journal of Public Health* 97 (11): 1974-1981.
- Geary, C., J. Baumgartner, H. Tucker, L. Johnson, M. Wedderburn and J. Wagman. 2008. "Early Sexual Debut, Sexual Violence, and Sexual Risk-Taking among Pregnant Adolescents and their Peers in Jamaica and Uganda." *Youth Research Working Paper No. 8*. Research Triangle Park, NC: Family Health International.

- Geary, C., H. Burke, L. Castelnaud, S. Neupane, Y. Sall, E. Wong and H. Tucker. 2007. "MTV's "Staying Alive" Global Campaign Promoted Interpersonal Communication about HIV and Positive Beliefs about HIV Prevention." *AIDS Education and Prevention* 19 (1): 51–67.
- Geary, C., M. Wedderburn, D. McCarraher, C. Cuthbertson and A. Pottinger. 2006. "Sexual Violence and Reproductive Health among Young People in Three Communities in Jamaica." *Journal of Interpersonal Violence* 21 (11): 1512–1533.
- Genberg, B., Z. Hlavka, K. Konda, D. Celentano and The Project Accept Study. 2008. "Knowledge of Antiretroviral Therapy (ART) and HIV/AIDS-Related Stigma and Discrimination in Sub-Saharan Africa and Thailand." Abstract THPE0750. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Germain, A., and J. Lijstrand. 2009. "Women's Groups and Professional Organizations in Advocacy for Sexual and Reproductive Health and Rights." *International Journal of Gynecology and Obstetrics* 106: 185–187.
- Ghanatokis, E. 2010. *Program Brief: Integrating Gender into Prevention of Vertical Transmission Programming*. Washington, DC: Elizabeth Glaser Pediatric AIDS Foundation.
- Ghandi, N., A. Moll, A. Sturm, R. Pawinski, T. Govender, U. Laloo, K. Zeller, J. Andrews and G. Friedland. 2006. "Extensively Drug-Resistant Tuberculosis as a Cause of Death in Patients Co-Infected with Tuberculosis and HIV in a Rural Area of South Africa." *Lancet* 368: 1575–1580.
- Ghebremichael, M., E. Painstil and U. Larsen. 2009. "Alcohol Abuse, Sexual Risk Behaviors, and Sexually Transmitted Infections in Women in Moshi Urban District, Northern Tanzania." *Sexually Transmitted Diseases* 36 (2): 102–107.
- Ghosh, J., V. Wadha and E. Kalipeni. 2009. "Vulnerability to HIV/AIDS among Women of Reproductive Age in the Slums of Delhi and Hyderabad, India." *Social Science and Medicine* 68: 638–642.
- Ghys, P., M. Diallo, V. Ettiange-Traore, K. Kale, O. Tawil, M. Carael, M. Traore, G. Mah-bi, K. de Cock, S. Wiktor, M. Laga and A. Greenberg. 2002. "Increase in Condom Use and Decline in HIV and Sexually Transmitted Diseases among Female Sex Workers in Abidjan, Cote d'Ivoire, 1991–1998." *AIDS* 16 (2): 251–258.
- Ghimire, L. 2008. "Female Sex Workers in Nepal: Health Services Utilisation for Sexually Transmitted Infections Including HIV." Abstract WEPE0783. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Gichangi, P., B. Estambale, J. Bwayo, K. Rogo, S. Ojwang, E. Njunguna and M. Temmerman. 2006. "Acceptability of Human Immunodeficiency Virus Testing in Patients with Invasive Cervical Cancer in Kenya." *International Journal of Gynecological Cancer* 16: 681–685.
- Gichuhi, W., H. Nyaunde, S. Bradley and K Hardee. 2004. *Provision and Use of Family Planning in the Context of HIV/AIDS in Kenya: Perspectives of Providers, Family Planning and Antenatal Care Clients and HIV-Positive Women*. Washington, DC: The POLICY Project.
- Gil, A. 2006. "Combating Stigma and Discrimination in Sex Work in Mexico." Abstract THPE0924. XVI International AIDS Conference. Toronto, Canada. August 3–8.
- Gilbert, L., N. El-Bassel, A. Terlikbyeva, Y. Rozantal, M. Chang, A. Brisson, E. Wu and M. Bakpyev. 2010. "Couple-Based HIV Prevention for Injecting Drug Users in Kazakhstan: A Pilot Intervention Study." *Journal of Prevention & Intervention in the Community* 38 (2): 162–176.
- Gill, C., W. MacLeod, V. Mwanakasale, V. Chalwe, L. Mwananyanda, D. Champo, D. Mukwamataba, R. Chilengi, D. Thea and D. Hamer. 2007. "Inferiority of Single-Dose Sulfadoxine-Pyrimethamine Intermittent Preventive Therapy for Malaria during Pregnancy among HIV-Positive Zambian Women." *Journal of Infectious Diseases* 196: 1577–1584.

- Gillespie, D., H. Bradley, M. Woldegiorgis, A. Kidanu and S. Karklins. 2009. "Integrating Family Planning into Ethiopian Vountary Testing and Counseling Programmes." *Bulletin of the World Health Organization* 97: 866–870.
- Gillespie, D., S. Ahmed, A. Tsui and S. Radloff. 2007. "Unwanted Fertility among the Poor: An Inequity?" *Bulletin of the World Health Organization* 85 (2): 100–108.
- Gillespie, S. (Ed.). 2006. *AIDS, Poverty and Hunger: Challenges and Responses. Highlights of the International Conference on HIV/AIDS and Food and Nutrition Security, Durban, South Africa, April 14–16, 2005.* Washington, D.C.: International Food Policy Research Institute.
- Gillespie, S. and S. Kadiyala. 2005. *HIV/AIDS and Food Security and Nutrition Security: From Evidence to Action.* Washington, DC: International Food Policy Research Institute.
- Gilliam, P. and D. Straub. 2009. "Prevention with Positives: A Review of Published Research, 1998–2008." *Journal of the Association of Nurses in AIDS Care* 20 (2): 92–109.
- Gimbel-Sherr, K., O. Augousto, M. Micek, S. Gimbel-Sherr, M. Tomo, J. Pfeiffer and S. Gloyd. 2008. "Task Shifting to Mid-Level Clinical Health Providers: An Evaluation of Quality of ART Provided by Tecnicos de Medicina and Physicians in Mozambique." Abstract WEAX0105. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ginsburg, A., C. Hoblitzelle, T. Sripipatana and C. Wilfert. 2007. "Provision of Care Following Prevention of Mother-to-Child Transmission Services in Resource-Limited Settings." *AIDS* 21: 2529–2532.
- Giphart, A., J. Lugalla, A. Kihombo, D. Tinyebwa, G. Wesigabo, N. Mrutu, A. Mjema, C. Wilfert and J. Macias. 2008. "Impact of the PMTCT Program on Reproductive and Child Health (RCH) Services in Arumeru and Moduli Districts, Tanzania." Abstract THPE0524. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Giron, J., R. Valverde, E. Segura, A. Rosasco and C. Caceres. 2008. "People Living with HIV/AIDS' Perceptions about Health Care Services and ARV Uptake—Partial Finding of the Global HIV/AIDS Initiatives Network's Peru-Based Study." Abstract MOPE0898. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Givaudan, M., I. Leenen, F. Van De Vijver, Y. Poortinga and S. Pick. 2008. "Longitudinal Study of a School Based HIV/AIDS Early Prevention Program for Mexican Adolescents." *Psychology, Health & Medicine* 13 (1): 98–110.
- Glazier, A., A. Gulmezoglu, G. Schmid, C. Garcia-Moreno and P. van Look. 2006. "Sexual and Reproductive Health: A Matter of Life and Death." *Lancet* 368 (9547): 1595–1607.
- The Glion Call to Action on Family Practice and HIV/AIDS in Women and Children. 2004. *The Glion Call to Action on Family Planning and HIV/AIDS in Women and Children.* New York, NY: UNFPA.
- Global AIDS Alliance (GAA). 2008. *Scaling Up for Zero Tolerance: Civil Society Leadership in Eliminating Violence against Women and Girls in Ghana, Rwanda and South Africa.* Washington, DC.: GAA. [www.globalaidsalliance.org](http://www.globalaidsalliance.org).
- Global Campaign for Education. 2004. *Learning to Survive: How Education for All Would Save Millions of Young People from HIV/AIDS.* Brussels, Belgium: Global Campaign for Education. [www.campaignforeducation.org](http://www.campaignforeducation.org).
- Global Campaign for Microbicides. 2007. "Frequently Asked Questions About Microbicides." *Factsheet #2.* <http://www.global-campaign.org/EngDownload.htm#fact>. Accessed May 7, 2008.
- Global Coalition on Women and AIDS. ND. *Educate Girls, Fight AIDS.* Issue 1. Website: <http://womenandaids.unaids.org/publications.html>.

- The Global Fund to Fight AIDS, TB and Malaria. 2009. *The Global Fund's Strategy for Ensuring Gender Equality in the Response to HIV/AIDS, Tuberculosis and Malaria*. Geneva: The Global Fund.
- The Global Fund to Fight AIDS, TB and Malaria. 2008a. Presentation by Diane Stewart on the Global Fund's Gender Strategy. Center for Strategic and International Studies. Washington, DC: CSIS. June.
- The Global Fund to Fight AIDS, TB and Malaria. 2008b. "The Process for Developing a Strategy on the Scaling Up of a Gender-Sensitive Response to HIV/AIDS, Tuberculosis and Malaria by the Global Fund." GF/PSC9/07. Geneva: The Global Fund.
- The Global Fund to Fight AIDS, TB and Malaria. 2008c. "Fact Sheet: Ensuring a Gender Sensitive Approach." *Global Fund Fact Sheet Series*, 1 of 5. Geneva, Switzerland: The Global Fund. [http://www.theglobalfund.org/documents/rounds/8/R8Gender\\_Factsheet\\_en.pdf](http://www.theglobalfund.org/documents/rounds/8/R8Gender_Factsheet_en.pdf).
- Global HIV Prevention Working Group. 2008. *Behavior Change and HIV Prevention: [Re]Considerations for the 21<sup>st</sup> Century*. [www.GlobalHIVPrevention.org](http://www.GlobalHIVPrevention.org).
- Global HIV Prevention Working Group. 2007. *Bringing HIV Prevention to Scale: An Urgent Global Priority*. [www.GlobalHIVPrevention.org](http://www.GlobalHIVPrevention.org).
- Global HIV Prevention Working Group. 2004. *HIV Prevention in the Era of Expanded Treatment Access*. [www.gatesfoundation.org](http://www.gatesfoundation.org).
- Global HIV Prevention Working Group. 2003. *Access to HIV Prevention: Closing the Gap*. [www.gatesfoundation.org](http://www.gatesfoundation.org).
- Glover, E., A. Bannerman, B. Pence, H. Jones, R. Miller, E. Weiss and J. Nerquaye-Tetteh. 2003. "Sexual Health Experiences of Adolescents in Three Ghanaian Towns." *International Family Planning Perspectives* 29 (1): 32-40.
- Glynn, J., M. Carael, A. Buve, R. Musonda, M. Kahindo and Study Group on the Heterogeneity of HIV Epidemics in African Cities. 2003. "HIV Risk in Relation to Marriage in Areas with High Prevalence of HIV Infection." *Journal of Acquired Immune Deficiency Syndromes* 33 (4): 526-535.
- Glynn, J., M. Carael, B. Auvert, M. Kahindo, J. Chege, R. Musonda, F. Kaona, A. Buve and the Study Group on the Heterogeneity of HIV Epidemics in African Cities. 2001. "Why Do Young Women Have a Much Higher Prevalence of HIV than Young Men? A Study in Kisumu, Kenya and Ndola, Zambia." *Journal of Acquired Immune Deficiency Syndromes* 15 (Supplement 4): S51-S60.
- Go, V., V. Quan, C. Voytek, D. Celentano and L. Nam. 2006. "Intra-Couple Communication Dynamics of HIV Risk Behavior among Injecting Drug Users and Their Sexual Partners in Northern Vietnam." *Drug and Alcohol Dependence* 84: 69-74.
- Go, V., C. Sethulakshmi, M. Bentley, S. Sivaram, A. Srikrishnan, S. Solomon and D. Celentano. 2003. "When HIV Prevention Messages and Gender Norms Clash: The Impact of Domestic Violence on Women's HIV Risk in Slums of Chennai, India." *AIDS and Behavior* 7 (3): 263-272.
- Go, V., V. Quan, A. Chung, J. Zenilman, V. Hanh and D. Celentano. 2002. "Gender Gaps, Gender Traps: Sexual Identity and Vulnerability to Sexually Transmitted Disease in Vietnam." *Social Science and Medicine* 55: 467-481.
- Godbole, S., N. Kumarasamy, Y. Chen, S. Chariyalertsak, J. Hakim, B. Santos, B. Grinsztejn, J. Pilotto, M. Hoseeinipour, J. JKumwenda, E. Filho, K. Mayer, M. Cohen and HPTN 052 Protocol Team. 2008. "Antiretroviral Therapy to Prevent the Sexual Transmission of HIV-1: Initial Results from HPTN 052." Abstract TUPE0046. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.

- Gogna, M., M. Pechny, I. Ibarlucia, H. Manzelli and S. Lopez. 2009. "The Reproductive Needs and Rights of People Living with HIV in Argentina: Health Service Users' and Providers' Perspectives." *Social Science and Medicine* 69: 813–820.
- Gogna, M., M. Pecheny, H. Manzelli, I. Barlucia and S. Lopez. 2008. "Addressing Institutional and Cultural Obstacles to the Provision of a Gender-Sensitive Contraceptive Counselling for People Living with HIV." Abstract TUPE0910. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Goldie, S., M. Weinstein, K. Kuntz and K. Freedberg. 1999. "The Costs, Clinical Benefits, and Cost-Effectiveness of Screening for Cervical Cancer in HIV-Infected Women." *Annals of Internal Medicine* 130: 97–107.
- Goldman, B. 2008. "An Interview with Antony Fauci, M.D." *HIV Frontlines—U.S. Edition*. <http://www.thebody.com/content/art46889.html>.
- Goldstein, D. 1995. "The Cultural, Class, and Gender Politics of a Modern Disease: Women and AIDS in Brazil." *Women and AIDS Research Program* No. 16. Washington, DC: ICRW.
- Gollub, E. 2008. "A Neglected Population: Drug-Using Women and Women's Methods of HIV/STI Prevention." *AIDS Education and Prevention* 20 (2): 107–20.
- Golub, J., V. Saraceni, S. Cavalcante, A. Pacheco, L. Moulton, B. King, A. Efron, R. Moore, R. Chaisson and B. Durovni. 2007. "The Impact of Antiretroviral Therapy and Isoniazid Preventive Therapy on Tuberculosis Incidence in HIV-infected Patients in Rio de Janeiro, Brazil." *AIDS* 21: 1441–1448.
- Gomo, E. ND. *Increasing Male Involvement in Home Based Care to Reduce the Burden of Care on Women and Girls in Southern Africa*. London: VSO and Pretoria: VSO-Raisa.
- Gong, J., X. Li, X. Fang, X. Chen, B. Stanton. 2008. "Sibling Separation and Psychological Problems of AIDS Orphans in Rural China- A Comparison Analysis." Abstract WEPE0588. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Gonzalez, A. 2008. "Poverty and Gender Inequalities Reduce the Quality of Life of Women Living with HIV/AIDS in Chiapas, Mexico. Abstract TUPE0696. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Gooptu, N. and N. Bandyopadhyay. 2007. "'Rights to Stop the Wrong': Cultural Change and Collective Mobilization—The Case of Kolkata Sex Workers." *Oxford Development Studies* 35 (5): 253–272.
- Goparaju, L., D. Afenyadu, A. Benton, V. Wells and G. Alema-Mensah. 2003. *Gender, Power and Multi-partner Sex Implications for Dual Method Use in Ghana*. Washington, DC: USAID.
- Gosoni, G., S. Ganapathy, J. Kemp, C. Auer, D. Somma, F. Karim and M. Weiss. 2008. "Gender and socio-cultural determinants of delay to diagnosis of TB in Bangladesh, India and Malawi." *The International Journal of Tuberculosis and Lung Disease* 12(7): 848–855.
- Goswami, J., D. Patel, A. Kurian, S. Sokh and D. Tanuka. 2008. "National Women's Forum: A Model to Address Rights and Issues of Women Living with HIV/AIDS (WLHA) and Children." Abstract WEPE0803. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Gougounon, S., B. Bashi, A. Azon-Kounnanou, D. Zannou and F. Hougbe. 2008. "Occurrence of Pregnancy among PLWHA Women under HAART—Need for a Family Planning Program." Abstract TUPE0229. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Gould, C. and N. Fick. 2008. *Selling Sex in Cape Town: Sex Work and Human Trafficking in a South African City*. Cape Town, South Africa: Institute for Security Studies and SWEAT. [www.sweat.org.za](http://www.sweat.org.za).

- Gowing, L., M. Farrell, R. Bornemann, L. Sullivan and R. Ali. 2008. "Substitution Treatment of Injecting Opioid Users for Prevention of HIV Infection." *Cochrane Database of Systematic Reviews Issue 2*. Art. No. CD001445.
- Granich, R., C. Gilks, C. Dye, K. De Cock and B. Williams. 2009. "Universal Voluntary HIV Testing with Immediate Antiretroviral Therapy as a Strategy for Elimination of HIV Transmission: A Mathematical Model." *The Lancet* 373: 48–57.
- Gray, J. 1997. *Evidence Based Health Care: How to Make Health Policy and Management Decisions*. London, UK: Churchill Livingstone.
- Gray, G. and H. Saloojee. 2008. "Breast-Feeding, Antiretroviral Prophylaxis and HIV." *New England Journal of Medicine* 359 (2): 189–91.
- Gray, R., G. Kogozi, D. Serwadda, F. Maumbi, S. Watya, F. Nalugoda, N. Kiwanuka, L. Moulton, M. Chaudhary, M. Chen, N. Sewanakambo, F. Wabwire-Mangen, M. Bacon, C. Williams, P. Opendi, S. Reynolds, O. Laeyendecker, T. Quinn and M. Wawer. 2007. "Male Circumcision for HIV Prevention in Men in Rakai, Uganda: A Randomised Trial." *The Lancet* 369: 657–666.
- Gray, R., X. Li, G. Kigozi, D. Serwadda, H. Brahmabhatt, F. Wabwire-Mangen, F. Nalugoda, M. Kiddugavu, N. Sewankambo, T. Quinn, S. Reynolds and M. Wawer. 2005. "Increased Risk of Incident HIV during Pregnancy in Rakai, Uganda: A Prospective Study." *Lancet* 366: 1182–1188.
- Gray, R., M. Wawer, R. Brookmeyer, N. Sweankambo, D. Serwadda, F. Wabire-Mangen, T. Lutalo, X. Li, T. van Cott, T. Quinn and the Rakai Project Team. 2001. "Probability of HIV-1 Transmission per Coital Act in Monogamous, Heterosexual, HIV-1 Discordant Couples in Rakai, Uganda." *Lancet* 357: 1149–1153.
- Greeff, M., R. Phetlhu, L. Makoae, P. Dlamini, W. Holzemer, J. Naidoo, T. Kohi, L. Uys and M. Chirwa. 2008. "Disclosure of HIV Status: Experiences and Perceptions of Persons Living with HIV/AIDS and Nurses Involved in their Care in Africa." *Qualitative Health Research* 18: 311–234.
- Green, G., R. Pool, S. Harrison, G. Hart, J. Wilkinson, S. Nyanzi and J. Whitworth. 2001. "Female Control of Sexuality: Illusion or Reality? Use of Vaginal Products in South West Uganda." *Social Science and Medicine* 52: 585–598.
- Gregson, S., G. Garnett, C. Nyamukapa, T. Hallett, J. Lewis, P. Mason, S. Chandiwana and R. Anderson. 2006. "HIV Decline Associated with Behavior Change in Eastern Zimbabwe." *Science* 311: 664–665.
- Gregson, S., C. Nyamukapa, G. Garnett, M. Wambe, J. Lewis, P. Mason, S. Chandiwana, and R. Anderson. 2005. "HIV Infection and Reproductive Health in Teenage Women Orphaned and Made Vulnerable by AIDS in Zimbabwe." *AIDS Care*. 17(7): 785–94.
- Gregson, S., N. Terceira, P. Mushati, C. Nyamkapa and C. Campbell. 2004. "Community Group Participation: Can It Help Young Women to Avoid HIV? An Exploratory Study in Social Capital and School Education in Rural Zimbabwe." *Social Science and Medicine* 58: 2119–2132.
- Gregson, S., C. Nyamukapa, G. Garnett, P. Mason, T. Zhuwau, M. Carael, S. Chadiwana and R. Anderson. 2002. "Sexual Mixing Patterns and Sex-Differentials in Teenage Exposure to HIV Infection in Rural Zimbabwe." *Lancet* 359: 1896–1903.
- Greenwald, J., G. Burstein, J. Pincus and B. Branson. 2006. "A Review of Rapid HIV Antibody Tests." *Current Infectious Disease Reports* 8: 125–131.
- Greig, A., D. Peacock, R. Jewkes and S. Msimang. 2008. "Gender and AIDS: Time to Act." *AIDS* 22 (Supplement 2): S35–43.

- Grimes, D., J. Benson, S. Singh, M. Romero, B. Ganatra, F. Okofua and I. Shah. 2006. "Unsafe Abortion: The Preventable Pandemic." *Lancet* 368 (9550): 1908–1919.
- Grisurapong, S. 2009. "Violence against Women and HIV/AIDS: Evidence from Thailand." Paper presented at XVI IUSSP International Conference. Marrakech, Morocco. September 27–October 3.
- GROOTS Kenya. 2007. *Reducing Women and Girl's Vulnerability to HIV/AIDS by Ensuring their Property and Inheritance Rights*. Nairobi, Kenya: GROOTS.
- Grosskurth, H., F. Mosha, J. Todd, M. Wijarubie, A. Klokke, K. Senkoro, P. Maynard, J. Chaugalucka, A. Nicoll and G. Ka-Gina. 1995. "Impact of Improved Treatment for STDs on HIV Infection in Rural Tanzania: Randomized Control Trial." *Lancet* 346: 530–536.
- Groves, A., S. Maman, S. Msomi, N. Makhanya and D. Moodley. 2009. "The Complexity of Consent: Women's Experiences Testing for HIV at an Antenatal Clinic in Durban, South Africa." *AIDS Care* pp. 1–7.
- Groves, A., S. Maman, E. Smith, S. Msomi and N. Makhayna. 2008. "Testing for HIV at a Public Antenatal Clinic near Durban, South Africa: The Language of Choice." Abstract MOPDC204. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Grunseit A. 1997. *Impact of HIV and Sexual Health Education on the Sexual Behaviour of Young People: A Review Update*. UNAIDS Best Practice Collection. Geneva, Switzerland: UNAIDS.
- Grunseit, A., S. Kippax, P. Aggleton, M. Baldo and G. Slutkin. 1997. "Sexuality Education and Young People's Sexual Behavior: A Review of Studies." *Journal of Adolescent Research* 12 (4): 421–453.
- Grunseit, A. and S. Kippax. 1993. *Effects of Sex Education on Young People's Sexual Behavior*. Geneva, Switzerland: World Health Organization.
- Gruskin, S., A. Ahmed and L. Ferguson. 2008a. "Provider-Initiated HIV Testing and Counseling in Health Facilities—What Does this Mean for the Health and Human Rights of Pregnant Women?" *Developing World Bioethics* 8 (1): 23–32.
- Gruskin, S., R. Firestone, S. MacCarthy and L. Ferguson. 2008b. "HIV and Pregnancy Intentions: Do Services Adequately Respond to Women's Needs?" *American Journal of Public Health* 98 (10): 1746–1750.
- Gruskin, S., L. Ferguson, and D. Bocheho. 2007c. "Beyond the Numbers: Using Rights-Based Perspectives to Enhance Antiretroviral Treatment Scale-up." *AIDS* 21 (5): S13–S19.
- Gruskin, S., L. Ferguson and J. O'Malley. 2007d. "Ensuring Sexual and Reproductive Health for People Living with HIV: An Overview of Key Human Rights, Policy and Health Systems Issues." *Reproductive Health Matters* 15 (29 Supplement): 4–26.
- Guayasamin, S. and E. Quizpe. 2008. "Sexual and Reproductive Health and Vulnerability to HIV Survey among Youth of Host and Displaced Populations Living in Sucumbios Province, Northern Ecuador." Abstract MOPE0402. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Guedes, A., S. Bott, A. Guezmes and J. Helzner. 2002. "Gender-Based Violence, Human Rights and the Health Sector: Lessons from Latin America." *Health and Human Rights* 6 (1): 177–193.
- Guerrero-Lilo, L., J. Medrano-Diaz, F. Perez, C. Perez, A. Bizjak-Gomez, G. Provenza, P. Vivas, M. Arria, P. Pifakis, J. Silva-Urra and A. Rodriguez-Morales. 2008. "Use of Window Live Messenger for Assessing the KAP about HIV/AIDS and STI among Lesbian Young Women from Latin America." Abstract WEPE0881. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Guiella, G. and Woog, V. 2006. "Santé Sexuelle et Reproductive des Adolescents au Burkina Faso: Résultats d'une Enquête Nationale en 2004." *Occasional Report*, No. 21. New York: Guttmacher Institute.

- Guimaraes, M., M. Wainberg, L. Campos, A. Souto Melo, K. McKinnon and the Pessoas Project Network Group. 2008. "Risk Behavior among Patients with Chronic Mental Illness in a National Multicenter Study in Brazil: Gender Differences." Abstract WEAD0202. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Guimaraes de Andrade, K., I. Botao, D. Ribeiro and J. Felix. 2008. "The Experience of Implementing the Integrated Plan to Fight the Feminization of the AIDS Epidemic in Brazil: The Brazilian Intersectoral Response to Reduce the Contexts of Women's Vulnerabilities." Abstract TUPE1010. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Guinness, L., P. Vickerman, Z. Quayyum, A. Foss, C. Watts, A. Rodericks, T. Azim, S. Jana and L. Kumaranayake. 2009. "The Cost-effectiveness of Consistent and Early Interventions of Harm Reduction for Injecting Drug Users in Bangladesh." *Addiction Research Report* 105: 319–328.
- Gupta, A. 2009. "Mother to Child transmission of TB: What do we know?" Presentation at Catalysing HIV/TB Research: Innovation, Funding and Networking Workshop. Cape Town, South Africa. July 18.
- Gupta, A., U. Nayak, M. Ram, R. Bhosale, S. Patil, A. Basavraj., A. Kakrani, S. Philip, D. Desai, J. Sastry and R. Bollinger. 2007. "Postpartum tuberculosis incidence and mortality among HIV-infected women and their infants in Pune, India, 2002–2005." *Clinical Infectious Diseases* 45: 241–249.
- Gupta, G., J. Parkhurst, J. Ogden, P. Aggleton and A. Mahal. 2008a. "Structural Approaches to HIV Prevention." *Lancet* 372: 764–775.
- Gupta, R., G. Wyatt, S. Swaminathan and B. Rewari. 2008b. "Correlates of Relationship, Psychological, and Sexual Behavioral Factors for HIV Risk among Indian Women." *Cultural Diversity and Ethnic Minority Psychology* 14: 256–265.
- Gupta, G. 2003. "Vulnerability and Resilience: Gender and HIV/AIDS in Latin America and the Caribbean." *Sustainable Development Technical Papers Series*. Washington, DC: Interamerican Development Bank.
- Gupta, J., A. Raj, M. Decker, E. Reed and J. Silverman. 2009. "HIV Vulnerabilities of Sex-Trafficked Indian Women and Girls." *International Journal of Gynecology and Obstetrics* 107 (1): 30–34.
- Gurnani, V., B. Mallika, S. Isaac, B. Ramesh, S. Moses, P. Bhattacharjee, S. Maddur and H. Mohan. 2008. "Addressing Violence against Female Sex Workers in the Context of HIV Prevention Programming: Experience from Karnataka, South India." Abstract WPE0446. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Gustafson, P., V. Gomes, C. Vieira, B. Samb, A. Naucner, P. Aaby and I. Lisse. 2007. "Clinical predictors for death in HIV-positive and HIV-negative tuberculosis patients in Guinea-Bissau." *Infection* 35: 69–80.
- Guthreau, C., A. Cataneda, G. Esamilla, F. Ortiz, I. Mexa, M. Alen and J. Conroy. 2008. "Solidarity Services Network Launches PMTCT Campaign to Test and Consolidate Inter-Institutional Referrals in Mexico City Metropolitan Area." Abstract THPE0551. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Guthrie, B., G. de Bruyn and C. Farquhar. 2007. "HIV-1 Discordant Couples in Sub-Saharan Africa: Explanations and Implications for High Rates of Discordancy." *Current HIV Research* 5: 416–429.
- Gwandure, C. 2007. "Sexual Assault in Childhood: Risk HIV and AIDS Behaviors in Adulthood." *AIDS Care* 19 (10): 1313–1315.
- Haberland, N. and D. Rogow. 2007. "Sexuality and HIV Education: Time for a Paradigm Shift." NY: Population Council.

- Haddock, S., K. Hardee, J. Gay, P. Maciej Pawlak and C. Stellini. 2008. *Comprehensive HIV Prevention. Condoms and Contraceptives Count*. Washington, DC: Population Action International.
- Hageman, K., H. Dube, O. Mugurungi, L. Gavin, S. Hader and M. St. Louis. 2009. "Beyond Monogamy: Opportunities to Further Reduce Risk for HIV Infection among Married Zimbabwean Women with Only One Lifetime Partner." *AIDS Behavior* doi: 10.1007/s10461-009-9603-5
- Hale, F. 2009. "Fact Sheet: HPV, Cervical Cancer and HIV: Screening and Prevention." Athena Network: www.athenanetwork.org
- Hall, C. and J. Mrazek. 2007. "Emerging Issues in Management of Sexually Transmitted Diseases in HIV Infection." *Current Infectious Disease Reports* 9: 518–530.
- Hallett, T., K. Singh, J. Smith, R. White, L. Abu-Raddad and G. Garnett. 2008a. "Understanding the Impact of Male Circumcision Interventions on the Spread of HIV in Southern Africa." *PLoS ONE* 3 (5): e2212.
- Hallett, T., O. Mugurungi, E. Goma, S. Gregson, B. Lopman, C. Benedikt and B. Campbell. 2008b. "What Caused HIV Prevalence to Decline in Zimbabwe? Results from Comprehensive Review." Abstract TUPE0346. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Halli, S., B. Ramesh, J. O'Neil, S. Moses, and J. Blanchard. 2006. "The Role of Collectives in STI and HIV/AIDS Prevention among Female Sex Workers in Karnataka, India." *AIDS Care* 18 (7): 739–749.
- Hallman, K. 2008. "Researching the Determinants of Vulnerability to HIV among Adolescents." *IDS Bulletin* 39 (5): 36–44.
- Halperin, D., Stover, J. and H. Reynolds. 2009a. "Benefits and Costs of Expanding Access to Family Planning Programs to Women Living with HIV." *AIDS* 23 (Supplement 1): S123–S130.
- Halperin, D., A. de Moya, E. Peres-Then, G. Pappas and J. Calleja. 2009b. "Understanding the HIV Epidemic in the Dominican Republic: A Prevention Success Story in the Caribbean?" *Journal of Acquired Immune Deficiency Syndromes* 51: S52–S59.
- Halswimmer, M. 1994. "Is HIV/AIDS a Threat to Livestock Production? The Example of Rakai, Uganda." *World Animal Review* 3–4, ed. D. Chipin. Rome: FAO.
- Hammitt, T., R. King, D. Ngu, K. Binh, H. Quyen, H. Tren and D. Des Jarlais. 2008. "HIV Prevention for Sexual Partners of Injecting Drug Users (IDUs), Ha Giang Province, Vietnam." Abstract TUPE0708. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Han, M., Z. Chen, R. Wei, Z. Zhang, H. Wang, X. Liu, G. Bai, J. Shan, S. Wang, X. Tao and B. Wang. 2008. "The Outcomes and Impact of China GFTAM AIDS Program (Round 3) from 2004 to 2007." Abstract MOPE0899. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Hanass-Hancock, J. 2008. "Response to Disability in the Context of HIV/AIDS in KwaZulu-Natal, South Africa." Abstract WEAD0203. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Hanenberg, R., W. Rojanapithayakorn, P. Kunasol and D. Sokal. 1994. "Impact of Thailand's HIV-control Programme as Indicated by the Decline of Sexually Transmitted Diseases." *The Lancet* 344: 243–245.
- Hankins, C. 2007. "Male Circumcision: Implications for Women as Sexual Partners and Parents." *Reproductive Health Matters* 15 (29): 62–67.
- Hankins, C., K. Stanecki, P. Ghys and H. Marais. 2006. "The Evolving HIV Pandemic." Pp. 21–35. In edited by E. Beck, N. Mays, A. Whiteside, J. Zuniga and L. Holland. *The HIV Pandemic: Local and Global Implications*. Oxford, UK: Oxford University Press.

- Hankins, C., S. Friedman, T. Zafar and S. Strathdee. 2002. "Transmission and Prevention of HIV and Sexually Transmitted Infections in War Settings: Implications for Current and Future Armed Conflicts." *AIDS* 16 (17): 2245–2252.
- Hanson, C., T. Antonelli, R. Sperling, J. Oleske, E. Cooper, M. Culnane, M. Fowler, L. Kalish, S. Lee, G. McSherry, L. Mofenson and D. Shapiro. 1999. "Lack of Tumors in Infants with Perinatal HIV Exposure and Fetal Neonatal Exposure to Zidovudine." *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology* 20: 463–7.
- Haobam, I. 2008. "Reproductive and Sexual Health vis-avis HIV/AIDS: An Immediate Need of IDUs and Young People in Manipur." Abstract WEPE0894. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Hardee, K., J. Gay and E. Dunn-Georgiou. 2009a. *A Practical Guide to Integrating Reproductive Health and HIV/AIDS into Grant Proposals to the Global Fund*. Washington, DC: Population Action International. [http://www.populationaction.org/Publications/Reports/A\\_Practical\\_Guide\\_to\\_Integrating\\_Reproductive\\_Health\\_HIV-AIDS/Summary.shtml](http://www.populationaction.org/Publications/Reports/A_Practical_Guide_to_Integrating_Reproductive_Health_HIV-AIDS/Summary.shtml).
- Hardee, K., B. Clark, V. Yuan, T. Manchester, A. Qi, S. Bradley and Z. Shen. 2009b. "HIV and AIDS Stigma and Discrimination in China: Results from a National Survey." *Asia-Pacific Population Journal*. 24(2).
- Hardon, A., D. Akurut, C. Comoro, C. Ekezie, H. Irunde, T. Gerritis, J. Kglatwane, J. Kinsman, R. Kwasa, J. Maradi, T. Moroka, S. Moyo, A. Nakiyemba, S. Nsimba, R. Ogenyi, T. Oyabba, F. Temu and R. Lang. 2007. "Hunger, Waiting Time and Transport Costs: Time to Confront Challenges to ART Adherence in Africa." *AIDS Care* 19 (5): 658–665.
- Hargreaves, J., C. Bonell, T. Boler, D. Boccia, I. Birdthistle, A. Fletcher, P. Pronyk, J. Glynn. 2008a. "Systematic Review Exploring Time Trends in the Association between Educational Attainment and Risk of HIV Infection in Sub-Saharan Africa." *AIDS* 22 (3): 403–14.
- Hargreaves, J., L. Morison, J. Kim, C. Bonell, J. Porter, C. Watts, J. Busza, G. Phetla and P. Pronyk. 2008b. "The Association Between School Attendance, HIV Infection and Sexual Behavior among Young People in Rural South Africa." *Journal of Epidemiology and Community Health* 62: 113–119.
- Hargreaves, J., C. Bonell, L. Morison, J. Kim, G. Phetla, J. Porter, C. Watts and P. Pronyk. 2007. "Explaining Continued High HIV Prevalence in South Africa: Socioeconomic Factors, HIV Incidence and Sexual Behavior Change among a Rural Cohort." *AIDS* 21 (7): S39–S48.
- Hargreaves, J. and J. Glynn. 2002. "Educational Attainment and HIV-1 Infection in Developing Countries: A Systematic Review." *Tropical Medicine and International Health* 7 (6): 489–498.
- Harper, D., E. Franco, C. Wheeler, A. Masiocci, B. Romanowski, C. Roteli-Martins, D. Jenkis, A. Schuind, S. Clemens, G. Dubin on Behalf of the HPV Vaccine Study Group. 2006. "Sustained Efficacy Up to 4.5 Years of a Bivalent L1 Virus-Like Particle Vaccine against Human Papillomavirus Types 16 and 18: Follow-Up from a Randomized Control Trial." *Lancet* 367: 1247–1255.
- Harries, A., R. Zachariah and S. Lawn. 2009a. "Providing HIV Care for Co-infected Tuberculosis Patients: A Perspective from Sub-Saharan Africa." *The International Journal of Tuberculosis and Lung Disease* 13 (1): 6–16.
- Harries, J., J. Moodley, M. Barone, S. Mall and E. Sinanovic. 2009b. "Preparing for HPV Vaccination in South Africa: Key Challenges and Opinions." *Vaccine* 27: 38–44.
- Harries, J., D. Cooper, L. Myer, H. Bracken, V. Zeigenthal and P. Orner. 2007. "Policy Maker and Health Care Provider Perspectives on Reproductive Decision-Making amongst HIV-Infected Individuals in Low Resource Settings." *BMC Public Health* 7 (282).

- Harries, A., R. Chimizi and R. Zachariah. 2006. "Safety, Effectiveness, and Outcomes of Concomitant Use of Highly Active Antiretroviral Therapy with Drugs for Tuberculosis in Resource-poor Settings." *The Lancet* 367: 944–945.
- Harrison, A. 2008. "Hidden Love: Sexual Ideologies and Relationship Ideals among Rural South African Adolescents in the Context of HIV/AIDS." *Culture, Health & Sexuality* 10 (2): 175–189.
- Harrison, A., N. Xaba and P. Kunene. 2001. "Understanding Safer Sex: Gender Narratives of HIV and Pregnancy Prevention by Rural South African School-Going Youth." *Reproductive Health Matters* 9: 63–71.
- Hartigan, P., J. Price and R. Tolhurst. 2002. "Communicable Diseases: Outstanding Commitments to Gender and Poverty." Pp. 37–62 in *Engendering International Health: The Challenge of Equity*, edited by G. Sen, A. George and P. Ostlin. Cambridge, Massachusetts: MIT Press.
- Hatchett, L., C. Kaponda, L. McCreary, M. Nyando, B. Powell and J. Levy. 2006. "Benefits of a Caregiver Support Group: Implications for Home-Based Care." Abstract no. CDB1078. AIDS 2006—XVI International AIDS Conference. Toronto, Canada.
- Hattori, M. and L. DeRose. 2008. "Young Women's Perceived Ability to Refuse Sex in Urban Cameroon." *Studies in Family Planning* 39 (4): 309–320.
- Hatzell, T., J. Moodley and E. Sutherland. 2008. "Serving the Post-Partum Contraceptive Needs of PMTCT Clients." Abstract TUPE0848. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Hawes, S., C. Critchlow, P. Sow, P. Toure, I. N'Doye, A. Diop, J. Kuypers, A. Kasse and N. Kiviat. 2006. "Incident High-Grade Squamous Intraepithelial Lesions in Senegalese Women with and without Human Immunodeficiency Virus Type 1 (HIV-1) and HIV-2." *Journal of the National Cancer Institute* 98 (2): 100–109.
- Hawken, M., R. Melis, D. Ngombo, K. Mandaliya, L. Ng'ang'a, J. Price, G. Dallabeta and M. Temmerman. 2002. "Part Time Female Sex Workers in a Suburban Community in Kenya: A Vulnerable Hidden Population." *Sexually Transmitted Infections* 78: 271–273 doi:10.1136/sti.78.4.271
- Hayden, R. (2007). "“Young Men Like Us”: Experiences and Changes in Sex, Relationships and Reproductive Health among Young, Urban Cambodian Men." Phnom Penh, Cambodia: CARE International: 132.
- He, Z. and C. Ji. 2007. "Nutritional Status, Psychological Well-Being and the Quality of Life of AIDS Orphans in Rural Henan Province, China." *Tropical Medicine and International Health* 12 (10): 1180–1190.
- Healthy Living Project Team. 2007. "Effects of a Behavioral Intervention to Reduce Risk of Transmission among People Living with HIV: The Healthy Living Project Randomized Controlled Study." *Journal of Acquired Immune Deficiency Syndromes* 44 (2): 213–221.
- Heard, I., V. Potard and D. Costagliola. 2006. "Limited Impact of Immunosuppression and HAART on the Incidence of Cervical Squamous Intraepithelial Lesions in HIV-Positive Women." *Antiretroviral Therapy* 11: 1091–1096.
- Hearst, N. and S. Chen. 2004. "Condom Promotion for AIDS Prevention in the Developing World: Is It Working?" *Studies in Family Planning* 35 (1): 39–47.
- Hebling, E. and I. Guimaraes. 2004. "Women and AIDS: Gender Relations and Condom Use with Steady Partners." *Cad Saude Publica, Rio de Janeiro* 20 (5): 1211–1218.
- Hebling, E. 1997. "Mulheres e AIDS: Relacoes de Genero e Condutas de Risco." Master's Thesis. Campinas, Brazil: Faculty of Education, State University of Campinas.
- Hecht, R., L. Bollinger, J. Stover, W. McGreevey, F. Muhib, C. Madavo and D. de Ferranti. 2009. "Critical Choices in Financing the Response to the Global HIV/AIDS Pandemic." *Health Affairs* 28 (6): 1591–1605.

- Hedgepeth, E. and J. Helmich. 1996. *Teaching about Sexuality and HIV: Principles and Methods for Effective Education*. New York, NY: New York University Press.
- Heikinheimo, O. and P. Lahteenmaki. 2009. "Contraception and HIV Infection in Women." *Human Reproduction Update* 15 (2): 165–176.
- Heise, L., M. Ellsberg and M. Gottmoeller. 2002. "A Global Overview of Gender-Based Violence." *International Journal of Gynecology and Obstetrics* 78 (Supplement 1): S5–S14.
- Heise, L. and M. Ellsberg. 2001. "Violence against Women: Impact on Sexual and Reproductive Health." Pp. 41–52 in *Reproductive Health, Gender and Human Rights: A Dialogue* edited by E. Murphy and K. Ringheim. Washington, DC: Program for Appropriate Technology in Health (PATH).
- Hejoaka, F. 2009. "Care and Secrecy: Being a Mother of Children Living with HIV in Burkina Faso." *Social Science & Medicine* 69: 869–876.
- Hellard, M., R. Sacks-Davis and J. Gold. 2009. "Hepatitis C Treatment for Injection Drug Users: A Review of the Available Evidence." *Clinical Infectious Diseases* 49: 561–573.
- HelpAge International, 2007. *Stronger Together: Supporting the Vital Role Played by Older People in the Fight Against the HIV and AIDS Pandemic*. London, UK: HelpAge International.
- Hernandez, A., C. Lindan, M. Mathur, M. Ekstrand, P. Madhivanan, E. Stein, S. Greogrich, S. Kundu, A. Gogate and H. Jerjani. 2006. "Sexual Behavior among Men Who Have Sex with Women, Men and Hijras in Mumbai, India- Multiple Sex Risks." *AIDS Behavior* 10: S5–S16.
- Herstad, B. 2009. *Gender-Related Barriers to HIV Prevention Methods: A Review of Post-exposure Prophylaxis (PEP) Policies for Sexual Assault*. Washington, DC: Futures Group. USAID/ Health Policy Initiative.
- Hess, R. and N. Vachani. 2008. "Back to Basics: Using Proven Technologies in Increase to Condom Use at PSI/ India." Abstract WEPE0338. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Hesseling, A., M Cotton, C. von Reyn, S. Graham, R. Gie and G. Hussey. 2007. "Consensus Statement on the Revised World Health Organization Recommendations for BCG Vaccination in HIV-infected Infants." *The International Journal of Tuberculosis and Lung Disease* 12(12): 1376–1379.
- Hesseling, A., B. Marais, R. Gie, H. Schaaf, P. Fine, P. Godfrey-Faussett and N. Beyers. 2006. "The Risk of Disseminated Bacille Calmette-Guerin (BCG) Disease in HIV-infected Children." *Vaccine* 25: 14–18.
- Hewitt, K., R. Steketee, V. Mwapasa, J. Whitworth and N. French. 2006. "Interactions between HIV and Malaria in Non-Pregnant Adults: Evidence and Implications." *AIDS* 20: 1993–2004.
- Heymann, S.J., S. Clark and T. Brewer. 2007a. "Moving from Preventing HIV/AIDS in its Infancy to Preventing Family Illness and Death (PFID)." *International Journal of Infectious Diseases* 12: 117–119.
- Heymann, J., A. Earle, D. Rajaraman, C. Miller and K. Bogen. 2007b. "Extended Family Caring for Children Orphaned by AIDS: Balancing Essential Work and Caregiving in a High HIV Prevalence Nations." *AIDS Care* 19 (3): 337–345.
- Heymann, D., A. Kochi, and M. Raviglione. 1999. "Foreword." Pp. i–iii in *The Global Impact of Drug Resistant Tuberculosis*, edited by P. Farmer and J. Kim. Boston, Massachusetts: Program in Infectious Disease and Social Change, Department of Social Medicine, Harvard Medical School/Open Society Institute.
- Heys, J., W. Kipp, G. Jhangri, A. Alibhai and T. Rubaale. 2009. "Fertility Desires and Infection with HIV: Results from a Survey in Rural Uganda." *AIDS* 23 (Supplement 1): S37–S45.
- Hill, C., V. Hosegood and M. Newell. 2008. "Children's Care and Living Arrangements in a High HIV Prevalence Area in Rural South Africa." *Vulnerable Children and Youth Studies* 3(1): 65–77.

- Hillemans, P., T. Ellerbrock, S. McPhillips, P. Dole, S. Alperstein, D. Johnson, X. Sun, M. Chiasson and T. Wright. 1996. "Prevalence of Anal Human Papillomavirus Infection and Anal Cytologic Abnormalities in HIV Seropositive Women." *AIDS* 10: 1641–1647.
- Hindin, M., S. Kishor and D. Ansara. 2008. "Intimate Partner Violence among Couples in 10 DHS Countries: Predictors and Health Outcomes." USAID: Washington, DC.
- Hirsch, J. 2007. "Gender, Sexuality, and Antiretroviral Therapy: Using Social Science to Enhance Outcomes and Inform Secondary Prevention Practices." *AIDS* 21 (Supplement 5): S21–S29.
- Hirsch, J., S. Meneses, B. Thompson, M. Negroni, B. Pelcastre and C. del Rio. 2007. "The Inevitability of Infidelity: Sexual Reputation, Social Geographies, and Marital HIV Risk in Rural Mexico." *American Journal of Public Health* 97 (6): 986–96.
- Hitti, J., L. Frenkel, A. Stek, S. Nachman, D. Baker, A. Gonzalez-Garcia, A. Provisor, E. Thrope, M. Paul, M. Foca, J. Gandia, S. Huang, L. Wei, L. Stevens, D. Watts and J. McNamara. 2004. "Maternal Toxicity with Continuous Nevirapine in Pregnancy: Results from PACTG 1022." *Journal of Acquired Immune Deficiency Syndrome* 36 (3): 772–776.
- HIV Sentinel Surveillance (HSS): Results, Trends and Estimates. 2003. Surveillance Unit National Center for HIV/AIDS, Dermatology and STDs (NCHADS). Presented at the Sun Way Hotel on December 3, 2004. Cited in: Chaya N. 2006. "Cambodia and HIV: Winning Round Two in a Preventative Fight." *Research Commentary* 1 (7). Washington, DC: Population Action International.
- Hladik, W., J. Stover, G. Esiru, M. Harper and J. Tappero. 2009. "Family Planning for the Prevention of Vertical HIV Transmission in Uganda." Abstract. International Conference on Family Planning. Muyonyo, Uganda. November 15–18. [www.fpconference.org](http://www.fpconference.org).
- Hladik, W., J. Musinguzi, W. Kirunti, A. Opio, J. Stover, F. Kararuza, R. Bunnell, J. Kakufu and J. Mermin. 2008a. "The Estimated Burden of HIV/AIDS in Uganda." *AIDS* 22 (4): 503–510.
- Hladik, W., F. Kaharuza and J. Tappero. 2008b. "Fertility and Pediatric HIV/AIDS in Uganda." Abstract THPE0516. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Hoang, T., T. Minh, N. Duc, B. Mai, P. Thien, V. Ha, P. Ha, Q. Trang, S. Schuler and D. Santillan. 2002. "Impact of Cairo Programme of Action: Gender, Women's Empowerment and Reproductive Health in Four Vietnamese Communities." Hanoi, Vietnam: Research Results Report, Population and Development International.
- Hoffman, I., F. Martinson, K. Powers, D. Chilongozi, E. Msiska, E. Kachipapa, D. Chilongozi, M. Hosseinipour, H. Chanza, R. Stephenson and A. Tsui. 2008. "The Year-Long Effect of HIV-Positive Test Results on Pregnancy Intentions, Contraceptive Use and Pregnancy Incidence among Malawian Women." *Journal of Acquired Immune Deficiency Syndromes* 47 (4): 477–488.
- Hoffman, S., J. Mantell, T. Exner and Z. Stein. 2004. "The Future of the Female Condom." *International Family Planning Perspectives* 30 (3): 139–145.
- Hogan, M., K. Foreman, M. Naghavi, S. Ahn, M. Wang, S. Makela, A. Lopez, R. Lozano and C. Murray. 2010. "Maternal Mortality for 181 Countries, 1980–2008: A Systematic Analysis of Progress towards Millennium Development Goal 5." *The Lancet*.
- Hoke, T., P. Feldblum, K. Van Damme, M. Nasution, T. Grey, E. Wong, L. Ralimamonjy, L. Raharimalala and A. Rasamindrakotroka. 2007. "Temporal Trends in Sexually Transmitted Infection Prevalence and Condom Use Following Introduction of the Female Condom to Madagascar Sex Workers." *International Journal of STDs & AIDS* 18: 461–466.

- Holmes, K., R. Levine and M. Weaver. 2004. "Effectiveness of Condoms in Preventing Sexually Transmitted Infections." *Bulletin of the World Health Organization* 82 (6): 454–461. Cited in AMFAR. 2005. "The Effectiveness of Condoms in Preventing HIV Transmission." *Issue Brief No. 1*. New York, NY: AMFAR.
- Holmes, C., H. Hausler and P. Nunn. 1998. "A Review of Sex Differences in the Epidemiology of Tuberculosis." *The International Journal of Tuberculosis and Lung Disease* 2(2): 96–104.
- Holschneider, S. and C. Alexander. 2003. "Social and Psychological Influences on HIV Preventative Behaviors of Youth in Haiti." *Journal of Adolescent Health* 33 (1): 31–44.
- Holstad, M., C. Dilorio and M. Magowe. 2006. "Motivating HIV Positive Women to Adhere to Antiretroviral Therapy and Risk Reduction Behavior: The Kharma Project." *Journal of Issues in Nursing* 11 (1): 78–94.
- Holtgrave, D. and R. Crosby. 2003. "Social Capital, Poverty and Income Inequality as Predictors of Gonorrhoea, Syphilis, Chlamydia and AIDS Case Rates in the United States." *Sexually Transmitted Infections*. 79: 62–64.
- Homan, R., C. Searle, E. Esu-Williams, M. Aguirre, S. Mafata, F. Meidany, C. Oosthuizen and L. Towel. 2005a. "Programmatic Implications of a Cost Study of Home-Based Care Programs in South Africa." Horizons Research Update. Johannesburg, South Africa: Population Council.
- Homan, R., C. Searle, E. Esu-Williams, M. Aguirre, S. Mafata, F. Meidany, C. Oosthuizen and L. Towel. 2005b. "Exploring the Role of Family Caregivers and Home-based Care Programmes in Meeting the Needs of People Living with HIV/AIDS." Horizons Research Update. Johannesburg, South Africa: Population Council.
- Homsy, J., R. Bunnell, D. Moore, R. King, S. Malamba, R. Nakityo, D. Glidden, J. Tappero and J. Mermin. 2009. "Reproductive Intentions and Outcomes among Women on Antiretroviral Therapy in Rural Uganda: A Prospective Cohort Study." *PLoS One* 4 (1): e4149–4149.
- Homsy, J., R. Bunnell, D. Moore, R. King, S. Malamba, R. Nakityo, D. Glidden, C. Likicho, J. Tappero and J. Mermin. 2008. "Incidence and Determinants of Pregnancy among Women Receiving ART in Rural Uganda." Abstract 74. Fifteenth Conference on Retroviruses and Opportunistic Infections. Boston, MA.
- Homsy, J., J. Kalamya, J. Obonyo, J. Ojwang, R. Mugumya, C. Opio and J. Mermin. 2006. "Routine Intrapartum HIV Counseling and Testing for Prevention of Mother-to-Child Transmission of HIV in a Rural Ugandan Hospital." *Journal of Acquired Immune Deficiency Syndromes* 42 (2): 149–54.
- Honeybrook, A., C. Duncome, S. Kerr and A. Avihingsanon. 2008. "Adherence and Risk Behavior in Patients with HIV Infection Receiving Antiretroviral Therapy." Abstract MOPE0319. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Hong, H., G. Jji and D. Ye. 2009. "Long-Term Follow-Up of a Peer-Led HIV/AIDS Prevention Program for Married Women in Rural China." *International Journal of Obstetrics and Gynecology* 106 (1): 69–70.
- Hong, Y., X. Fang, X. Li, Y. Liu and M. Li. 2008. "Environmental Support and HIV Prevention Behaviors among Female Sex Workers in China." *Journal of the American Sexually Transmitted Disease Association* 35 (7): 662–667.
- Hong, K., N. van Anh and J. Ogden. 2004. *Because this is the Disease of the Century.* Understanding HIV and AIDS-Related Stigma and Discrimination in Vietnam. Washington, DC: International Center for Research on Women. www.icrw.org
- Hoover, J. 2009. *Shining a Light on a Hidden Epidemic: Why and How Civil Society Advocates Can Support the Expansion of Hepatitis C Treatment in Eastern Europe and Central Asia*. New York, NY: Open Society Institute.
- Hoover, J. and R. Jurgens. 2009. *Harm Reduction in Prison: The Moldova Model*. New York, NY: Open Society Institute.

- Hope, R. 2007. *Addressing Cross-Generational Sex: A Desk Review of Research and Programs*. Washington, DC: Population Reference Bureau.
- Horizons. 2005. "Strengthening Care and Support Services in the Era of Treatment." Symposium Report. 22–23. Johannesburg, South Africa.
- Horizons, International Center for Research on Women, Population Council, Kenya Project Partners, Adolescent Counseling Clinic in Kenyatta National Hospital, Kenya Association of Professional Counselors, Kibera Community Self-Help Programme, Riruta City Council Clinic, St. John's Community Center, University of Nairobi, Wazu Dance Troupe, Uganda Project Partners, AIDS Information Center, Buganda Kingdom Youth Project Center, Kitovu Hospital Mobile Home Care Programme, Makerere University, Naguru Teenage Information and Health Center, The AIDS Support Organization. 2001. *HIV Counseling and Testing among Youth Ages 14 to 21: Results from an Exploratory Study in Nairobi, Kenya and Masaka, Uganda*. New York, NY: Population Council.
- Horizons Project. 2000. *Peer Education and HIV/AIDS: Past Experience, Future Directions*. Washington, DC: Population Council.
- Horizons Project, Nelson Mandela Children's Fund, Development Research, Africa and USAID. 2004. *The Impact of Adolescent Reproductive Health of Community-based Interventions for Supporting Orphaned and Vulnerable Children in South Africa*. Washington, DC: Population Council.
- Horvath, T., B. Madi, I. Iuppa, G. Kennedy, G. Rutherford and J. Read. 2009. "Interventions for Preventing Late Postnatal Mother-to-Child Transmission of HIV (Review)." *Cochrane Database of Systematic Reviews* 1. Art No.: CD0067834. <http://www.thecochranelibrary.com>.
- Hsieh YH, de Arazoza H. 2009. "Universal Voluntary HIV Testing and Immediate Antiretroviral Therapy. Letter Response to Granich et al." *The Lancet* 373(9669): 1079–80. [www.projectinform.org/testandtreat/granich\\_letters.pdf](http://www.projectinform.org/testandtreat/granich_letters.pdf).
- Hsu, H., C. Rydzak, K. Cotich, B. Wang, P. Sax, E. Losina, K. Freedberg, S. Goldie, Z. Lu and R. Walensky. 2008. "Quantifying the Risks and Benefits of Efavirenz (EFV) Use in HIV-Infected Women of Childbearing Age in the US." Abstract TUPE0230. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Hubbard, B., M. Giese and J. Rainey. 1998. "A Replication of Reducing the Risk, a Theory-Based Sexuality Curriculum for Adolescents." *Journal of School Health* 68 (6): 243–247.
- Hudson, C. 2001. "Community-Based Trials of Sexually Transmitted Disease Treatment: Repercussions for Epidemiology and HIV Prevention." *Bulletin of the World Health Organization* 79: 48–58.
- Hughes-d'Aeth, A. 2002. "Evaluation of HIV/AIDS Peer Education Projects in Zambia." *Evaluation and Program Planning* 25 (4): 397–407.
- Huijbrechts, M., N. Ward and M. Chipimo. 2008. "Reaching Orphans and Vulnerable Children in Ultra Poor Households through a Social Cash Transfer Scheme in Michinji, Malawi." Abstract WEPE0582. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Hulton, L., R. Cullen and S. Khalokho. 2000. "Perceptions of the Risks of Sexual Activity and their Consequences among Ugandan Adolescents." *Studies in Family Planning* 31 (1): 35–46.
- Human Rights Watch (HRW). 2009. *Discrimination, Denial and Deportation: Human Rights Abuses Affecting Migrants Living with HIV*. New York, NY: HRW.
- Human Rights Watch (HRW). 2008. *An Unbreakable Cycle: Drug Dependency Treatment, Mandatory Confinement, and HIV/AIDS in China's Guangxi Province*. New York, NY: HRW.

- Human Rights Watch (HRW). 2007. *Hidden in the Mealie Meal: Gender-based Abuses and Women's HIV Treatment in Zambia*. New York, NY: HRW. [www.hrw.org](http://www.hrw.org).
- Human Rights Watch (HRW). 2004a. *A Test of Inequity: Discrimination against Women Living with HIV in the Dominican Republic*. Washington, DC: HRW.
- Human Rights Watch (HRW). 2004b. *Deadly Delay: South Africa's Efforts to Prevent HIV in Survivors of Sexual Violence*. New York, NY: HRW.
- Human Rights Watch (HRW). 2003a. *Borderline Slavery: Child Trafficking in Togo*. Human Rights Watch 15(8(A)): New York, NY: HRW.
- Human Rights Watch (HRW). 2003b. *Just die quietly: Domestic Violence and Women's Vulnerability to HIV in Uganda* 15(15A). New York, NY: Human Rights Watch.
- Human Rights Watch (HRW). 2003c. *Policy Paralysis: A Call for Action on HIV/AIDS Related Human Rights Abuses against Women and Girls in Africa*. New York, NY: HRW.
- Human Rights Watch (HRW). 2002. *Double Standards: Women's Property Rights Violations in Kenya*. New York, NY: HRW.
- Humphreys, C., C. Mamvura, L. Brookes-Smith, K. Bailey, A. Philip, J. Wright and J. Walley. 2008. "Effectiveness and Safety of Nurse Led Primary-Care Based Antiretroviral Treatment in a Resource-Constrained Setting." Abstract WEAB0206. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Hunter, S. and J. Williamson. 2000. "Children on the Brink: Executive Summary and Recommendations for Intervention." Washington, DC: United States Agency for International Development.
- Huntington, D. 2001. "Anti-Trafficking Programs in South Asia: Appropriate Activities, Indicators and Evaluation Methodologies." Summary report of the Technical Consultative Meeting. Population Council: Kathmandu, Nepal. September 11–13.
- Ickovics, J., S. Milan, R. Boland, E. Schoenbaum, P. Schuman and D. Vlahov and the HIV Epidemiology Research Study (HERS) Group. 2006. "Psychological Resources Protect Health: 5-Year Survival and Immune Function among HIV-Infected Women from Four US Cities." *AIDS* 20 (14): 1851–60.
- Idemiyor, V. 2007. "Human Immunodeficiency Virus (HIV) and Malaria Interaction in Sub-Saharan Africa: The Collision of Two Titans." *HIV Clinical Trials* 8 (4): 246–253.
- Idoko, J., O. Agbaji, P. Agaba, C. Akolo, B. Inuwa, Z. Hassan, L. Akintunde, B. Badung, M. Muazu, M. Danang, G. Imade, J. Sankale and P. Kanki. 2007. "Direct Observation Therapy-Highly Active Antiretroviral Therapy in a Resource-Limited Setting: The Use of Community Treatment Support Can be Effective." *International Journal of STD & AIDS* 18 (11): 760–3.
- Iliff, P., E. Piwoz, N. Tavengwa, C. Zunguza, E. Marinda, K. Nathoo, L. Moulton, B. Ward, J. Humphrey and the ZVITAMBO Study Group. 2005. "Early Exclusive Breastfeeding Reduces the Risk of Postnatal HIV-1 Transmission and Increases HIV-Free Survival." *AIDS* 19 (7): 699–708.
- Imbuki, K., C. Todd, M. Stibich, D. Shaffer and S. Sinei. 2009. "Factors Influencing Contraceptive Choice and Discontinuation among HIV-positive Women in Kericho, Kenya." Abstract. International Conference on Family Planning. Muyonyo, Uganda. November 15–18. [www.fpconference.org](http://www.fpconference.org)
- INFO Project. 2007. "Closing the Effectiveness Gap." INFO Reports. No. 13. <http://info.k4health.org/inforeports/effectiveness/index.shtml>.

- Innes, C, S Charalambous, M Felix, K Fielding, A Grant, and G Churchyard. 2010. "Effectiveness of Isoniazid Preventive Therapy in Reducing Mortality in Patients on ART." Paper 102 presented at 17<sup>TH</sup> Conference on Retroviruses and Opportunistic Infections. San Francisco, USA. February 18.
- Institute of Medicine, National Academy of Sciences (IOM, NAS). Committee on the Prevention of HIV Infection among Injecting Drug Users in High-risk Countries. 2007. *Preventing HIV Infection among Injecting Drug Users in High Risk Countries: An Assessment of the Evidence*. Washington, DC: National Academy Press. [http://www.nap.edu/catalog.php?record\\_id=11731](http://www.nap.edu/catalog.php?record_id=11731).
- Institute of Medicine (IOM). 2005. *Scaling Up Treatment for the AIDS Pandemic: Challenges and Opportunities*. Washington, DC: National Academy of Sciences.
- Institute of Medicine, National Academy of Sciences (IOM, NAS). 2001. *No Time to Lose: Getting More from HIV Prevention*, edited by M. Ruiz, A. Gable, E. Kaplan, M. Stoto, H. Fineberg and J. Trussell. Washington, DC: National Academy Press.
- Institute of Migration (IOM), Counter Trafficking Unit. 2001. *Return and Reintegration Project, Situation Report*. Pristina, Kosovo: IOM.
- Interact Worldwide, International HIV/AIDS Alliance, Global AIDS Alliance, Population Action International, IPPF, and Friends of the Global Fund Africa. 2008. "Guidelines for Integrating Sexual and Reproductive Health into the HIV/AIDS Component Country Coordinated Proposals to be Submitted to the Global Fund to Fight AIDS, Tuberculosis and Malaria: Round 8 and Beyond." [http://www.globalaidsalliance.org/page/-/PDFs/Round\\_8\\_GFATM\\_SRH-HIV\\_Proposal\\_Guidelines.pdf](http://www.globalaidsalliance.org/page/-/PDFs/Round_8_GFATM_SRH-HIV_Proposal_Guidelines.pdf).
- Interagency Gender Working Group: Gender and HIV/AIDS Task Force. ND. "Gender Based Violence and HIV/AIDS: Key Issues and Promising Approaches." Washington, DC: IGWG.
- International AIDS Society (IAS). 2010. *Willing We End the HIV Epidemic The Impact of HIV Treatment on HIV Prevention and Implications for the Replenishment of the Global Fund to Fight AIDS, TB and Malaria*.
- International Center for Research on Women. 2006. *Information Bulletin: Reducing HIV/AIDS Stigma, Discrimination and Gender-Based Violence among Health Care Providers in Andhra Pradesh, India*. Washington, DC: ICRW. [www.icrw.org](http://www.icrw.org).
- International Community of Women Living with HIV and AIDS (ICW). 2009. *The Forced and Coerced Sterilization of HIV Positive Women in Namibia*. London, UK: ICW. [www.icrw.org](http://www.icrw.org).
- International Community of Women Living with HIV and AIDS (ICW). 2008. *Addressing the Needs of HIV Positive Women for Safe Abortion Care*. London, UK: ICW. [www.icrw.org](http://www.icrw.org).
- International Community of Women Living with HIV and AIDS (ICW). 2006. *Trialling of the Monitoring Tool Fulfilling Reproductive Rights for Women Affected by HIV. A Tool for Monitoring Achievement of the Millennium Development Goals in Botswana Project Report*. London, UK: ICW. [www.icrw.org](http://www.icrw.org).
- International Community of Women Living with HIV and AIDS (ICW). 2004. "HIV-Positive Young Women." ICW Vision Paper 1. London, UK: ICW.
- International Community of Women Living with HIV and AIDS. 2006. *Fulfilling Reproductive Rights for Women Affected by HIV: A Tool for Monitoring Achievement of Millennium Development Goals (Prepared by IPAS, The Pacific Institute for Women's Health and ICW) in Botswana*. London, UK. [www.icrw.org](http://www.icrw.org)
- International Gay and Lesbian Human Rights Commission (IGLHRC). 2007. *Off the Map: How HIV/AIDS Programming is Failing Same-Sex Practicing People in Africa*. New York, NY: IGLRH. [www.iglhrc.org](http://www.iglhrc.org).

- International Harm Reduction Development Program, Open Society Institute (IHRD, OSI). 2008. "Barriers to Access: Medication-assisted Treatment and Injection-Driven HIV Epidemics." New York, NY: OSI.
- International Harm Reduction Development Program, Open Society Institute (IHRD, OSI). ND. "Women's Health and Harm Reduction: Communities Working Together to Save Lives." New York, NY: OSI.
- International HIV/AIDS Alliance. 2007. "Sex Work, Violence and HIV." Brighton, UK: Alliance. [www.aidsalliance.org](http://www.aidsalliance.org).
- International Labour Organization and World Health Organization. 2005. "Joint ILO/WHO Guidelines on Health Services and HIV/AIDS" Available at: [http://www.who.int/hiv/pub/prev\\_care/who-ilo-guidelines.pdf](http://www.who.int/hiv/pub/prev_care/who-ilo-guidelines.pdf). [3/17/2010].
- International Labor Organization (ILO). 2001. "An ILO Code of Practice on HIV/AIDS and the World of Work." Geneva, Switzerland: ILO.
- International Perinatal HIV Group. 1999. "The Mode of Delivery and the Risk of Vertical Transmission of Human Immunodeficiency Virus Type 1." *New England Journal of Medicine* 340: 977-87.
- International Planned Parenthood Federation/Western Hemisphere Region (IPPF/WRH). 2000. *Manual for Evaluating Quality of Care from a Gender Perspective*. New York, NY: IPPF/WRH. [www.ippfwhr.org](http://www.ippfwhr.org).
- International Treatment Preparedness Coalition (ITPC). 2009. *Missing the Target: Failing Women, Failing Children: HIV, Vertical Transmission and Women's Health, On-the-ground Research in Argentina, Cambodia, Moldova, Morocco, Uganda, Zimbabwe*. [www.itpcglobal.org](http://www.itpcglobal.org)
- International Women's Health Coalition (IWHC). 2008. "Triple Jeopardy: Female Adolescence, Sexual Violence and HIV/AIDS." New York, NY. [www.iwhc.org](http://www.iwhc.org).
- International Women's Health Coalition (IWHC). 2007. "Overlooked and Uninformed: Young Adolescents' Sexual and Reproductive Health and Rights." New York, NY. [www.iwhc.org](http://www.iwhc.org)
- Inwani, I., D. Mbori-Ngacha, R. Nduati, E. Obimbo, D. Wamalwa, G. John-Stewart and C. Farquhar. 2009. "Performance of Clinical Algorithms for HIV-1 Diagnosis and Antiretroviral Initiation among HIV-1 Exposed Children Aged Less than 18 Months in Kenya." *Journal of Acquired Immune Deficiency Syndromes* 50 (5): 492-498.
- Ioannidis, J., A. Tatsioni, E. Abrams, M. Bulterys, R. Coombs, J. Goedert, B. Korber, M. Mayaux, L. Mofenson, J. Moye, M. Newell, D. Shapiro, J. Teglas, B. Thompson and J. Wiener. 2004. "Maternal Viral Load and Rate of Disease Progression among Vertically HIV-1-Infected Children: An International Meta-Analysis." *AIDS* 18: 99-108.
- Ioannidis, J., E. Abrams, A. Ammann, M. Bulterys, J. Goedert, L. Gray, B. Korber, M. Mayaux, L. Mofenson, M. Newell, D. Shapiro, J. Teglas and C. Wilfert. 2000. "Perinatal Transmission of Human Immunodeficiency Virus Type I by Pregnant Women with RNA Virus Loads <1000 copies/ml." *Journal of Infectious Diseases* 183 (4): 539-545.
- Ironson, G., S. Weiss, D. Lydston, M. Ishii, D. Jones, D. Asthana, J. Tobin, S. Lechner, A. Laperriere, N. Schneiderman and M. Antoni. "The Impact of Improved Self-Efficacy on HIV Viral Load and Distress in Culturally Diverse Women Living with AIDS: The SMART/EST Women's Project." *AIDS Care* 17 (2): 222-36.
- Irvin, A. 2000. "Taking Steps of Courage: Teaching Adolescents about Sexuality and Gender in Nigeria and Cameroun." New York, NY: International Women's Health Coalition.
- Irwin, A., A. Adams, and A. Winter. 2009. *Home Truths: Facing the Facts on Children, AIDS, and Poverty—Final Report of the Joint Learning Initiative on Children and HIV/AIDS*. Boston, MA: Joint Learning Initiative on Children and HIV/AIDS (JLICA).

- Islander, F. 2006. Plenary Presentation. XVI International AIDS Conference. Toronto, Canada.
- Ivers, L., J. Jerome, K. Cullen, W. Lambert, F. Cellitti and B. Samb. 2008. "Task-shifting in HIV Care: A Nurse-centered, Community-based Model of Care in Rural Haiti." Abstract WEAX0103. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ivers, L., Y. Chang, J. Jerome, W. Lambert, J. Mukherjee and K. Freedberg. 2008. "Targeted Food Assistance Improves Food Security and Quality of Life in People Living with HIV in Haiti." Abstract TUPE0663. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ixcot, M., J. Ikeda and N. Hearst. 2008. "Integration of HIV Voluntary Counseling and Testing in Antenatal Control in Community Clinics in Rural Guatemala." Abstract TUPDE103. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Jackson, D., A. Goga, T. Doherty and M. Chopra. 2009. "An Update on HIV and Infant Feeding Issues in Developed and Developing Countries." *Journal of Obstetrics, Gynecologic and Neonatal Nursing* 38: 219–229.
- Jackson, J., G. Becker-Pergola, L. Guay, P. Muske, M. Mracna, M. Fowler, L. Mofenson, M. Mirochnick, F. Mmiro and S. Eshleman. 2000. "Identification of the K103N Resistance Mutation in Ugandan Women Receiving Nevirapine to Prevent HIV-1 Vertical Transmission." *AIDS* 14 (11): F111–115.
- Jacobowski, N. 2008. "Marriage is Not a Safe Place: Heterosexual Marriage and HIV-Related Vulnerability in Indonesia." *Culture, Health & Sexuality* 10 (1): 87–97.
- Jadhav, M., T. Pensi, P. Chan, V. Purohit, P. Paithandkar, B. Rewari, V. Brijal and D. Bachani. 2008. "Scaling-Up Access to Paediatric Antiretroviral Treatment: Lessons from India." Abstract THAB0104. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Jaffe, H. A. Smith and T. Hope. 2009. Universal Voluntary HIV Testing and Immediate Antiretroviral Therapy. Letter Response to Granich et al. *The Lancet* 373(9669): 1080. [http://www.projectinform.org/testandtreat/granich\\_letters.pdf](http://www.projectinform.org/testandtreat/granich_letters.pdf).
- Jamal, I and M Roberts. 2004. "Building Social Capital in Uganda: The Role of NGOs in Mitigating HIV/AIDS Challenges." Paper presented at the International Conference of the International Society for Third Sector Research (ISTR). Toronto. July 11–14.
- James, R., R. D'Souza Ypthomi, N. Kumarasamy, J. Lakshimi, T. Ypthomi, A. Durabai, S. Sunneta, S. Satish Kumar and S. Solomon. 2004. "Couple and Family Counseling—A Successful Program to Address Stigma and Discrimination." Abstract MoPeD3799. XV International AIDS Conference. Bangkok, Thailand.
- James-Traore, T., W. Finger, C. Ruland and S. Savariaud. 2004. "Teacher Training: Essential for School-Based Reproductive Health and HIV/AIDS Education: Focus on Sub-Saharan Africa." Arlington, Virginia: Family Health International.
- Jamieson, D., P. Paramsothy, S. Cu-Uvin and A. Duerr. 2006. "Vulvar, Vaginal, and Perianal Intraepithelial Neoplasia in Women with or at Risk for Human Immunodeficiency Virus." *Obstetrics and Gynecology* 107 (5): 1023–1028.
- Jamal, I. and M. Roberts. 2004. "Building Social Capital in Uganda: The Role of NGOs in Mitigating HIV/AIDS Challenges." Paper presented at the International Conference of the International Society for Third Sector Research (ISTR). Toronto. July 11–14.
- Jamts, E. 2008. "Response to 100% Condom Use Program Implementation among Female Sex Workers in Mongolia." Abstract THPE0246. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Jahn, A., S. Floyd, A. Crampin, F. Mwaungulu, H. Mvula, F. Munthali, N. McGrath, J. Mwafilaso, V. Mwinuka, B. Mangongo, P. Fine, B. Zaba and J. Glynn. 2008. "Population-Level Effect of HIV on Adult Mortality and Early Evidence of Reversal after Introduction of Antiretroviral Therapy in Malawi." *The Lancet* 371 (9624): 1603–1611.
- Jana, S., D. Chowhury, A. Singh, P. Chan, S. Mukopadhyay and R. Steen. 2008. "Partner Notification (PN) in a Targeted STI Control Program—Best Practices of Sonagachi Project, Kolkata, India." Abstract THPE0303, XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Jean Jacques, M., S. Prince, L. Duverger, G. Pierre-Louis, P. Leger, D. Fitzgerald and J. Pape. 2008. "The Role of Pills Count at the Pharmacy in the Evaluation of Adherence to ART at GHESKIO Centers, Haiti." Abstract TUPE0156, XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Jeantils, V., M.-A. Khuong, J.-L. Delassus, P. Honore, B. Taverne, M. Uzan and S. Tassi. 2006. "Evarirenz (Sustiva) in Pregnancy: A Study about 12 HIV Patients." *Gynecologie Obstetrique et Fertilité* 34: 593–596.
- Jejeebhoy, S. and S. Bott. 2003. "Non-Consensual Sexual Experience of Young People: A Review of the Evidence from Developing Countries." South and East Asia Regional Working Paper No. 16. New Delhi, India: Population Council.
- Jemmott III, J., L. Jemmott and G. Fong. 2010. "Efficacy of a Theory-based Abstinence-only Intervention over 24 Months." *Arch Pediatr Adolesc Med* 164 (2): 152–159.
- Jemmott, L., J. Jemmott III and A. O'Leary. 2007. "Effects on Sexual Risk Behavior and STD Rate of Brief HIV/STD Prevention Interventions for African American Women in Primary Care Settings." *American Journal of Public Health* 97 (6): 1034–40.
- Jenkins, C. and National Sex and Reproduction Research Team. 1995. "Women and the Risk of AIDS: A Study of Sexual and Reproductive Knowledge and Behavior in Papua New Guinea." *Women and AIDS Research Program No. 10*. Washington, DC: ICRW.
- Jenniskens, F., E. Omwaka, S. Kirisuah, S. Moses, F. Yusufali, J. Ndinya-Achola, L. Fransen, M. Laga and M. Temmerman. 1995. "Syphilis Control in Pregnancy: Decentralization of Screening Facilities to Primary Care Level, A Demonstration Project in Nairobi, Kenya." *International Journal of Gynecology and Obstetrics* 48 (Supplement): S121–S128.
- Jeon, C., S. Hwang, J. Min, D. Prevots, L. Goldfeder, H. Lee, S. Eum, D. Jeon, H. Kang, J. Kim, B. Kim, D. Kim, S. Holland, S. Park, S. Cho, C. Barry and L. Via. 2008. "Extensively Drug-Resistant Tuberculosis in South Korea: Risk Factors and Treatment Outcomes among Patients at a Tertiary Referral Hospital." *Clinical Infectious Diseases* 46: 42–9.
- Jerene, D., A. Naess and B. Lindtorn. 2006. "Antiretroviral Therapy at a District Hospital in Ethiopia Prevents Death and Tuberculosis in a Cohort of HIV Patients." *AIDS Research and Therapy* 3: 10.
- Jeronimo, J. 2010. Meeting with Jill Gay at PATH offices, Seattle. Dr. Jose Jeronimo is Director, START-UP Project, Reproductive Health, PATH, [www.path.org](http://www.path.org).
- Jeronimo, J. 2009. Email to Jill Gay. Dr. Jose Jeronimo is Director, START-UP Project, Reproductive Health, PATH, [www.path.org](http://www.path.org). Email of September 25, 2009.
- Jewkes, R. and R. Morrell. 2010. "Gender and Sexuality: Emerging Perspectives from the Heterosexual Epidemic in South Africa and Implications for Prevention." *Journal of the International AIDS Society* 13 (6).
- Jewkes, R., M. Nduna, J. Levin, N. Jama, K. Dunkle, A. Puren, and N. Duvvury. 2008. "Impact of Stepping Stones on HIV and HSV-2 and Sexual Behaviour in Rural South Africa: Cluster Randomised Controlled Trial." *British Medical Journal* 337: a506.

- Jewkes, R. 2007. "Comprehensive Response to Rape Needed in Conflict Settings." *The Lancet* 369: 2140–2241.
- Jewkes, R., M. Nduna, J. Levin, N. Jama, K. Dunkle, K. Wood, M. Koss, A. Puren and N. Duvvury. 2007. *Evaluation of Stepping Stones: A Gender Transformative HIV Prevention Intervention*. Pretoria, South Africa: Gender and Health Research Unit, Medical Research Council. <http://www.comminit.com/en/node/72188/cchange picks>.
- Jewkes, R., K. Dunkle, M. Nduna, J. Levin, N. Jama, N. Khuzwayo, M. Koss, A. Puren and N. Duvvury. 2006a. "Factors Associated with HIV Sero-Status in Young Rural South African Women: Connections between Intimate Partner Violence and HIV." *International Journal of Epidemiology* 35: 1461–1468.
- Jewkes, R., M. Nduna, J. Levin, N. Jama, K. Dunkle, N. Khuzwayo, M. Koss, A. Puren, K. Wood, and N. Duvvury. 2006b. "A Cluster Randomized-Controlled Trial to Determine the Effectiveness of Stepping Stones in Preventing HIV Infections and Promoting Safer Sexual Behaviour amongst Youth in the Rural Eastern Cape, South Africa: Trial Design, Methods and Baseline Findings." *Tropical Medicine and International Health* 11 (1): 3–16.
- Jewkes, R., J. Levin, N. Mbananga and D. Bradshaw. 2002. "Rape of Girls in South Africa." *Lancet* 359: 319–320.
- Jin, X., K. Smith, Y. Sun, G. Ding, Y. Yao, J. Xu, D. Chang, G. Wang, Y. Zhu and N. Wang. 2009. "Association between Testing for Human Immunodeficiency Virus and Changes in Risk Behaviors among Injecting Drug Users in Southern China." *Sexually Transmitted Diseases* 36 (8): 473–477.
- Jinich, S., J. Paul, R. Stall, M. Acree, S. Kegeles, C. Hoff and T. Coates. 1998. "Childhood Sexual Abuse and HIV-Risk Taking Behavior among Gay and Bisexual Men." *AIDS and Behavior* 2 (1): 41–51.
- Jo, K.-W., H. Woo, Y. Hong, C.-M. Choi, Y.-M. Oh, S. Lee, W. Kim, D. Kim, W. Kim and T. Shim. 2008. "Incidence of Tuberculosis among Health Care Workers at a Private University in South Korea." *Int J Tuberc Lung Dis* 12 (4): 436–440.
- Johansson, E., N. Long, V. Diswan and A. Winkvist. 1999. "Attitudes to Compliance with Tuberculosis Treatment among Women and Men in Vietnam." *International Journal Tuberculosis and Lung Disease* 3 (10): 862–868.
- Johnson, K., P. Akwara, S. Rutstein and S. Bernstein. 2009. "Fertility Preferences and the Need for Contraception among Women Living with HIV: The Basis for a Joint Action Agenda." *AIDS* 23 (Supplement 1): S7–S17.
- Johnson, N., P. Palmer, L. Samuels, O. Morgan, A. Onyonyour, M. Anderson, J. Moore, C. Billings, K. Harvey, A. Mullings, D. MacDonald, G. Alexander, M. Smikle, E. Williams, D. Davis and C. Christie. 2008. "Evolving Care of HIV-Infected Pregnant Women in Jamaica from Nevirapine to HAART." *West Indian Medical Journal* 57 (3): 216.
- Johnson, C., W. Fleming, C. Chipere, N. Mantinhure and K. Myllynen. 2007. "Man Enough to Care: Involving Men in Home Based Services for People Living with HIV/AIDS in Rural Zimbabwe." Washington, DC: Africare.
- Johnson, B., M. Carey, S. Chaudoir and A. Reid. 2006. "Sexual Risk Reduction for Persons Living with HIV: Research Synthesis of Randomized Controlled Trials, 1993–2004." *Journal of Acquired Immune Deficiency Syndromes* 41 (5): 642–650.
- Johnson, B., M. Carey, K. March, K. Levin and L. Scott-Sheldon. 2003. "Interventions to Reduce Sexual Risk for the Human Immunodeficiency Virus in Adolescents, 1985–2000." *Archives of Pediatrics and Adolescent Medicine* 157: 381–388.
- Johnston, M. and A. Fauci. 2008. "An HIV Vaccine—Challenges and Prospects." *New England Journal of Medicine* 359 (9): 888–890.
- Jones, D., S. McPherson-Baker, D. Lydston, J. Camille, E. Brondolo, J. Tobin and S. Weiss. 2007. "Efficacy of a Group Medication Adherence Intervention among HIV-Positive Women: The SMART/EST Women's Project." *AIDS and Behavior* 11 (1): 79–86.

- Jones, D., S. Weiss, G. Bhat and V. Bwalya. 2006. "Influencing Sexual Practices among HIV-Positive Zambian Women." *AIDS Care* 18 (6): 629–34.
- Jones, D., D. Ross, S. Weiss, G. Bhat and N. Chitalu. 2005. "Influence of Partner Participation on Sexual Risk Behavior Reduction among HIV-Positive Zambian Women." *Journal of Urban Health* 82 (3 Supplement 4): iv92–100.
- Joshi, R., A. Reingold, D. Menzies and R. Pai. 2006. "Tuberculosis among Health Care Workers in Low- and Middle-Income Countries: A Systematic Review." *PLoS Medicine* 3 (12): e94. [www.plosmedicine.org](http://www.plosmedicine.org)
- Jourdain, G., N. NgoGiang-Huong, S. LeCour, C. Bowonwatanuwong, P. Kantipong, P. Leechanachai, S. Ariyadej., P. Leenasrimakul, S. Hammer and M. Lallemand. 2004. "Intrapartum Exposure to Nevirapine and Subsequent Maternal Responses to Nevirapine-Based Antiretroviral Therapy." *New England Journal of Medicine* 351: 229–240.
- Juarez, F. and T. Martin. 2006. "Safe Sex Versus Safe Love? Relationship Context and Condom Use among Male Adolescents in the Favelas of Recife, Brazil." *Archives of Sexual Behavior* 35 (1): 25–35.
- Jurgens, R., J. Cohen, D. Tarantola, M. Heywood M and R. Carr. 2009a. Universal Voluntary HIV Testing and Immediate Antiretroviral Therapy. Letter Response to Granich et al." *The Lancet* 373 (9669): 1079. [http://www.projectinform.org/testandtreat/granich\\_letters.pdf](http://www.projectinform.org/testandtreat/granich_letters.pdf).
- Jurgens, R., A. Ball and A. Verster. 2009b. "Interventions to Reduce HIV Transmission Related to Injecting Drug Use in Prison." *The Lancet* 9: 57–66.
- Jurgens, R., WHO, UNODC and UNAIDS. 2007. *Evidence for Action Technical Papers: Interventions to Address HIV in Prisons: HIV Care, Treatment and Support*. Geneva, Switzerland: WHO, UNDOC and UNAIDS. <http://www.who.int/hiv/pub/advocacy/idupolicybriefs/en/>.
- Jurgens, R. 2007a. "Increasing Access to HIV Testing and Counseling While Respecting Human Rights—Background Paper." New York, NY: Public Health Program of the Open Society Institute. [http://www.soros.org/initiatives/health/articles\\_publications/publications/testing\\_20070907](http://www.soros.org/initiatives/health/articles_publications/publications/testing_20070907).
- Jurgens, R. 2007b. *Evidence for Action Technical Papers: Interventions to Address HIV in Prisons: Needle and Syringe Programmes and Decontamination*. Geneva, Switzerland: WHO, UNDOC and UNAIDS. <http://www.who.int/hiv/pub/advocacy/idupolicybriefs/en/>.
- Jurgens, R. and J. Cohen. 2007. *Human Rights and HIV/AIDS: Now More than Ever—10 Reasons Why Human Rights Should Occupy the Center of the Global AIDS Struggle*. New York, NY: Open Society Institute. [http://www.soros.org/initiatives/health/focus/law/articles\\_publications/publications/human\\_20071017/english\\_now-more-than-ever.pdf](http://www.soros.org/initiatives/health/focus/law/articles_publications/publications/human_20071017/english_now-more-than-ever.pdf).
- Jurgensen, M., C. Michelo and K. Fylkesnes. 2008. "Inequities in Use of HIV-testing a Serious Challenge towards Universal Access—the REACT Study in Zambia." Abstract TUPE0452. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- JuriGlobe. 2009. "World Legal Systems." University of Ottawa. <http://www.juriglobe.ca/eng/sys-juri/index-syst.php>.
- Kachipapa, E., C. Mphande, C. Potani, V. Kayoyo, B. Maseko, P. Mawindo, M. Kadiwa, T. Mvalo, J. Chibwe, I. Hoffman, M. Hoseinipour and F. Martinson. 2008. "Uptake of Family Planning among Malawian Women Participating in HIV Related Research Studies." Abstract TUPE0224. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kacwamu, R. 2008. "Engendering Linked Response to HIV and Reproductive Health Concerns of Young People." Abstract WEPE0853. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Kadando, R., J. Lyavala and M. Mulongo. 2008. "Sero Status Disclosure in HIV Prevention: Encouraging Results from TASO Tororo." Abstract WEPE0419. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kagaayi, J., R. Gray, H. Brahmbhatt, G. Kigozi, F. Nalugoda, F. Wabwire-Mangen, D. Serwadda, N. Sewankambo, V. Ddungu, D. Ssebagala, J. Sekasanvu, G. Kigozi, F. Makumbi, N. Kiwanuka, T. Lutalo, S. Reynolds and M. Wawer. 2008. "Survival of Infants Born to HIV-Positive Mothers, by Feeding Modality, in Rakai, Uganda." *Public Library of Science ONE* 3(12): e3877.
- Kagaayi, J., M.L. Dreyfuss, G. Kigozi, M.Z. Chen, F. Wabwire-Mangen, D. Serwadda, M.J. Wawer, N.K. Sewankambo, F. Nalugoda, N. Kiwanuka, M. Kiddugavu, R.H. Gray. 2005. "Maternal Self-medication and Provision of Nevirapine to Newborns by Women in Rakai, Uganda." *Journal of Acquired Immune Deficiency Syndromes* 39(1): 121–4.
- Kaharuza, F., R. Bunnell, S. Moss, D. Purcell, W. Bikaako-Kajura, N. Wamia, R. Downing, P. Solberg, A. Coutinho and J. Mermin. 2006. "Depression and CD 4 Cell Count among Persons Living with HIV Infection in Uganda." *AIDS Behavior* 10: S105–S111.
- Kahesa, C., J. Mwaiselage, H. Wabinga, T. Ngoma, J. Kalyango and C. Karamagi. 2008. "Association Between Invasive Cancer of the Cervix and HIV-1 Infection in Tanzania: The Need for Dual Screening." *BMC Public Health* 8: 262.
- Kaida, A., G. Gray, F. Bastos, I. Andia, M. Maier, J. McIntyre, B. Brinszstein, S. Strathdee, D. Bangsberg and R. Hogg. 2008. "The Relationship between HAART Use and Sexual Activity among HIV-positive Women of Reproductive Age in Brazil, south Africa and Uganda." *AIDS Care* 20 (1): 21–25.
- Kajawu, L., C. Marufu, R. Sabumba, N. Printz and E. Hasselberg. 2008. "Applying Existing Distribution Strategies in Family Planning Improves Stock Availability of HIV Test Kits and PMTCT Nevirapine in Zimbabwe." Abstract WEPE0065. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kakimoto, K., K. Kanal, Y. Mukoyama, T.V. Chheng, T.L. Chou, C. Sedtha. 2007. "Influence of the Involvement of Partners in the Mother Class with Voluntary Confidential Counselling and Testing Acceptance for Prevention of Mother to Child Transmission of HIV Programme (PMTCT Programme) in Cambodia." *AIDS Care* 19(3): 381–4.
- Kakute, P., J. Ngum, P. Mitchell, K. Kroll, G. Foregwie, L. Ngwang and D. Meyer. 2005. "Cultural Barriers to Exclusive Breastfeeding by Mothers in a Rural Area of Cameroon, Africa." *Journal of Midwifery & Women's Health* 50 (4): 324–328.
- Kali, P., G. Gray, A. Violari, R. Chaisson, J. McIntyre and N. Martinson. 2006. "Combining PMTCT with Active Case Finding for Tuberculosis." *Journal of Acquired Immune Deficiency Syndromes* 42: 379–381.
- Kalichman, S., L. Simbayi, A. Cloete, M. Clayford, W. Arnolds, M. Mxoli, G. Smith, C. Cherry, T. Shefer, M. Crawrod and M. Kalichman. 2009. "Integrated Gender-based Violence and HIV Risk Reduction Intervention for South African Men: Results of a Quasi-experimental Field Trial." *Prev Sci* 10: 260–269.
- Kalichman, K, L. Simbayi, R. Vermaak, D. Cain, G. Smith, J. Mthebu and S. Jooste. 2008. "Randomized Trial of a Community-based Alcohol-related HIV Risk-reduction Intervention for Men and Women in Cape Town South Africa." *Annals of Behavioral Medicine*
- Kalichman, S., L. Simbayi, M. Kaufman, D. Cain and S. Jooste. 2007. "Alcohol Use and Sexual Risks for HIV/AIDS in Sub-Saharan Africa: Systematic Reviews of Empirical Findings." *Prev Sci* 8: 141–151.
- Kalichman, S., D. Rompa and M. Cage. 2005. "Group Intervention to Reduce HIV Transmission Risk Behavior among Persons Living with HIV/AIDS." *Behavior Modification* 29 (2): 256–285.

- Kalichman, S. and L. Simbayi. 2004. "Sexual Assault History and Risks for Sexually Transmitted Infections among Women in an African Township in Cape Town, South Africa." *AIDS Care* 16 (6): 681–689.
- Kalla, K. and J. Cohen. 2007. *Ensuring Justice for Vulnerable Communities in Kenya: A Review of AIDS-related Legal Services*. NY: Open Society Institute. www.soros.org.
- Kallloch, S., W. Ngabilwe, N. Musoba, B. Pharm, P. Babirukamu Kumunji, E. Bancroft, E. Rutebemberwa and A. Mutebi. 2008. "Essential Drug Stock-out Research in Uganda: Health Workers and Communities Coming Together to Track Health Sector Progress and Accountability." Abstract TUPE1082. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kamenga, C., G. Sangiwa, S. Kaliba, E. van Praag, and T. Coates. 2001. "Voluntary HIV Counseling and Testing in Tanzania," in *HI/UNAIDS Best Practices in HIV/AIDS Prevention*, edited by B. Makinwa and M. O'Grady. Arlington, VA: Family Health International and Geneva, Switzerland: UNAIDS. www.fhi.org.
- Kanya, M., A. Gsasira, A. Yeka, N. Bakayita, S. Nsyobya, D. Francis, P. Rosenthal, G. Dorsey and D. Havlir. 2006. "Effect of HIV-1 Infection on Antimalarial Treatment Outcomes in Uganda: A Population-based Study." *The Journal of Infectious Diseases* 193: 9–15.
- Kang, M., M. Dunbar, S. Laver, and N. Padian. 2008. "Maternal versus Paternal Orphans and HIV/STI Risk among Adolescent Girls in Zimbabwe." *AIDS Care* 20(2): 214–217.
- Kanniappan, S., M. Jeyapaul and S. Kalyanwala. 2008. "Desire for Motherhood: Exploring HIV-positive Women's Desires, Intentions and Decision-making in Attaining Motherhood." *AIDS Care* 20 (6): 625–630.
- Kanslime, E., F. Kagwire, E. Ssemafumu, T. Takenzire and M. Makumbi. 2008. "Involvement of People Living with HIV/AIDS in the Provision of HIV Counseling and Testing Services to the Internally Displaced People of Northern Uganda." Abstract TUPE0411. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kantarci, S., I. Koulinska, S. Aboud, W. Fawzi and E. Villamor. 2007. "Subclinical Mastitis, Cell-Associated HIV-1 Shedding in Breast Milk, and Breast-Feeding Transmission of HIV-1." *Journal of Acquired Immune Deficiency Syndromes* 46(5): 651–654.
- Kanyamurwa, J.M. and G.T. Ampek. 2007. "Gender differentiation in community responses to AIDS in rural Uganda." *AIDS Care* 19 Suppl 1:S64–72.
- Kaponda, C., S. Kachingwe, B. Dancy, K. Norr and K. Crittenden. 2008. "Peer Group Intervention, Demographic Factors, and Safer Sex Related Attitudes and Behaviors for Rural Adolescents in Malawi." Abstract WEPE0495. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Karagopolova, I., G. Kurimanova, K. Mahnicheva and A. Marisaidova. 2008. "Assessment of Availability, Accessibility and Acceptability of Services on PLHIV Treatment, Care and Support, Provided by AIDS-related Service Organizations in the City of Bishkek, Kyrgyz Republic, Based on PLHIV Needs." Abstract MOPE0657. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Karamagi, C., J. Tumwine, T. Tylleskar and K. Heggenhougen. 2006. "Intimate Partner Violence against Women in Eastern Uganda: Implications for HIV Prevention." *BMC Public Health* 6: 284. doi:10.1186/1471-2458-6-284
- Karema, C. 2009. "Congressional Briefing World Malaria Day Fighting and Winning against Malaria in Rwanda and Worldwide." Presentation by Dr. Karema, Coordinator, National Malaria Control Program, Rwanda in Washington, DC. April 23.
- Karim, F, F Ahmed, I Begum, E Johansson, and VK Diwan. 2008. "Female-male Differences at Various Clinical Steps of Tuberculosis Management in Rural Bangladesh." *International Journal of Tubular Lung Disease* 12(11): 1336–1339.

- Karnell, A.P., P.K. Cupp, R.S. Zimmerman, S. Feist-Price, T. Bennie. 2006. "Efficacy of an American Alcohol and HIV Prevention Curriculum Adapted for Use in South Africa: Results of a Pilot Study in Five Township Schools." *AIDS Education and Prevention* 18(4): 295-310.
- Karp, G., F. Schlaeffler, A. Jotkowitz and K. Riesenber. 2009. "Syphilis and HIV Co-infection." *European Journal of Internal Medicine* 20: 9-13.
- Karpushkinal, A., N.Vartapetov, A.Fullem and M.L. Mantz. 2008. "Prevalence of STI and Viral Hepatitis among HIV-Positive Women Attending Health Facilities to Give Birth or Abort Pregnancy in Russia." Abstract MOPE0363. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Kasenga, F., P. Byass, M. Emmelin and A. Hurtig. 2009. "The Implications of Policy Changes on the Uptake of a PMTCT Programme in Rural Malawi: First Three Years of Experience." *Global Health Action* 23 (2): doi: 10.3402/gha.v2i0.1883.
- Kasente, Deborah. 2003. "Gender and Education in Uganda." Background paper prepared for the Education for All Global Monitoring Report 2003/04 *Gender and Education for All: The Leap to Equality*. UNESCO. <http://unesdoc.unesco.org/images/0014/001467/146790e.pdf>.
- Kasi, H. 2008. "SMS Project: A Small Effort Increased HIV/AIDS Awareness for Thousands of People in Quetta, Pakistan." Abstract WEPO0396. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Kasonka, L., M. Makasa, T. Marshall, M. Chisenga, M. Sinkala, C. Chintu, C. Kaseba, F. Kasolo, R. Gitau, A. Tomkins, S. Murray and S. Fiteau. 2006. "Risk Factors for Subclinical Mastitis among HIV-infected and Uninfected Women in Lusaka, Zambia." *Pediatric and Perinatal Epidemiology* 20: 379-391.
- Kasprzyk, D., S. Cassels, D. Montano, M. Morris and A. Greek. 2008. "Partner Concurrency and Implications for Behavior Change Strategy in Zimbabwe." Abstract TUACo405. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Kassu, A, A Mekonnen, A Bekele, N Abseno, E Melese, F Moges, Y Wondmikun and F Ota. 2004. "HIV and Syphilis infection among elderly people in Northwest Ethiopia." *Jpn J Infect Dis* 57: 264-267.
- Kathewera-Banda, M., F. Gomile-Chidyaonga, S. Hendriks, T. Kachika, Z. Mitole and S. White. 2006. "Sexual Violence and Women's Vulnerability to HIV Transmission in Malawi: A Rights Issue." *International Social Science Journal* 57 (186): 649-660. doi: 10.1111/j.1468-2451.2005.00582.x
- Katz, I. and D. Low-Beer. 2008. "Why Has HIV Stabilized in South Africa, Yet Not Declined Further? Age and Sexual Behavior Patters Among Youth." *Sexually Transmitted Diseases* 35(10): 837-842.
- Kaufman, C., S. Clark, N. Manzini and J. May. 2002. "How Community Structures of Time and Opportunity Shape Adolescent Sexual Behavior in South Africa." The Population Council No. 159. New York, NY: The Population Council.
- Kawichai, S., S. Chariyalersak, K. Srithanaviboonchai, S. Visrutaratana, B. Genberg, K. Panchreon, M. Wichajarn, C. Chariyalertsak and D. Celentano. 2008. "HIV/AIDS Community Mobilization (CM) and Mobile HIV Voluntary Counseling and Testing (MVCT) Utilization in Rural Thailand." Abstract WEACo105. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Kawichai, S., D. Celentano, S. Chariyalersak, S. Visrutaratana, O. Short, C. Ruangyuttikarn, C. Chariyalertsak, B. Genberg and C. Beyrer. 2007. "Community-based Voluntary Counseling and Testing Services in Rural Communities of Chiang Mai Province, Northern Thailand." *AIDS Behavior* 11: 770-777.
- Kebaabetswe, P. 2007. "Barriers to participation in the prevention of mother-to-child HIV transmission program in Gabarone, Botswana a qualitative approach." *AIDS Care* 19 (3): 355-360.

- Kebede D., A. Alem, G. Mitike, F. Enquesselassie, F. Berhane, Y. Abebe, R. Ayele, W. Lemma, T. Assefa, T. Gebremichael. 2005. "Khat and Alcohol Use and Risky Sex Behavior among In-school and Out-of-school Youth in Ethiopia." *BMC Public Health* 5: 109.
- Keiffer, M., M. Mahdi, A. Waligo, C. Chouraya and B. Nhabatsi. 2008. "High Levels of Seroconversion among Pregnant Women in Swaziland." Abstract MOPE0508. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Keiser, O., A. Gayet-Ageron, C. Rudin, M. Brinkhof, E. Gremlich, D. Wunder, G. Drack, B. Hirschel, B. Martinez de Tejada, the Swiss HIV Cohort Study (SHCS) and the Swiss Mother & Child HIV Cohort Study (MoCHiV). 2008. "Antiretroviral Treatment During Pregnancy." *AIDS* 22: 2323–2330.
- Kella, K. and J. Cohen. 2007. *Ensuring Justice for Vulnerable Communities in Kenya: A Review of HIV and AIDS-related Legal Services*. New York: Open Society Institute. www.soros.org.
- Kelvin, E., J. Mantell, J. Smit, T. Exner, M. Beksinskha, Z. Mabude, S. Hoffman, Z. Stein and H. Rees. 2008. "Is the Perception of Being at Risk for HIV Due to a Woman's Risk Behavior or her Lack of Control over Implementing Protective Behavior?" Abstract TUPE0683. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kendall, T. and H. Perez-Vazquez. 2008. "Mexican Women Living with HIV Defend their Reproductive Rights." Abstract TUPE0912. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kennedy, C., K. O'Reilly, A. Medley, M. Sweat. 2007. "The Impact of HIV Treatment on Risk Behaviour in Developing Countries: A Systematic Review." *AIDS Care* 19(6): 707–20.
- Kere, S., J. Some, O. Ky-Zerbo and F. Simaga. 2008. "Appropriation of HIV/AIDS Prevention by Community Based Organizations in Burkina Faso: PAMAC HIV Counseling and Testing Sub-program Example." Abstract TUPE0427. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kerr, R., L. Dakishoni, L. Shumba, R. Msachi and M. Chirwa. 2008. "We Grandmothers Know Plenty': Breastfeeding, Complementary Feeding and the Multifaceted Role of Grandmothers in Malawi." *Social Science and Medicine* 66: 1095–1105.
- Kerrigan, D., L. Moreno, S. Rosario, B. Gomez, H. Jerez, C. Barrington, E. Weiss, and M. Sweat. 2006. "Environmental-structural Interventions to Reduce HIV/STI Risk among Female Sex Workers in the Dominican Republic." *American Journal of Public Health* 96(1): 120–125.
- Kerrigan, D., L. Moreno, S. Rosario, B. Gomez, H. Jerez, E. Weiss, J. van Dam, E. Roca, C. Barrington and M. Sweat. 2004. *Combining Community Approaches and Government Policy to Prevent IV Infection in the Dominican Republic*. Washington, DC: Horizons/The Population Council.
- Kershaw, T., M. Small, G. Joseph, M. Theodore, R. Bateau and R. Frederic. 2006. "The Influence of Power on HIV Risk among Pregnant Women in Rural Haiti." *AIDS and Behavior* 10 (3): 309–318.
- Kesho-Bora Study Group. 2009. "Triple-Antiretroviral Prophylaxis during Pregnancy and Breastfeeding Compared to Short-ARV Prophylaxis to Prevent Mother-to-Child Transmission of HIV-1: The Kesho Bora Randomized Controlled Clinical Trial in Five Sites in Burkina Faso, Kenya and South Africa." Abstract WeLBPcO1. 5<sup>th</sup> International AIDS Society Conference on HIV Pathogenesis, Treatment and Prevention. Cape Town, South Africa.
- Kershaw, T., M. Small, G. Joseph, M. Theodore, R. Bateau and R. Frederic. 2006. "The Influence of Power on HIV Risk among Pregnant Women in Rural Haiti." *AIDS and Behavior* 10 (3): 309–318.
- Khale, M., G. Kularni, N. Kapadia-Kundu, R. Bollinger, A. Dyalchand and G. Sinha. 2008. "Gender-specific Participation in HIV Prevention Services Program Impacts HIV Testing Awareness and Utilization in Rural

- Maharashtra, India." Abstract THPE0280. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Khan, M., P. Patnaik, L. Brown, N. Nagot, S. Salouka and S. Weir. 2008. "Mobility and HIV-related Sexual Behavior in Burkina Faso." *AIDS Behavior* 12: 202–212.
- Khan, M., T. Pillay, J. Moodley, A. Ramjee and N. Padayatchi. 2007. "Pregnancies Complicated by Mutlidrug-resistant Tuberculosis and HIV Co-infection in Durban, South Africa." *The International Journal of Tuberculosis and Lung Disease* 11(6): 706–708.
- Khan, A., J. Walley, J. Newell and N. Imdad. 2002. "Tuberculosis in Pakistan: Socio-cultural Constraints and Opportunities for Treatment." *Social Science and Medicine* 50: 247–254.
- Khan, S.I., N. Hudson-Rodd, S. Saggars, M.I. Bhuiyan and A. Bhuiya. 2004. "Safer Sex or Pleasurable Sex? Rethinking Condom Use in the AIDS Era." *Sex Health* 1: 217–225.
- Khandekar, S., V. Sharma Mahendraf, R. Verma, A. Singh, P. Palav, M. Sheikh and J. Pulerwitz. 2008. "Changing Inequitable Gender Norms among Young Women in India to Reduce their Vulnerability to HIV and SRH Problems: A Pilot Intervention in Mumbai." Abstract TUPE0681. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kharsany, A., C. Connolly, A. Olowolagba, S. Abdool Karim and Q. Abdool Karim. 2006. "Increasing Burden of Pulmonary Tuberculosis in Young Women." *South African Medical Journal* 96(6): 524–525.
- Khoo, S., D. Back and P. Winstanley. 2005. "The Potential for Interactions between Antimalarial and Antiretroviral Drugs." *AIDS* 19: 995–1005.
- Khumalo-Satukukwa, G., S. Morin, K. Fritz, E. Charlebois, H. van Rooyen, A. Chingono, P. Modiba, K. Mrumbi, S. Visurataratna, B. Singh, M. Sweat, D. Celetano and T. Coates for the NIMH Project Accept Study Team. 2008. "Project Accept (HTPN 043): A Community-based Intervention to Reduce HIV Incidence in Populations at Risk for HIV in Sub-Saharan Africa and Thailand." *J Acquir Immune Defic Syndr* 49 (4): 422–431.
- Khun et al. 2008. "Effects of Early Abrupt Weaning for HIV-free Survival of Children in Zambia." *New England Journal of Medicine* 359 (2): 130–141.
- Kiarie, J., C. Farquhar, B. Richardson, M. Kabura, F. John, R. Nduati and G. John-Stewart. 2006. "Domestic Violence and Prevention of Mother to Child-Transmission of HIV-1." *AIDS* 20: 1763–1769.
- Kiboneka, A., R. Jones, C. Nabiryo, R. Rachlis, C. Cooper and E. Mills. 2008a. "Providing Antiretroviral Therapy to Internally Displaced Persons Residing in Camps. The TASO Gulu Experience." Abstract TUAB0302. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kiboneka, A., R. Jones, C. Nabiryo, R. Rachlis, C., J. Montaner and E. Mills. 2008b. "Providing Antiretroviral Therapy in a Conflict-affected Population: The Impossible Becomes Possible." Abstract TUPE0636. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kidd, R., S. Clay and C. Chiiya. 2007. *Understanding and Challenging HIV Stigma: Toolkit for Action*. Brighton, UK: International HIV/AIDS Alliance, Academy for Educational Development and International Center for Research on Women.
- Kiddugavu, M., F. Makumbi, M. Wawer, D. Serwadda, N. Sewankambo, F. Wabwire-Mangen, T. Lutalo, M. Meehan, Xianbin, R. Gray and Rakai Project Study Group. 2003. "Hormonal Contraceptive Use and HIV-1 Infection in a Population-based Cohort in Rakai, Uganda." *AIDS* 17: 233–240.
- Kidman, R. S. Petrow and J. Heymann. 2007. "Africa's Orphan Crises: Two Community-based Models of Care." *AIDS Care* 19 (3): 326–329.

- Kilewo, C., K. Karlsson, A. Massawe, E. Lyamuya, A. Swai, F. Mhalu and G. Biberfeld for the Mitra Study Team. 2008. "Prevention of Mother-to-Child Transmission of HIV-1 through Breast-Feeding by Treating Infants Prophylactically with Lamivudine in Dar es Salaam, Tanzania: The Mitra Study." *Journal of Acquired Immune Deficiency Syndromes* 48 (3): 315–323.
- Kilewo, C., A. Massawe, E. Lyamuya, I. Semali, F. Kalokola, E. Urassa, M. Giattas, F. Temu, K. Karlsson, F. Mhalu and G. Biberfeld. 2001. "HIV counseling and testing of pregnant women in Sub-Saharan Africa: experiences from a study on prevention of mother-to-child HIV-1 transmission in Dar es Salaam, Tanzania." *Journal of Acquired Immune Deficiency Syndromes* 28: 458–462.
- Killam, W., B. Tambatamba, N. Chintu, D. Rouse, E. Stringer, M. Bweupe, Y. Yu and J. Stringer. 2009. "Antiretroviral Therapy in Antenatal Care to Increase Treatment Initiation in HIV-infected Pregnant Women: A Stepped-wedge Evaluation." *AIDS* 23.
- Killian, S., S. Sulliman, N. Fakier and S. Seedat. 2007. "Rape Survivors and the Provision of HIV Post-exposure Prophylaxis." *South African Medical Journal* 97 (8): 585–586.
- Kilonzo, N., S. Theobal, E. Nyamoto, C. Ajema, H. Muchela, J. Kibaru, E. Rogena and M. Taegtmeier. 2009a. "Delivering Post-rape Care Services: Kenya's Experience in Developing Integrated Services." *Bulletin of World Health Organization* 87: 555–559.
- Kilonzo, N., N. Ndung'u, N. Nthamburi, C. Ajema, M. Taegtmeier, S. Theobald and R. Tolhurst. 2009b. "Sexual Violence Legislation in Sub-Saharan Africa: The Need for Strengthened Medico-Legal Linkages." *Reproductive Health Matters* 17 (34): 10–19.
- Kilonzo, N., M. Taegtmeier, C. Molyneux, J. Kibaru, V. Kimonji, S. Theobald. 2008a. "Engendering Health Sector Responses to Sexual Violence and HIV in Kenya: Results of a Qualitative Study." *AIDS Care* 20(2): 188–90.
- Kilonzo, G., K. Curran, A. Gregowski, J. Mbwambo, K. Mrumbi, K. Fritz, L. Abler and M. Sweat. 2008b. "Alcohol Use and HIV Risk Behaviors in Kisarawe, Tanzania." Abstract TUPE0896. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kim, J., I. Askew, L. Muvhango, N. Dwane, T. Abramsky, S. Jan, E. Ntlemo, J. Chege and C. Watts. 2009a. "Comprehensive Care and HIV Prophylaxis after Sexual Assault in Rural South Africa: The Refentse Intervention Study." *BMJ* 338: b515.
- Kim, A., F. Malele, R. Kaiser, N. Mama, T. Kinkela, J. Manstumba, M. Hynes, S. De Jesus, G. Musema, P. Kayember, K. Reed and T. Diaz. 2009b. "HIV Infection among Internally Displaced Women and Women Residing in River Populations along the Congo River, Democratic Republic of Congo." *AIDS Behavior* 13(5): 914–20.
- Kim, J., P. Pronyk, T. Barnett and C. Watts. 2008. "Exploring the Role of Economic Empowerment in HIV Prevention." *AIDS Supplement* 4: S57–S71.
- Kim, J., L. Mokwena, E. Ntelmo, N. Dwane, A. Noholoza, T. Abramsky, E. Marinda, I. Askew, J. Chege, S. Mullick, L. Gertholtz, L. Vetten and A. Meerkotter. 2007a. "Developing an Integrated Model for Post-Rape Care and HIV Post-Exposure Prophylaxis in Rural South Africa." Washington, DC: Population Council, Rural AIDS & Development Action Research Programme, School of Public Health, University of Witwatersrand, South Africa and Tshwaranang legal Advocacy Centre, South Africa. . www.popcouncil.org.
- Kim, J., C. Watts, J. Hargreaves, L. Ndhlovu, G. Phetla, L. Morison, J. Busza, J. Porter and P. Pronyk. 2007b. "Understanding the Impact of a Microfinance-Based Intervention on Women's Empowerment and the Reduction of Intimate Partner Violence in South Africa." *American Journal of Public Health* 97(10): 1794–802.
- Kim, J. and M. Motshei. 2002. "'Women Enjoy Punishment': Attitudes and Experiences of Gender Violence among Primary Health Care Nurses in Rural South Africa." *Social Science and Medicine* 54: 91–102.

- Kim, Y., A. Kols, R. Nyakauru, C. Marangwanda and P. Chibatamoto. 2001. "Promoting Sexual Responsibility among Young People in Zimbabwe." *International Family Planning Perspectives* 27(1): 11-19.
- Kimaiyo, S., K. Wools-Kaloustian, L. Bolt, A. Siika, P. Ayuo, W. Nyandiko, P. Braitstein, J. Sidle, S. Ndege, J. Wachira, H. Campbell, E. Kigotho, M. Kibor, A. Chepemoi, C. Opiyo, J. Sitenei, R. Enterz, W. Tierney and J. Mamlin. 2008. "Effectiveness and Outcomes of Door-to-door HIV Testing in a Rural District in Kenya." Abstract TUPE0389. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Kimou, J., C. Kouakou, and P. Assi. 2008. *A Review of the Socioeconomic Impact of Antiretroviral Therapy on Family Wellbeing*. Boston, MA: Joint Learning Initiative on Children and HIV/AIDS (JLICA).
- Kind, C., C. Rudin and C. Siegrist. 1998. "Prevention of Vertical HIV Transmission: Additive Protective Effect of Elective Cesarean Section and Zidovudine Prophylaxis." *AIDS* 12: 205-210.
- King, R., J. Lifshay, S. Nakayiwa, D. Katuntu, P. Lindkvist and R. Bunnell. 2009. "The Virus Stops with Me: HIV-infected Ugandans' Motivations in Preventing HIV Transmission." *Social Science and Medicine* 68: 749-757.
- King, R., D. Katuntu, J. Lifshay, L. Packel, R. Batamwita, S. Nakayiwa, B. Abang, F. Babibrye, P. Lindkvist, E. Johannson, J. Mermin and R. Bunnell. 2008a. "Process and Outcomes of HIV Serostatus Disclosure to Sexual Partners among People Living with HIV in Uganda." *AIDS Behavior* 12: 232-243.
- King, R., J. Estey, S. Allen et al. 1995. "A Family Planning Intervention to Reduce Vertical Transmission of HIV in Rwanda." *AIDS* 9: S45-S51.
- Kinsman, J., J. Nakyingi, A. Kamali et al. 2001. "Evaluation of a Comprehensive School-based AIDS Education Programme in Rural Masaka, Uganda." *Health Educ Res* 16 (1): 85-100.
- Kintu, N., A. Kekitiinwa, S. Mccurdy, M. Kline and P. Beasley. 2008. "Effect of Caretaker Status on the Health Status of HIV Positive Children Attending Pediatric Infectious Disease Clinic, in Mulago Hospital, Kampala, Uganda." Abstract WEPE0589. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Kapinga, S., E. Lyamuya, G. Lwihula et al., 1998. "The Incidence of HIV Infection among Women Using Family Planning Methods in Dar-es-Salaam, Tanzania." *AIDS* 12: 75-84.
- Kiptoo, M., H. Ichimura, R. Wembe, Z. Ng'Ang'a, J. Mueke, J. Kinyua, N. Lagat, F. Okoth and E. Songok. 2008. "Prevalence of Nevirapine-Associated Resistance Mutations after Single Dose Prophylactic Treatment among Antenatal Clinic Attendees in North Rift, Kenya." *AIDS Research and Human Retroviruses* 24 (12): 1555-1559.
- Kirby, D. 2009. Email to Jill Gay, Nov. 4 with sex disaggregated data from the studies included.
- Kirby, D., B. Laris and L. Roller. 2007a. "Sex and HIV Education Programs: Their Impact on Sexual Behaviors of Young People throughout the World." *Journal of Adolescent Health* 40: 206-217.
- Kirby, D., B.A. Laris, L. Roller, 2007b. *Sex and HIV Education Programs for Youth: Their Impact and Important Characteristics*. Research Triangle Park, NC: Family Health International.
- Kirby, D. 2007c. *Emerging Answers 2007: Research Findings on Programs to Reduce Teen Pregnancy and Sexually Transmitted Diseases*. Washington, DC: The National Campaign to Prevent Teen and Unplanned Pregnancy.
- Kirby, D., A. Obasi and B. Laris. 2006. "The Effectiveness of Sex Education and HIV Education Interventions in Schools in Developing Countries." Edited by D. Ross, B. Dick and J. Ferguson. 2006. *Preventing HIV/AIDS in Young People: A Systematic Review of the Evidence from Developing Countries*. Geneva, Switzerland: UNAIDS Inter-agency Task Team on Young People.

- Kirby D, B.A. Laris and Lori Roller. 2005. "Impact of Sex and HIV Education Programs on Sexual Behaviors of Youth in Developing Countries and Developed Countries." *Youth Research Working Paper No. 2*. Research Triangle Park, NC: Family Health International.
- Kirby D. 2001. *Emerging Answers: Research Findings on Programmes to Reduce Teen Pregnancy*. Washington DC: National Campaign to Prevent Teen Pregnancy.
- Kirungi, W., E. Madraa, N. Namuwenge, E. Namagala, F. Lule and A. Alisalad. 2008a. "Correlates of Adherence to Antiretroviral Therapy across Multiple Programmes in Uganda." Abstract THPE0112. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kirungi, W., N. Namuwenge, E. Maadraa, E. Namagala, F. Lule, and A. Alisalad. 2008b. "Sexual Behaviour of HIV-infected Individuals Attending ART Programmes in Uganda." Abstract WEPE0047. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kishamawe, C., D. Vissers, M. Urassa, R. Isingo, G. Mwaludo, G. Borsboom, H. Voeten, B. Zaba, D. Habbema and S. de Vlas. 2006. "Mobility and HIV in Tanzania Couples: Both Mobile Persons and their Partners Show Increased Risk." *AIDS* 20: 601–608.
- Kitahata, M., S. Gange, A. Abraham, B. Merriman, M. Saag, A. Justice, R. Hogg, S. Deeks, J. Eron, J. Brooks, S. Rourke, J. Gill, R. Bosch, J. Martin, M. Klein, L. Jacobson, B. Rodriguez, T. Sterling, G. Kirk, S. Napravnik, A. Rachlis, L. Calzavara, M. Horberg, M. Silverberg, K. Gebo, J. Goedert, C. Benson, A. Collier, S. Van Rompaey, H. Crane, R. McKaig, B. Lau, A. Freeman and R. Moore for the NA-ACCORD Investigators. 2009. "Effect of Early versus Deferred Antiretroviral Therapy for HIV on Survival." *The New England Journal of Medicine* 360: 1–12.
- Kitchener, H., L. Nelson, J. Adams, D. Meshier, P. Sasieni, H. Cubie, C. Moore, I. Heard, A. Agarossi, E. Casolati, L. Denny, C. Bradbeer, F. Lyons, G. Beattie and T. Niemec. 2007. "Colposcopy is Not Necessary to Assess the Risk to the Cervix in HIV-Positive Women: An International Cohort Study of Cervical Pathology in HIV-1 Positive Women." *International Journal of Cancer* 121: 2484–2491.
- Kitzo, D., P. Woodburn, B. Kesande, C. Ameke, J. Nabulime, M. Muwanga, H. Grosskurth and A. Elliot. 2008. "Uptake of HIV and Syphilis Testing of Pregnant Women and Their Male Partners in a Programme for Prevention of Mother-to-Child HIV Transmission in Uganda." *Tropical Medicine and International Health* 13 (5): 680–682.
- Kivihya-Ndugga, L., M. van Cleeff, L. Ng'ang'a, H. Meme, J. Odhiambo and P. Klaster. 2005. "Sex-specific Performance of Routine TB Diagnostic Tests." *The International Journal of Tuberculosis and Lung Disease* 9(3): 294–300.
- Klausner, J. 2009. "Frequency of Syphilis Testing in HIV-infected Patients: More and More Often." *Sexually Transmitted Diseases* 36 (2): 86–87.
- Kloos, H., Y. Assefa, A. Adugna, M. Mulatu and D. Mariam. 2007. "Utilization of Antiretroviral Treatment in Ethiopia between February and December 2006: Spatial, Temporal, and Demographic patterns." *International Journal of Health Geographics* 6(45):
- Klotz, S., H. Nguyen, T. Pham, L. Nguyen, D. Ngo and S. Vu. 2007. "Clinical Features of HIV/AIDS Patients Presenting to an Inner City Clinic in Ho Chi Minh City, Vietnam." *International Journal of STD & AIDS* 18: 482–485.
- Knauth, D., R. Barbosa and K. Hopkins. 2003. "Between Personal Wishes and Medical 'Prescription': Mode of Delivery and Post-partum Sterilization among Women with HIV in Brazil." *Reproductive Health Matters* 11(22): 113–121.

- Knerr, W., McEachran, J. and Philpott, A. 2009. *Promoting Sexual Health and Rights through Pleasure: A Literature Review*. Oxford/Delhi: Taking Action for Sexual Health.
- Knox, A., N. Cuvvury and N. Milici. 2007. "Connecting Rights to Reality: A Progressive Framework of Core Legal Protections for Women's Property Rights." Washington, DC: International Center for Research on Women.
- Kobayashi, J. 2001. "Psychiatric Issues," in *A Guide to the Clinical Care of Women with HIV*, edited by J. Anderson. Rockville, MD: US Department of Health and Human Services. Web site: [www.hab.hrsa.gov/](http://www.hab.hrsa.gov/).
- Koenig, M., I. Zablotska, T. Lutalo, F. Nalugoda, J. Wagman and R. Gray. 2004. "Coerced First Intercourse and Reproductive Health among Adolescent Women in Rakai, Uganda." *International Family Planning Perspectives* 30 (4): 156-164.
- Koenig, M., T. Lutalo, F. Zhao, F. Nalugoda, F. Wabwire-Mangen, N. Kiwanuka, J. Wagman, D. Serwadda, M. Wawer and R. Gray. 2003. "Domestic Violence in Rural Uganda: Evidence From a Community-based Study." *Bulletin of the World Health Organization* 81(1): 53-60.
- Komrower, J., K. Nyalali, C. Kishamanwe, B. Andrew, L. Medard, M. Kimaryo, J. Changanlucha, and A. Obasi. 2008. "Is the Education System in Tanzania Able to Deliver an Adolescent Sexual and Reproductive Health Programme? The Experience from MEMA kwa Vijana." Abstract TUPE0482. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Koren, S., N. Dolzhanskaya and N. Khodakevich. 2008. "Comparative Description and Analysis of the Basic Characteristics of a 'Typical' Patient with a Double Diagnosis of HIV and Drug Addiction at Infectious Disease Centres and Drug Addiction Treatment Centres." Abstract MOPE0649. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Korenromp, E., C. Van Vliet, H. Grosskurth, A. Gavyole, C. Van der Ploeg, L. Fransen, R. Hayes and J. Habbema. 2000. "Model-based Evaluation of Single-round Mass Treatment of Sexually Transmitted Diseases for HIV Control in a Rural African Population." *AIDS* 14(5): 573-593.
- Kottlilil, S. 2010. Email to Jill Gay. January 1.
- Kottlilil, S. 2009. Meeting with Jill Gay.
- Kottlilil, S., J. Jackson and M. Polis. 2005. "Hepatitis B & Hepatitis C in HIV-infection." *Indian J Med Res* 121: 424-450.
- Krishnan, S., M. Dunbar, A. Minnis, C. Medlin, C. Gerdtz and N. Padian. 2008. "Poverty, Gender Inequities, and Women's Risk of Human Immunodeficiency Virus/AIDS." *Annals of the New York Academy of Sciences* 1136: 101-110.
- Kroll, C. 2009. Presentation for UNAIDS session on "HIV, Human Rights and People Who Inject Drugs." Nov. 12. Washington, DC. Mr. Kroll is the UNODC Global Coordinator on HIV/AIDS.
- Krupitsky, E., E. Zvartau, D. Masalov, M. Tsoy, A. Burakov, V. Egorava, T. Didkenko, T. Romanova, E. Ivanova, A. Bespalov, E. Veritskaya, N. Nexnanov, A. Grinenko, C. O'Brien and G. Woody. 2006. "Naltrexone with or without Fluoxetine for Preventing Relapse to Heroing Addiction in St. Petersburg, Russia." *Journal of Substance Abuse Treatment* 31: 319-328.
- Kuhn, L., M. Sinkala, K. Semrau, C. Kankasa, P. Kasonde, M. Mwiya, C.-C. Hu, W.-T. Tasi, D. Thea and G. Aldrovandi. 2010. "Elevations in Mortality Associated with Weaning Persist into the Second Year of Life among Uninfected Children Born to HIV-infected Mothers." *Clinical Infectious Diseases* 50: 437-444.
- Kuhn, L., C. Reitz and E. Abrams. 2009a. "Breastfeeding and AIDS in the Developing World." *Curr Opin Pediatr* 21: 83-93.

- Kuhn, L, K. Semrau, S. Ramachandran, M. Sinkala, N. Scott, P. Kasonde, M. Mwiya, C. Kankasa, D. Decker, D. Thea and G. Aldrovandi. 2009b. "Mortality and Virological Outcomes after Access to Antiretroviral Therapy among a Cohort of HIV-infected Women Who Received Single-Dose Nevirapine in Lusaka, Zambia." *J Acquir Immune Defic Syndr* 52 (1): 132–136.
- Kuhn, L., G. Aldrovandi, M. Sinkala, C. Kankasa, K. Semrau, P. Kasonde, M. Mwiya, W. Tsai and D. Thea for the Zambia Exclusive Breastfeeding Study. 2009c. "Differential Effects of Early Weaning for HIV-Free Survival of Children Born to HIV-Infected Mothers by Severity of Maternal Disease." *PLoS ONE* 4 (6): e6059.
- Kuhn, L., G. Aldrovandi, M. Sinkala, C. Kankasa, K. Semrau, M. Mwiya, P. Kasonde, N. Scott, C. Vwalika, J. Walter, M. Bulterys, W. Tsai and D. Thea for the Zambia Exclusive Breastfeeding Study. 2008. "Effects of Early, Abrupt Weaning on HIV-free Survival of Children in Zambia." *New England Journal of Medicine* 359(2): 130–141.
- Kuhn, L., M. Sinkala, C. Kankasa, K. Semrau, P. Kasonde, N. Scott, M. Mwiya, C. Vwalika, J. Walter, W. Tsai, G. Aldrovandi and D. Thea. 2007. "High Uptake of Exclusive Breastfeeding and Reduced Post-Natal HIV Transmission." *Public Library of Science* 12: e1363.
- Kuhn, L., P. Kasonde, M. Sinkala, C. Kankasa, K. Semrau, C. Vwalika, W.Y. Tsai, G.M. Aldrovandi, D.M. Thea. 2005. "Prolonged Breast-feeding and Mortality up to Two Years Post-partum among HIV-positive Women in Zambia." *AIDS* 19(15): 1677–81.
- Kuile, F., M. Parise, F. Verhoeff, V. Udhayakumar, R. Newman, A. Van Eijk, S. Rogerson, and R. Steketee. 2004. "The Burden of Co-infection with Human Immunodeficiency Virus Type and Malaria in Pregnancy Women in Sub-Saharan Africa." *American Journal of Tropical Medicine and Hygiene* 71(2): 41–54.
- Kumakech, E., E. Cantro-Graae, S. Maling, and F. Bajunirwe. 2009. "Peer-group Support Intervention Improves the Psychosocial Well-being of AIDS Orphans: Cluster Randomized Trial." *Social Science & Medicine* 68: 1038–1043.
- Kumar, S., H. Virk, A. Chaudhuri, A. Mittal and G. Lewis. 2008. "A Rapid Situation and Response Assessment of the Female Regular Sex Partners of Male Drug Users in South Asia: Factors Associated with Condom Use during the Last Sexual Intercourse." *International Journal of Drug Policy* 19: 148–158.
- Kumar, S. 2008. "Feminisation of HIV/AIDS in India." Abstract TUPE0709. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Kumwenda, N.I., Hoover, D.R., Mofenson, L.M., Thigpen, M.C., Kafulafula, G., Li, Q., Mipando, L., Nkanaunena, K., Mebrahtu, T., Bulterys, M., Fowler, M.G. and T.E. Taha. 2008. Extended Antiretroviral Prophylaxis to Reduce Breast-Milk HIV-1 Transmission. *The New England Journal of Medicine* 359(2): 119–129.
- Kunz, A., M. Frank, K. Mugenyi, R. Kabasinguzi, A. Weidenhammer, M. Kurowski, C. Kloft and G. Harms. 2009. "Persistence of Nevirapine in Breast Milk and Plasma of Mothers and their Children after Single-Dose Administration." *Journal of Antimicrobial Chemotherapy* 63: 170–177.
- Kupta, R., T. Kassaye, E. Saathoff, E. Hertzmark, G. Msamanga and W. Fawzi. 2009. "Predictors of Stillbirth among HIV-infected Tanzanian Women." *Acta Obstetrica et Gynecologica Scandinavica* 88 (5): 584–592.
- Kwalombota, M. 2002. "The Effect of Pregnancy in HIV-infected Women." *AIDS Care* 14(3): 431–433.
- Kyomuhendo, S. and J. Kiwanuka. 2007. "Access to Care, Treatment and Sexual and Reproductive Health Rights and Needs of HIV Positive Women in Masindi and Busia Districts, Uganda." Report for ICW. Kampala, Uganda: ICW. www.icw.org.
- Laga, M., B. Schwartlander, E. Pisani, P. Sow and M. Carael. 2001. "To Stem HIV in Africa, Prevent Transmission to Young Women." *AIDS* 15: 931–934.

- Laga, M., M. Alary, N. Nzila, A. Manoka, M. Tuliza, F. Behets, J. Goeman, M. St. Louis and P. Piot. 1994. "Condom Promotion, Sexually Transmitted Diseases Treatment and Declining Incidence of HIV-1 Infection in Female Zairian Sex Workers." *Lancet* 344: 246–248.
- Laher, F., C. Todd, M. Stibich, R. Phofa, X. Behane, L. Mohapi and G. Gray. 2009a. "A Qualitative Assessment of Decisions Affecting Contraceptive Utilization and Fertility Intentions among HIV-Positive Women in Soweto, South Africa." *AIDS Behavior* 13: S47–S54.
- Laher, F., C. Todd, M. Stibich, R. Phofa, X. Bahane, L. Mohapi and G. Gray. 2009b. "Role of Menstruation in Contraceptive Choice among HIV-positive Women in Soweto, South Africa." Abstract. International Conference on Family Planning. Muyonyo, Uganda. November 15–18. www.fpcconference.org.
- Laher, F. C. Todd, M. Stibich, R. Phofa, X. Behane, D. Mokhele and G. Gray. 2008. "Qualitative Assessment of Contraceptive Preferences among HIV-infected Women in an Urban African Setting, Soweto, South Africa." Abstract TUPE0221. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Lakkappa, M., b. Ramesh, S. Moses, B. Gilligan, R. Rao, A. Kumar Das, P. Shetty, M. Biddappa, P. Sharma and H. Usharani. 2008. "Building Self-esteem of Female Sex Workers (FSWs) and Moving to Collective Action: Experiences from Karnataka, South India." Abstract WEPE0461. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Lakritz, E., T. Ruebush, J. Zuckler, J. Adungosi, J. Were and C. Campbell. 1993. "Blood Transfusion Practices and Blood-banking Services in a Kenyan Hospital." *AIDS* 7: 995–999.
- Lallemant, M., G. Jourdain, N. Ngo-Giang-Huong, S. Le Coeur, T. Jarupanich, T. Sukhumanant, J. Achalapong, N. Chotivanich, J. Hemvuttiaphan, S. Kanshana and Program for HIV Prevention and Treatment. 2009. "Efficacy and Safety of a 1-Month Post-partum Zidovudine and Didanosine to Prevent HIV-1 Nevirapine Resistance Mutations following Intrapartum Single-dose Nevirapine." Abstract 95bLB. Sixteenth Conference on Retroviruses and Opportunistic Infections. Montreal, Canada.
- Lallemant, M., G. Jourdain, S. LeCoeur, J.Y. Mary, N. Ngo-Giang-Huong, S. Koetsawang, S. Kanshana, K. McIntosh, V. Thaineua. 2004. "Single-Dose Perinatal Nevirapine plus Standard Zidovudine to Prevent Mother-to-Child Transmission of HIV-1 in Thailand." *The New England Journal of Medicine* 351: 217–228.
- Lalor, K. 2008. "Child Sexual Abuse and HIV Transmission in Sub-Saharan Africa." *Child Abuse Review* 17: 94–107.
- Lan, Y. and Y. Chen. 2008. "Evaluation of the Harm-reduction Program in Taiwan." Abstract THAC0205. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Landman, K., J. Osterman, J. crump, A. Mgonja, M. Mayhood, D. Itemba, A. Tribble, E. Ndosi, H. Chu, J. Shao, J. Bartlett and N. Thielman. 2008. "Gender Differences in the Risk of HIV Infection among Persons Reporting Abstinence, Monogamy, and Multiple Sexual Partners in Northern Tanzania." *PLoS One* 3 (8): e3075. www.plosone.org.
- Lane, K., B. Wools-Kaloustian, B. Otieno Nyunya, P. Akhaabi, S. Bucher-Yiannoutsos, R. Einterz, J. Mamlin and W. Nyandiko. 2008. "Outcomes of a Focused Prevention of Mother to Child Transmission of HIV (pMTCT) Program Using Combination Antiretroviral Therapy (cART) Safe Water, Infant Formula and Community Based Follow-Up in Western Kenya." Abstract MOPE0514. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Larney, S. and K. Dolan. 2009. "A Literature Review of International Implementation of Opioid Substitution Treatment in Prisons: Equivalence of Care?" *European Addiction Research* 15: 107–112.
- Lary, H., S. Maman, M. Katebalila and J. Mbwambo. 2004. "Exploring the Association between HIV and Violence: Young People's Experiences with Infidelity, Violence and Forced Sex in Dar es Salaam, Tanzania." *International Family Planning Perspectives* 30 (4): 200–206.

- Lau, J., R. Wang, H. Chen, J. Gu, J. Zhang, F. Cheng, Y. Zhang, L. Zhang, H. Tsui, N. Wang, Z. Lei, X. Zhong and Y. Lan. 2007a. "Evaluation of the Overall Effectiveness of HIV-related Intervention Programs in a Community in Sichuan, China." *Sexually Transmitted Disease* 34 (9): 653–662.
- Lau, J., J. Zhang, L. Zhang, N. Wang, F. Cheng, Y. Zhang, J. Gu, H. Tsui and Y. Lan. 2007b. "Comparing Prevalence of Condom Use among 15,379 Female Sex Workers Injecting or Not Injecting Drugs in China." *Sexually Transmitted Diseases* 34 (11): 908–916.
- Laureillard, D., N. Prak, M. Fernandez, C. Ngeth, V. Riel, V. Chheang, S. Song, C. Quillet and P. Pikkerty. 2008. "Efavirenz Replacement by Immediate Full-dose Nevirapine Is Safe in HIV-1-infected Patients in Cambodia." *HIV Medicine* 9: 514–518.
- Lavreys, L., J. Baeten, J. Kreiss, B. Richardson, B. Chohan, W. Hassan, D. Panteleeff, K. Mandaliya, J. Ndinya-Achola and J. Overbaugh. 2004. "Injectable Contraceptive Use and Genital Ulcer Disease during the Early Phase of HIV-1 Infection Increase Plasma Virus Load in Women." *The Journal of Infectious Diseases* 189: 303–311.
- Lawday, A. 2002. *HIV and Conflict: A Double Emergency; "Without War, We Could Fight AIDS."* Save the Children: London, UK.
- Lawn, D., A. Harries, X. Anglaret, L. Myer, and R. Wood. 2008. "Early Mortality among Adults Accessing Antiretroviral Treatment Programmes in Sub-Saharan Africa." *AIDS* 22: 1897–1908.
- Lawn, S., L. Gail-Bekker, K. Middelkoop, L. Myer and R. Wood. 2006. "Impact of HIV infection on the Epidemiology of Tuberculosis in a Peri-urban Community in South Africa: the Need for Age-specific Interventions." *Clinical Infectious Diseases* 42: 1040–1047.
- Lawn, S., M. Badri and R. Wood. 2005. "Tuberculosis among HIV-infected Patients receiving HAART: Long Term Incidence and Risk Factors in a South African Cohort." *AIDS* 19: 2109–2116.
- Lawson, L., J. Lawson, I. Olajide, N. Emenyonu, C. Bello, O. Olatunji, P. Davies, and TD. Thacher. 2008. "Sex Differences in the Clinical Presentation of Urban Nigerian Patients with Pulmonary Tuberculosis." *West African Journal of Medicine*. 27(2): 82–6.
- Lazcano Ponce, E., N. Sloan, B. Winikoff, A. Langer, C. Coggins, A. Heimbürger, C. Conde-Glez and J. Salmeron. 2000. "The Power of Information and Choice in a Family Planning Setting in Mexico." *Sexually Transmitted Infections* 76: 277–281.
- Le, S., A. Williams, B. Jane, C. Qu, H. Duong, N. Medland, D. Colby and H. Libman. 2008. "Developing a TOT Network for a Continuing Nursing Education Program in Vietnam." Abstract WEPE0998. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Lebon, A., R. Bland, N. Rollins, A. Coutoudis, H. Coovadia and M. Newell. 2007. "CD4 Counts of HIV-Infected Pregnant Women and their Infected Infants—Implications for PMTCT and Treatment Programmes." *Tropical Medicine and International Health* 12(12): 1472–1474.
- Leclerc, P., N. Dubois-Colas and M. Garenne. 2008. "Hormonal Contraception and HIV Prevalence in Four African Countries." *Contraception* 77: 371–376.
- Lee, K., W. Cheung, V. Kwong, W. Wan and S. Lee. 2005. "Access to Appropriate Information on HIV is Important in Maximizing the Acceptance of the Antenatal HIV Antibody Test." *AIDS Care* 17(2): 141–52.
- Legal Assistance Center AIDS Law Unit and University of Wyoming College of Law. 2008. "Struggle to Survive: A Report on HIV/AIDS and Prisoners' Rights in Namibia."
- Leiter, K., V. Suwanvanichkij, I. Tamm, V. Iacopino and C. Beyrer. 2006. "Human Rights Abuses and Vulnerability to HIV/AIDS: The Experiences of Burmese Women in Thailand." *Health and Human Rights* 9 (2): 88–111.

- Leonard, L., I. Ndiaye, A. Kapadia, G. Eisen, O. Diop, S. Mboup and P. Kanki. 2000. "HIV Prevention among Male Clients of Female Sex workers in Kaolack, Senegal: Results of a Peer Education Program." *AIDS Education and Prevention* 12(1): 21–37.
- Lerebours, G. 2007. "Evaluacion a la Calidad de la Atencion de Salud Reproductiva." *Boletin Informativo del Consejo Nacional de Poblacion y Familia*, Ano 3, Numero 9. Santo Domingo, Dominican Republic. <http://conapofa.gov.do/>.
- Lester, R., A. Kanni, S. Karanja, G. Gakii, S. Njunguna, R. Njuguna, E. Silapei, J. Kamene, J. Kusimba, W. Jack, J. Kimani, T. Ball, P. Ritvo, E. Ngugi, F. Plummer and L. Gelmon. 2008. "Patient's Cell Phones for ART Program Adherence: A Multisite Randomized Controlled Trial (RCT) Underway in Kenya." Abstract MOPE0149. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Levack, A. and M. Greene. 2010. *Relational Gender Strategies: Working with Men and Women to Improve Sexual and Reproductive Health and Achieve Gender Equality*. Washington, DC: IGWG.
- Levandowski, B., A. Pettifor, H. Kohler, S. Ennett, S. Marshall, M. Cohen, and F. Behets. 2008a. "HIV Prevention Behaviors Reported by Rural Youth in South Africa and Malawi: Untangling the Association with HIV Infection." Abstract MOPE0306. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Levandowski, B., S. Marshall, H. Kohler, A. Pettifor and F. Behets. 2008b. "Concurrency and STI/HIV Infection among Rural Malawian Female Youth." Abstract MOPE0364. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Levy, J. 2009. "Women's Expectations of Treatment and Care after an Antenatal Diagnosis in Lilongwe, Malawi." *Reproductive Health Matters* 17 (33): 152–161.
- Lewis, S. and P. Donovan. 2009. "Preface." Pp. iv–v. In ITPC. "Missing the Target: Failing Women, Failing Children: HIV, Vertical Transmission and Women's Health." International Treatment Preparedness Coalition. [www.itpcglobal.org](http://www.itpcglobal.org).
- Li, L., Z. Wu, S. Wu, S. Lee, M. Rotheram-Borus, R. Detels, M. Jia and S. Sun. 2007. "Mandatory HIV Testing in China: The Perception of Health Care Providers." *International Journal of STD and AIDS* 18: 476–481.
- Li, L., Z. Wu, L. Liang and S. Wu. 2008. "HIV Stigma Reduction Intervention in Health Care in China." Abstract MOAX0605. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Li, X., B. Wang, X. Fang, R. Zhao, B. Stanton, Y. Hong, B. Dong, W. Liu, Y. Zhou, S. Liang, H. Yang H. 2006. "Short-term Effect of a Cultural Adaptation of Voluntary Counseling and Testing among Female Sex Workers in China: A Quasi-experimental Trial." *AIDS Education and Prevention* 18(5): 406–19.
- Liambila, W., I. Askew, J. Mwangi, R. Ayisi, J. Kibaru and S. Mullick. 2009. "Feasibility and Effectiveness of Integrating Provider-Initiated Testing and Counseling within Family Planning Services in Kenya." *AIDS* 23 (Supplement 1): S115–S121.
- Lingappa, J., J. Baeten, A. Wald, J. Hughes, K. Thomas, A. Mujugira, N. Mugo, E. Bukusi, C. Cohen, E. Katabira, A. Ronald, J. Kiarie, C. Farquhar, G. John-Stewart, J. Makhema, M. Essex, E. Were, K. Fife, G. deBruyn, G. Gray, J. McIntyre, R. Manongi, S. Kapiga, D. Coetzee, S. Allen, M. Inambao, K. Kayitenkore, E. Karita, W. Kanweka, S. Delany-Moretlwe, H. Rees, B. Vwalika, A. Magaret, R. Wang, L. Kidoguchi, L. Barnes, R. Ridzon, L. Corey and C. Celum. 2009. "Daily Acyclovir Delays in HIV-1 Disease Progression Among HIV-1/HSV-2 Dually-Infected Persons: A Randomized Trial." Abstract WELBC102. 5th International AIDS Society Conference on HIV Pathogenesis, Treatment and Prevention. Capetown, South Africa.
- Liu, H., O. Grusky, Y. Zhu and X. Li. 2006. "Do Drug Users in China Who Frequently Receive Detoxification Treatment Change their Risky Drug Use Practices and Sexual Behavior?" *Drug and Alcohol Dependence* 84: 114–121.

- Lockman, S., M. Ghebremichael, R. Shapiro, A. Ogwu, J. Makema, W. Fawzi, N. Rifai, C. Wester, I. Thior and M. Essex. 2009. "The Effect of Breast Feeding vs Formula Feeding on Maternal HIV Disease Progression, Mortality, and Micronutrient Levels in a 1200-person Randomized Trial in Botswana." Abstract 176. 16<sup>th</sup> Conference on Retrovirus and Opportunistic Infections.
- Lockman, S. 2008. "Prevention of Mother-to-Child Transmission, Drug Resistance, and Implications for Response to Therapy." *Current Opinion in HIV and AIDS* 3: 166–172.
- Lockman, S., R. Shapiro, L. Smeaton, C. Wester, I. Thior, L. Stevens, F. Chand, J. Makhema, C. Moffat, A. Asmelash, P. Ndase, P. Arimi, E. van Widenfelt, L. Mazhani, V. Novitsky, S. Lagakos and M. Essex. 2007. "Response to Antiretroviral Therapy after a Single, Peripartum Dose of Nevirapine." *New England Journal of Medicine* 356(2): 135–147.
- London, L., P. Orner and L. Myer. 2008. "Even if You are Positive, You Still Have Rights Because You Are a Person': Human Rights and the Reproductive Choice of HIV-positive Persons." *Developing World Bioethics* 8 (1): 11–22.
- Long, N., E. Joannson, V. Diwan and A. Winkvist. 1999. "Different Tuberculosis in Men and Women: Beliefs from Focus Groups in Vietnam." *Social Science and Medicine* 49(6): 815–822.
- Longfield, K., A. Glick, M. Waithaka and J. Berman. 2004. "Relationships Between Older Men and Younger Women: Implications for STIs/HIV in Kenya." *Studies in Family Planning* 35(2): 125–134.
- Lopez-Gatell, H., A. Cole, N. Hessel, A. French, R. Greenblatt, S. Landesman, S. Preston-Martin and K. Anastos. 2007. "Effect of Tuberculosis on the Survival of Women Infected with Human Immunodeficiency Virus." *American Journal of Epidemiology* 165: 1134–1142.
- Louis, J., M. Landon, R. Gersnoviez, K. Leveno, C. Spong, D. Rouse, A. Moawad, M. Varner, S. Caritis, M. Harper, R. Wapner, M. Miodovnik, M. Carpenter, A. Peaceman, M. O'Sullivan, B. Sibai, O. Langer, J. Thorp, S. Ramin and B. Mercer for the National Institute of Child Health and Human Development (NICHD) Maternal-Fetal Medicine Unites (MFMU) Network. 2007. "Perioperative Morbidity and Mortality among Human Immunodeficiency Virus-Infected Women Undergoing Cesarean Delivery." *Obstetrics and Gynecology* 110(2): 385–390.
- Lowe, D. 2002. *Perceptions of the Cambodian 100% Condom Use Program: Documenting the Experiences of Sex Workers*. Draft Report for the POLICY Project. Washington, DC: POLICY Project.
- Lowicki-Zucca, M., P. Spiegel, S. Kelly, K. Dehne, N. Walker and P. Ghys. 2008. "Estimates of HIV Burden in Emergencies." *Sex Transm Infect* 84 (Supplement 1): i42–i48.
- Lugada, E., S. Jaffar, J. Levin, B. Abang, J. Mermin, G. Namara, H. Grosskurth, E. Mugalanzi, S. Gupta and R. Bunnell. 2009. "Comparison of Home-and Clinic-based HIV Counseling and Testing among Household Members of Persons Taking ART: Uganda." 16<sup>th</sup> Conference on Retrovirus and Opportunistic Infections. Montreal, Canada.
- Lui, H., O. Grusky, X. Li and E. Ma. 2006. "Drug Users: A Potentially Important Bridge Population in the Transmission of Sexually Transmitted Diseases, Including AIDS, in China." *Sexually Transmitted Diseases* 33 (2): 111–117.
- Lukas, T. 2008. *Reducing Adolescent Girls' Vulnerability to HIV Infection: Examining Microfinance and Sustainable Livelihood Approaches, a Literature and Program Review*. Washington, D.C.: USAID Health Policy Initiative.
- Luke, N., S. Schuler, B. Mai, P. Thien, and T. Minh. 2007. "Exploring Couple Attributes and Attitudes and Marital Violence in Vietnam." *Violence against Women* 13 (1): 5–27.

- Luke, N. and K. Kurz. 2002. *Cross-generational and Transactional Sexual Relations in Sub-Saharan Africa: Prevalence of Behavior and Implications for Negotiating Safer Sexual Practices*. ICRW and AIDSMARK: Washington, DC.
- Lukoda, N. and J. Gibson. 2008. "Increasing Coverage of PMTCT+ Services in a Resource-limited Setting in Uganda." Abstract MOPE0501. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Luo, C., P. Akwara, N. Ngongo, P. Doughty, R. Gass, R. Ekpini, S. Crowley, C. Hayashi. 2007. "Global Progress in PMTCT and Paediatric HIV Care and Treatment in Low- and Middle-Income Countries in 2004–2005." *Reproductive Health Matters* 15(30): 179–189.
- Luo, Y. and G. He. 2008. "Pregnant Women's Awareness and Knowledge of Mother-to-child Transmission of HIV in South Central China." *Acta Obstetrica et Gynecologica Scandinavica* 87 (8): 831–836.
- Luppi, C., J. Eluf-Neto, E. Sabino, V. Buccheri, C. Barreto and A. Ungaro. 2001. "Late Diagnosis of HIV Infection in Women Seeking Counseling and Testing Services in Sao Paulo, Brazil." *AIDS Patient Care and STDs* 15 (7): 391–397.
- Luseno, W. and W. Wechsberg. 2009. "Correlates of HIV Testing among South African Women with High Sexual and Substance-use Risk Behaviours." *AIDS Care* 21 (2): 178–184.
- Lutimba Mutei, B., B. Namala and J. Katumba. 2008. "Does RCT Reduce the Duration from HIV Infection to Diagnosis in Makindye Division?" Abstract TUPE0425. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Luvreys, L. and J. Baeten. 2009. "Hormonal Contraception and HIV-1 Infectivity: An Overview." Abstract. International Conference on Family Planning. Muyonyo, Uganda. November 15–18. [www.fpconference.org](http://www.fpconference.org).
- Lyttleton, C., A. Beesey and M. Sithiriengkrai. 2007. "Expanding Community through ARV Provision in Thailand." *AIDS Care* 19 (1): 44–53.
- Maarschalk, S., A. Meyer-Weitz, L. Werner, J. Frolich, H. Humphries, P. Alsi and Q. Abdool-Karim. 2008. "Prevalence of Sexually Transmitted Infections (STI) in HIV-infected Patients on Anti-retroviral Treatment in Rural South Africa." Abstract MOPE0372. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Mabumba, E., P. Mugenyi, V. Batwala, E. Mulogo, J. Mirembe, F. Khan and J. Lilejstrand. 2007. "Widow Inheritance and HIV/AIDS in Rural Uganda." *Tropical Doctor* 37: 229–231.
- MacCarthy, S., F. Laher, M. Nduma, L. Farlane and A. Kaida. 2009. "Responding to Her Question: A Review of the Influence of Pregnancy on HIV Disease Progression in the Context of Expanded Access to HAART in sub-Saharan Africa." *AIDS Behavior* 13: S66–S71.
- MacDonald, S., S. Pillay, D. Cornman, W. Fisher, S. Christie, G. Mahlase, P. Shuper, S. Kene, M. Kistnasamy, L. Sheperd, A. Adelaja, G. Griedland, U. Lallo and J. Fisher. 2008. "Factors Contributing to High-Risk Sexual Behavior among HIV Positive Adults Enrolled on the National ARV Program in KwaZulu-Natal (KZN), South Africa." Abstract WEPE0291. International AIDS Conference. Mexico City, Mexico. August 3–8.
- MacDorman, M., E. Declercq, F. Menacker, and M. Malloy. 2006. "Infant and Neonatal Mortality for Primary Cesarean and Vaginal Births to Women with 'No Indicated Risk' United States, 1998–2001 Birth Cohorts." *Birth*. 33 (3): 175–82.
- Machel, J. 2001. "Unsafe Sexual Behavior among Schoolgirls in Mozambique: A Matter of Gender and Class." *Reproductive Health Matters* 9 (17): 48–56.
- Mackenzie, C., K. Kiragu, G. Odingo, R. Yassin, P. Shikuku, P. Angala, N. Kilonzo, W. Sinkele and M. Aikinyi. 2008. "Is It Feasible to Integrate Alcohol-related Risk Reduction Counseling into VCT Services? Findings from Kenya." *Horizons Final Report*. Washington, DC: Population Council. [www.popcouncil.org](http://www.popcouncil.org).

- MacLachlan, E., S. Neema, F. Ssali, E. Luirika, C. Rwavukwall, M. Jucker, T. Duncan and M. Harvey. 2008. "Social-structural Factors on the Sexual Behaviors of Women in ART Prrograms in Kampala and Masaka, Uganda." Abstract WEPE0049. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- MacPhail, C., A. Pettifor, T. Coates and H. Rees. 2008. "You Must Know the Test to Know Your Status': Attitudes to HIV Voluntary Counseling and Testing for Adolescents among South African Youth and Parents." *Health Education & Behavior* 35: 87-104.
- MacPhail C., A. Pettifor, S. Pascoe and H. Rees. 2007. "Predictors of Dual Method Use for Pregnancy and HIV Prevention among Adolescent South African Women." *Contraception* 75: 383-389.
- MacPhail, C. and C. Campbell. 2001. "I Think Condoms Are Good, but Aai, I Hate Those Things': Condom Use among Adolescents and Young People in a Southern African Township." *Social Science and Medicine* 52: 1613-1627.
- Magalhaes, J., E. Amaral, P. Giraldo, J. Simoes. 2002. "HIV Infection in Women: Impact on Contraception." *Contraception* 66(2): 87-91.
- Maganja, R. K., S. Maman, A. Groves, and J. Mbwambo. 2007. "Skinning the Goat and Pulling the Load: Transactional Sex among Youth in Dar es Salaam, Tanzania." *AIDS Care* 19 (8): 974-981.
- Magezi, S., J. Kikafunda and R. Whitehead. 2008. "Feeding and Nutritional Characteristics of Infants on PMTCT Programs." *Journal of Tropical Pediatrics* 55 (1): 32-35.
- Magige, H., N. Manaku, J. Schueller and C. Ricardo. 2008. "Transforming Gender Relations to Promote Youth HIV Prevention in Tanzania." Abstract TUPE0701. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Magoni, M., L. Bassani, P. Okong, P. Kituuka, E.P. Germinario, M. Giuliano, S. Vella. 2005. "Mode of Infant Feeding and HIV Infection in Children in a Program for Prevention of Mother-to-child Transmission in Uganda." *AIDS* 19 (4): 433-7.
- Magnano San Lio, M., S. Mancinelli, L. Palombi, E. Buonomo, A. Doros Altan, P. German, N. Magid and M. Marazzi. 2009. "The DREAM Model's Effectiveness in Health Promotion of AIDS Patients in Africa." *Health Promotion International* 24 (1): 6-15.
- Mah, T. 2008. "Frequency and Correlates of Concurrent Sexual Partnerships in Khayelitsha, South Africa." Abstract TUPE0787. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Mahajan, A., J. Sayles, V. Patel, R. Remien, S. Sawires, D. Ortiz, G. Szekeres and T. Coates. 2008. "Stigma in the HIV/AIDS Epidemic: A Review of the Literature and Recommendations for the Way Forward." *AIDS Supplement* 2: S67-S79.
- Maharaj, P. and J. Cleland. 2004. "Condom Use Within Marital and Cohabiting Partnerships in KwaZulu-Natal, South Africa." *Studies in Family Planning* 35: 116-124.
- Maharaj, P. and J. Cleland. 2006. "Condoms Become the Norm in the Sexual Culture of College Students in Durban, South Africa." *Reproductive Health Matters* 14(28): 104-112.
- Mahay, M., M. Warner-Smith, K. Stanecki and P. Ghys. 2009. "Measuring the Impact of the Global Response to the AIDS Epidemic: Challenges and Future Directions." *J Acquir Immune Defic Syndr* 52 (Supplement 2): S152-S159.
- Mahdi, M., C. Chouraya, M. Kieffer, A. Waligo and F. Shabalala. 2008. "ART Services in MCH Settings: The Swaziland Experience." Abstract MOPE0158. XVII International AIDS Conference. Mexico, City, Mexico. August 3-8.

- Mahendra, V., R. Verma, S. Singh, S. Kappor, M. Prakasamma, S. Talwar, A. Srikrishan and M. Collumbien. 2008. "Vulnerability to HIV/STI among MSM and Transgender Populations in India—Implications for AIDS Prevention Research." Abstract WEPE0751. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Mahendra, V., L. Gilborn, B. George, L. Samson, R. Mudoi, S. Jaday, I. Gupta, S. Bharat and C. Daly. 2006. "Reducing AIDS-related Stigma and Discrimination in Indian Hospitals." *Horizons Final Report*. New Delhi: Population Council.
- Maher, L., H. Coupland and R. Musson. 2007. "Scaling Up HIV Treatment, Care and Support for Injecting Drug Users in Vietnam." *International Journal of Drug Policy* 18 : 296–305.
- Makombe, S., E. Libamba, E. Mhango, O. de Ascurra Teck, J. Aberle-Grasse, M. Hochgesang, E. Souten and A. Harries. 2006. "Who Is Accessing Antiretroviral Therapy during National Scale-up in Malawi?" *Transactions of the Royal Society of Tropical Medicine and Hygiene* 100: 975–979.
- Makwiza, I., L. Nyirenda, G. Bongololo, T. Banda, R. Chimzizi and S. Theobald. 2009. "Who Has Access to Counseling and Testing and Anti-retroviral Therapy in Malawi—An Equity Analysis." *International Journal for Equity in Health* 8: 13.
- Makwiza, I., E. Shouten, J. Arberle-Grasse, B. Hedt, B. Simwaka and T. Banda. 2008. "Equity Assessment and Treatment Outcomes in Accessing Antiretroviral Therapy in Malawi." Abstract TUAD0101. International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Malamba, S., J. Mermin, R. Bunnell, J. Mubangizi, J. Kalule, E. Marum, D. Hu, S. Wangalwa, D. Smith and R. Downing. 2005. "Couples at Risk: HIV-1 Concordance and Discordance among Sexual Partners Receiving Voluntary Counseling and Testing in Uganda." *J Acquir Immune Defic Syndr* 39 (5): 576–580.
- Malinowska-Sempruch, K. 2002. "Women: The Next Wave in the HIV Epidemic." *Harm Reduction News* Vol. 2, Issue 1. [http://www.soros.org/initiatives/health/focus/ihrd/articles\\_publications/articles/unaid\\_20020709](http://www.soros.org/initiatives/health/focus/ihrd/articles_publications/articles/unaid_20020709).
- Malta, M. C. Todd, M. Stibich, T. Garcia, D. Pacheco and F. Bastos. 2009. "Factors Influencing Contraceptive Choice and Discontinuation among HIV-positive Women in Rio de Janeiro, Brazil." Abstract. International Conference on Family Planning. Muyonyo, Uganda. November 15–18. [www.fpconference.org](http://www.fpconference.org)
- Malungo, J. 2001. "Sexual Cleansing (Kusalaya) and Levirate Marriage (Kunjilila mung'anda) in the Era of AIDS: Changes in Perception and Practices in Zambia." *Social Science and Medicine* 53: 371–382.
- Maman, S., S. Wyckoff, N. Siriak, P. Modiba, A. Chirwodza, J. Ntogoewisangu, O. Murima, K. Fritz and T. Lane. 2008a. "High Levels of Awareness and Knowledge of ART among Rural and Urban Communities in Thailand, South Africa, Zimbabwe and Tanzania." Abstract MOPE0662. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Maman, S., A. Groves, E. Smith, N. Makhayna, M. Pakkies, S. Mosmi and D. Moodley. 2008b. "Redefining Male Involvement in Prevention of Mother to Child Transmission (PMTCT) from Female Partner's Perspectives." Abstract THAC0405. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Maman, S., A. Groves, E. King, M. Pierce and S. Wyckoff. 2008c. "HIV Testing during Pregnancy: A Literature and Policy Review." NY: Open Society Institute.
- Maman, S., J. Mbwambo, N. Hogan, G. Kilonzo and M. Sweat. 2001a. "Women's Barriers to HIV-1 Testing and Disclosure: Challenges for HIV-1 Voluntary Counseling and Testing." *AIDS Care* 13(5): 595–603.
- Maman, S., J. Mbwambo, N. Hogan, G. Kilonzo, M. Sweat and E. Weiss. 2001b. "HIV and Partner Violence: Implications for HIV Voluntary Counseling and Testing Programs in Dar es Salaam, Tanzania." Washington, DC: Population Council.

- Maman, S., J. Campbell, M. Sweat and A. Gielen. 2000. "The Intersections of HIV and Violence: Directions for Future Research and Interventions." *Social Science and Medicine* 50(4): 459–478.
- Manchester, J. 2004. "Hope, Involvement and Vision: Reflections on Positive Women's Activision around HIV." *Transformations: Critical perspectives on Southern Africa* 54: 85–103. University of KwaZulu-Natal, South Africa. Website: www.transformation.und.ac.za.
- Mandala, J., K. Torpey, P. Kasonde, M. Kabaso, R. Dirks, C. Suzuki, C. Thompson, G. Sangiwa and Y. Mukadi. 2009. "Prevention of Mother-to-child Transmission of HIV in Zambia: Implementing Efficacious ARV Regimens in Primary Health Centers." *BMC Public Health* 9: 314.
- Mane, P., J. Bruce, J. Helzner and S. Clark. 2001. "Power in Sexual Relationships: An Opening Dialogue among Reproductive Health Professionals." New York: The Population Council.
- Manfrin-Ledet, L. and D. Porche. 2003. "The State of Science: Violence and HIV Infection in Women." *Journal of the Association of Nurses in AIDS Care* 14 (6): 56–68.
- Manji, A., R. Peña and R. Dubrow. 2007. "Sex, Condoms, Gender roles, and HIV Transmission Knowledge among Adolescents in León, Nicaragua: Implications for HIV Prevention." *AIDS Care: Psychological and Socio-Medical Aspects of AIDS/HIV* 19(8): 989–995
- Mann, J. 1999. "Human Rights and AIDS: The Future of the Pandemic." Pp. 216–228 in *Health and Human Rights: A Reader*, edited by J. Mann, S. Gruskin, M. Grodin, and G. Annas. New York, NY: Routledge.
- Mantell, J., Z. Stein and I. Susser. 2008a. "Women in the Time of AIDS: Barriers, Bargains and Benefits." *AIDS Education and Prevention* 20 (2): 91–106.
- Mantell, J., D. Cooper, J. Moodley, C. Morroni, L. Myer, T. Exner, T. Taylor, V. Zweigenthal, S. Hoffman, K. Cloete, K. Jennings, and Z. Stein. 2008b. "Toward Improved Reproductive Health Choices and Health Care Delivery for HIV-infected Men and Women in Developing Countries with Generalised HIV Epidemics." Abstract MOAD0204. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Mantell, J., L. Myer, A. Carballo-Dieiguez, Z. Stein, G. Ramjee, N. Morar and P. Harrison. 2005. "Microbicide Acceptability Research: Current Approaches and Future Directions." *Social Science and Medicine* 60 (20): 319–330.
- Mantell J.E., S. Hoffman, E. Weiss, L. Adeokun, G. Delano, T. Jagha, T.M. Exner, Z.A. Stein, Q.A. Karim, E. Scheepers, K. Atkins, E. Weiss. 2001. "The Acceptability of the Female Condom: Perspectives of Family Planning Providers in New York City, South Africa, and Nigeria." *Journal of Urban Health* 78 (4): 658–68.
- Manosuthi, W., S. Chottanapand, S. Thongyen, A. Chaovavanich and S. Sungkanuparph. 2006. "Survival rate and Risk Factors of Mortality among HIV/tuberculosis Coinfected Patients with and without Antiretroviral Therapy." *Journal of Acquired Immune Deficiency Syndromes* 43: 42–46.
- Marais, D., H. Carrara, G. Ramjee, P. Kay and A. Williamson. 2009. "HIV-1 Seroconversion Promotes Rapid Changes in Cervical Human Papillomavirus (HPV) Prevalence and HPV-16 Antibodies in Female Sex Workers." *Journal of Medical Virology* 81: 203–210.
- Marazzi, M., K. Nielsen-Saines, E. Buonomo, P. Scarcella, P. Germano, N. Majid, I. Zimba, S. Ceffa and L. Palombi. 2009. "Increased Infant Human Immunodeficiency Virus-Type One Free Survival at One Year of Age in Sub-Saharan Africa with Maternal Use of Highly Active Antiretroviral Therapy During Breast-Feeding." *Pediatric Infectious Disease Journal* 28 (6): 483–487.
- Marazzi, D., P. Germano, G. Liotta, G. Guidotti, S. Luoreiro, A. Gomes, M. Blzques, P. Narciso, C. Perno, S. Mancinelli, A. Altan, K. Nielson-Saines and L. Palombi. 2007. "Implementing Anti-retroviral Therapy to

Prevent HIV Mother-to-Child Transmission: A Public Health Approach in Resource-Limited Settings.” *Eur J Pediatr* 166: 1305–1307.

Marcellin, F., C. Abe, S. Loubiere, S. Boyer, J. Blanche, S. Koulla-Shiro, P. Ongolo-Zogo, J.-P. Moatti, B. Spire, M. Carrieri and the EVAL Study Group. 2009. “Delayed First Consultation after Diagnosis of HIV Infection in Cameroon.” *AIDS* 23: 1015–1019.

Marco, M. 2002. “The TB and HIV Coinfection Project: A Critical Analysis of the Global Response to HIV-associated Tuberculosis in Developing Countries.” Abstract Number: TuPeE5415. XIV International AIDS Conference, Barcelona, Spain, July 7–12.

Marin, M., A. Gage and S. Khan. 2004. “Frontiers in Reproductive Health: Tulane University Final Report.” Tulane, LA: Tulane University School of Public Health and Tropical Medicine, USAID.

Mark, K., J. Meinzen-Derr, R. Stephenson, A. Haworth, Y. Ahmed, D. Duncan, A. Westfall and S. Allen. 2007. “Contraception among HIV Concordant and Discordant Couples in Zambia: A Randomized Controlled Trial.” *Journal of Women’s Health* 16: 1200–1210.

Markham, B. 2008. “Women’s Property Rights as a Response to HIV and AIDS—Lessons from Community Interventions in Binga, Zimbabwe.” Abstract WEAX0206. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

Marrazzo, J.M. 2005. “Dangerous Assumptions: Lesbians and Sexual Death.” *Sexually Transmitted Diseases* 32 (9): 570–1.

Marrazzo, J. and C. Celum. 2000. “Syphilis in Women.” Pp. 302–310 in *Women & Health*, edited by M. Goldman and M. Hatch. New York: Academic Press.

Martin, A., Kelly, A., L. Turquet and S. Ross. 2009. “Hate Crimes: The Rise of ‘Corrective’ Rape in South Africa.” London, UK” Action Aid. [www.actionaid.org.uk](http://www.actionaid.org.uk).

Martinez, F. and E. Lopez-Arregui. 2009. “Infection Risk and Intrauterine Devices.” *Acta Obstetrica et Gynecologica Scandinavica* 88: 246–250.

Maru, D., S. Basu and F. Altice. 2007. “HIV Control Efforts Should Directly Address Incarceration.” *The Lancet* 7: 568–569.

Massad, L., E. Seaberg, D. Watts, H. Minkoff, A. Levine, D. Henry, C. Colie, T. Darragh and N. Hessel. 2009. “Long-Term Incidence of Cervical Cancer in Women with Human Immunodeficiency Virus.” *Cancer* 115 (3): 524–530.

Massad, L., C. Evans, G. D’Souza, T. Darragh, H. Minkoff, D. Henry, L. Goparaju, L. Muderspach and D. Watts. 2008. “High-Grade Cervical Disease in Adolescents with HIV.” *Journal of Lower Genital Tract Disease* 12 (3): 199–203.

Massaquoi, M., R. Nalingunkwi, U. Von Pilar, B. Mwagomba, M. Bemelamans, R. Zachariah and A. Harries. 2008a. “Achieving Universal Access to Antiretroviral Therapy in a Rural District in Malawi: How Was it Done?” Abstract TUAB0303. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

Massoquoi, M., P. Gomani, R. Nalikulungwi, M. Bemelamans, R. Zachariah and M. Philips. 2008b. “Task-shifting and Decentralisation of HIV/AIDS Care in a Rural District of Malawi: Some Successes and Lessons Learned from Thyolo District.” Abstract WEAB02. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

Mastro, T., W. Cates and M. Cohen. 2008. “Antiretroviral Products for HIV Prevention: Looking forward toward 2031.” AIDS2031 Working Paper No. 10. <http://www.path.org/publications/details.php?i=1646>.

- Mataka, E. 2007. "Maternal Health and HIV: Bridging the Gap." *Lancet* 370: 1290–1291.
- Mathers, B., L. Degenhardt, B. Phillips, L. Wiessing, M. Hickman, S. Strathdee, A. Wodak, S. Panda, M. Tyndall, A. Toufik, R. Mattick for the 2007 Reference Group to the UN on HIV and Injecting Drug Use. 2008. "Global Epidemiology of Injecting Drug Use and HIV among People Who Inject Drugs: A Systematic Review." *The Lancet* 372: 1733–1745.
- Mathews, L. and J. Mukherjee. 2009. "Strategies for Harm Reduction among HIV-affected Couples Who Want to Conceive." *AIDS Behavior* 13: S5–S11.
- Mathews, J. and T. Harrison. 2006. "Prevention: An Update on Female-Controlled Methods for HIV Prevention: Female Condom, Microbicides and Cervical Barriers." *Southern African Journal of HIV Medicine* (25): 7–8, 10–11.
- Mathur, S., M. Greene and A. Malhotra. 2003. "Too Young To Wed: The Lives, Rights, and Health of Young Married Girls." International Center for Research on Women: Washington, DC.
- Matovu, J., R. Gray, F. Makumbi, M. Wawer, D. Serwadda, G. Kogozi, N. Swankambo and F. Nalugoda. 2005. "Voluntary HIV Counseling and Testing Acceptance, Sexual Risk Behavior and HIV Incidence in Rakai, Uganda." *AIDS* 19: 503–511.
- Mazia, G., I. Narayanan, C. Warren, M. Mahdi, P. Chibuye, A. Walligo, P. Mabuza, R. Shongwe and M. Hainsworth. 2009. "Integrating Quality Postnatal Care into PMTCT in Swaziland." *Global Public Health* 4 (3): 253–270.
- McCarthy, J., M. Leamon, M. Parr and B. Anania. 2005. "High-dose Methadone Maintenance in Pregnancy: Maternal and Neonatal Outcomes." *American Journal of Obstetrics and Gynecology* 193: 606–610.
- McCauley, A. 2004. "Equitable Access to HIV Counseling and Testing for Youth in Developing Countries: A Review of Current Practice." Washington, DC: Population Council and ICRW. Accessed via Popline.
- McClelland, R.S., J.M. Baeten, B.A. Richardson, L. Lavreys, S. Emery, K. Mandaliya, J.O. Ndinya-Achola, J. Overbaugh. 2006. "A Comparison of Genital HIV-1 Shedding and Sexual Risk Behavior among Kenyan Women based on Eligibility for Initiation of HAART according to WHO Guidelines." *Journal of Acquired Immune Deficiency Syndromes* 41(5): 611–5.
- McClelland, S., L. Lavreys, C. Katingima, J. Overbaugh, V. Chohan, K. Mandaliya, J. Ndinya-Achola and J. Baeten. 2005. "Contribution of HIV-1 Infection to Acquisition of Sexually Transmitted Disease: A 10-year Prospective Study." *Journal of Infectious Diseases* 191: 333–338.
- McConnell, M., P. Bakaki, C. Eure, M. Mubiru, D. Bagenda, R. Downing, F. Matovu, M. Thigpen, A. Greenberg and M. Fowler. 2007. "Effectiveness of Repeat Single-Dose Nevirapine for Prevention of Mother-to-Child Transmission of HIV-1 in Repeat Pregnancies in Uganda." *Journal of Acquired Immune Deficiency Syndromes* 46 (3): 291–296.
- McGrath, N., I. Kasamba, S. Gregson, M. Marston, D. Maher, P. Mushati and R. Isingo. 2009. "Older People's Sexual Behaviour and HIV Risk in Four High Prevalence Sub-Saharan African Populations." IUSSP XXVI International Population Conference. Marrakech, Morocco.
- McGrath, N., M. Nyirenda, V. Hosegood and M.-L. Newell. 2009. "Age at First Sex in South Africa." *Sexually Transmitted Infections* 85 (Supplement II): i49–i55.
- McGrath, J., D. Celentano, S. Chard, A. Fullem, M. Kanya, R. Gangakhedar, C. Khamboonruang, N. Joglekar, R. Malhotra-Kohli, A. Kiwanuka and B. Sirirojn. 2007. "A Group-Based Intervention to Increase Condom Use among HIV Serodiscordant Couples in India, Thailand, and Uganda." *AIDS Care* 19 (3): 418–424.

- McIntyre, J. and M. Lallemon. 2008a. "The Prevention of Mother-to-Child Transmission of HIV: Are We Translating Scientific Success into Programmatic Failure?" *Current Opinion in HIV and AIDS* 3 (2): 139–145.
- McIntyre, J. and M. Lallemon. 2008b. "Recent Advances in the Prevention of Mother-to-Child Transmission." *Current Opinion in HIV and AIDS* 3 (2): 136–138.
- McKoy, J., C. Bennett, M. Scheetz, V. Differding, K. Chandler, K. Scarsi, P. Yarnold, S. Sutton, F. Palella, S. Johnson, E. Obadina, D. Raisch and J. Parada. 2009. "Hepatotoxicity Associated with Long-versus Short-Course HIV-Prophylactic Nevirapine Use." *Drug Safety* 32(2): 147–158.
- McManus, A. and L. Dhar. 2008. "Study of Knowledge, Perception and Attitude of Adolescent Girls Towards STIs/HIV, Safer Sex and Sex-Education: A Cross Sectional Survey of Urban Adolescent School Girls in South Delhi, India." *BMC Women's Health* 8: 12.
- Medecins sans Frontières South Africa, the Department of Public Health at the University of Cape Town, and the Provincial Administration of the Western Cape, South Africa. 2003. "Antiretroviral Therapy in Primary Health Care: Experience of the Khayelitsha Programme in South Africa." Geneva, Switzerland: World Health Organization.
- Medley, A., C. Kennedy, K. O'Reilly and M. Sweat. 2009. "Effectiveness of Peer Education Interventions for HIV Prevention in Developing Countries: A Systematic Review and Meta-analysis." *AIDS Education and Prevention* 21 (3): 181–206.
- Medley, A., R. Kawuma and M. Sweat. 2008a. "Women's Experiences with HIV Counseling and Testing under a Provider-initiated System: A Case Study from Uganda." Abstract MOPE0506. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Medley, A., C. Kennedy, K. O'Reilly and M. Sweat. 2008b. "Effectiveness of Peer Education Interventions in Developing Countries: A Meta-analysis." Abstract WEPE0334. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Medley, A., K. Fritz, S. Lunyolo, G. Mugerwa and M. Sweat. 2008c. "Couple Communication about HIV Testing among Antenatal Care Attendees in Uganda: Implications for HIV Sero-status Disclosure." Abstract TUPE06684. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Medley, A., K. Fritz, G. Mugerw and M. Sweat. 2008d. "Ugandan Men's Attitudes towards their Partner's Participation in Antenatal HIV Testing." Abstract TUPE0695. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Meekers, D. and K. Richter. 2005. "Factors associated with Use of the Female Condom in Zimbabwe." *International Family Planning Perspectives* 31(1): 30–7.
- Melaku, Z., G. Tizazu, M. Feleke, A. Melakmu, M. Tafesse, A. Zewde and E. Abrams. 2008. "PIHCT at Immunization Clinic: An Entry Point to HIV Care and Treatment Services at a Referral Hospital in Ethiopia." Abstract MOPE0518. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Melekhin, V., B. Shepherd, S. Stinnette, P. REbeiro, G. Barkanic, S. Raffanti and T. Sterling. 2009. "Antiretroviral Therapy Initiation Before, During or After Pregnancy in HIV-1-infected Women: Maternal Virologic, Immunologic, and Clinical Response." *PLoS One* 4 (9): e6961.
- Melo, J., E. Folgosa, D. Manjate, N. Osman, I. Francois., M. Temmerman, P. Cappuccinelli and M. Colombo. 2008. "Low Prevalence of HIV and Other Sexually Transmitted Infections in Young Women Attending a Youth Counseling Service in Maputo, Mozambique." *Tropical Medicine and International Health* 13 (1): 17–20.
- Mema Kwa Vijana. 2008a. "Long-term Evaluation of the MEMA Kwa Vijana Adolescent Sexual Health Programme in Rural Mwanza, Tanzania." Technical Briefing Paper. [www.memakwavijana.org](http://www.memakwavijana.org).

- Mema Kwa Vijana. 2008b. "Rethinking How to Prevent HIV Infection in Young People: Evidence from Two Large Randomised Controlled Trials in Tanzania and Zimbabwe." [www.memakwavijana.org](http://www.memakwavijana.org).
- Mencaglia, L., P. Falcone, G. Lentini, S. Consigli, M. Pisoni, V. Lofiego, R. Guidetti, P. Pimboni and V. De Leo. 2005. "ICSI for Treatment of Human Immunodeficiency Virus and Hepatitis C Virus-serodiscordant Couples with Infected Male Partner." *Human Reproduction* 20(5): 2242–2246.
- Mendenhall, E., L. Muzizi, R. Stephenson, E. Chomba, Y. Ahmed, A. Haworth, S. Allen. 2007. "Property Grabbing and Will Writing in Lusaka, Zambia: An Examination of Wills of HIV-infected Cohabiting Couples." *AIDS Care* 19(3): 369–74.
- Mercer, A., R. Khanam, E. Gurley and T. Azim. 2007. "Sexual Risk Behavior of Married Men and Women in Bangladesh Associated with Husband's Work Migration and Living Apart." 34 (5): 265–273.
- Merkel, J. 2006. "Advocacy Tool: The Sexual and Reproductive Rights and Health of HIV-positive Women in South Africa, ICW." London, UK: ICW. [www.icw.org](http://www.icw.org).
- Mermin, J., W. Were, J.P. Ekwaru, D. Moore, R. Downing, P. Behumbiize, J.R. Lule, A. Coutinho, J. Tappero, and R. Bunnell. 2008. "Mortality in HIV-infected Ugandan Adults Receiving Antiretroviral Treatment and Survival of their HIV-uninfected Children: A Prospective Cohort Study." *The Lancet* 371(9614): 752–9.
- Mermin, J., J. Ekwaru, C. Liechty, W. Were, R. Downing, R. Ransom, P. Weidle, J. Lule, A. Coutinho and P. Solberg. 2006. "Effect of Co-trimoxazole Prophylaxis, Antiretroviral Therapy, and Insecticide-treated Bednets on the Frequency of Malaria in HIV-1-infected Adults in Uganda: A Prospective Cohort Study." *The Lancet* 367: 1256–1261.
- Merson, M., J. O'Malley, D. Serwadda and C. Apisuk. 2008. "The History and Challenge of HIV Prevention." *The Lancet* 372: 475–488.
- Meshnick, S., V. Mwapasa and S. Rogerson. 2006. "Protecting Pregnant Women from Malaria in Areas of High HIV Infection Prevalence." *The Journal of Infectious Diseases* 194: 273–275.
- Messou, E., E. Balestre, J. Bashi, M. Malga, H. Traore, E. Bisssagnene, C. Kanga-Koffi, A. Minga, K. Peterson, C. Amani-Bosse, P. Sow, F. Ba-Gomis, E. Delaporte, S. Eholie, D. Ekouevi and F. Dabis. 2008. "Time Trends in Demographic and Clinical Characteristics of Adult Patients Starting ART withing IeDEA West Africa Collaboration (1996 to 2006)". Abstract WEPE0067. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Mfundisi, C., N. Chiranjan, C. Rodrigues, L. Kirchner, P. Bock and L. Myer. 2005. "Availability of Antiretroviral Therapy Is Associated with Increased Uptake of HIV Testing Services." *SAMJ* 95 (7): 483–485.
- Michelo, C., I.F. Sandøy, K. Fylkesnes. 2006. "Marked HIV Prevalence Declines in Higher Educated Young People: Evidence from Population-based Surveys (1995–2003) in Zambia." *AIDS* 20 (7): 1031–8.
- Milay, R., H. Lugina and S. Becker. 2008. "Couple Counselling and Testing for HIV at Antenatal Clinics: Views from Men, Women and Counsellors." *AIDS Care* 20 (3): 356–360.
- Miller, C., S. Gruskin, S. Subramanian, D. Rajaraman and J. Heymann. 2006. "Orphan Care in Botswana's Working Households: Growing Responsibilities in the Absence of Adequate Support." *American Journal of Public Health* 96 (8): 1429–1435.
- Mills, E., N. Ford and P. Mugenyi. 2009. "Expanding HIV Care in Africa: Making Men Matter." *The Lancet* 374: 275–276.
- Mills, E., J. Nachega, I. Buchan, J. Orbinski, A. Attaran, S. Singh, B. Rachlis, P. Wu, C. Cooper, L. Thabane, K. Wilson, G. Guyatt and D. Bangsberg. 2006. "Adherence to Antiretroviral Therapy in Sub-Saharan Africa and North America: A Meta-analysis." *JAMA* 296 (6): 679–690.

- Minaya, J., A. Owen-Simth and J. Herold. 2008. "The Impact of Sex Education on HIV Knowledge and Condom Use among Adolescent Females in the Dominican Republic." *Int J Adoles Med Health* 20 (3): 275–282.
- Minkin, M.J. and C.V. Wright. 2005. "Sexually Transmitted Diseases." In *A Women's Guide to Sexual Health*. London: Yale University: 154–193. Cited in: East L, D Jackson, L O'Brien and K Peters. 2007. "Use of the Male Condom by Heterosexual Adolescents and Young People: Literature Review." *Journal of Advanced Nursing* 59(2): 103–110.
- Minkoff, H., L. Xian, D. Watts, R. Leighty, R. Hershow, J. Palefsky, R. Tuomala, N. Neu, C. Zorrilla, M. Paul and H. Strickler. 2006. "Relationship of Pregnancy to Human Papillomavirus among Human Immunodeficiency Virus-Infected Women." *Obstetrics and Gynecology* 108 (4): 953–960.
- Mishra, S., S. Moses, P. Hanumaiah, R. Washington, M. Alary, B. Ramesh, S. Isac and J. Blanchard. 2009. "Sex Work, Syphilis, and Seeking Treatment: An Opportunity for Intervention in HIV Prevention Programming in Karnakata, South India." *Sexually Transmitted Diseases* 36 (3): 157–164.
- Mishra, V. and S. Assche. 2008. "Concurrent Sexual Partnerships and HIV Infection: Evidence from Population-based Surveys with HIV Testing." Abstract MOPE0493, XVII International AIDS Conference, Mexico City, Mexico. August 3–8.
- Misra, G. 2009. "Decriminalising Homosexuality in India." *Reproductive Health Matters* 17 (34): 20–28.
- Mitchell, H. and E. Stephens. 2004. "Contraception and Choice for HIV-positive Women." *Sexually Transmitted Infections* 80(3): 167–173.
- Mitnick, C., J. Bayona, E. Palacios, S. Shin, J. Furin, F. Alcantara, E. Sanchez, M. Sarria, M. Becerra, M Smith Fawzi, S. Kapiga, D. Neuberg, J. Maguire, J. Kim and P. Farmer. 2003. "Community-based Therapy for Multidrug-resistant Tuberculosis in Lima, Peru." *The New England Journal of Medicine* 348: 119–128.
- Mkwanzazi, N., D. Patel, M. Newell, N. Rollins, A. Coutoudis, H. Coovadia and R. Bland. 2008. "Rapid Testing May Not Improve Uptake of HIV Testing and Same Day Results in a Rural South African Community: A Cohort Study of 12,000 Women." *PLoS ONE* 3: e3501.
- Mmbaga, E., G. Leyna, K. Mnyika, A. Hussain and K. Klepp. 2009. "Prevalence and Predictors of Failure to Return for HIV-1 Post-test Counseling in the Era of Antiretroviral Therapy in Rural Kilimanjaro, Tanzania: Challenges and Opportunities." *AIDS Care* 21 (2): 160–167.
- Mmiro, F., J. Aizire, A. Mwatha, S. Eshelman, D. Donnell, M. Fowler, C. nakabiito, P. Musoke, B. Jackson and L. Guay. 2009. "Predictors of Early and Late Mother-to-Child Transmission of HIV in a Breastfeeding Population: HIV Network for Prevention Trials 012 Experience, Kampala, Uganda." *J Acquir Defic Syndr* 52 (1): 32–39.
- Mnyani, C. and J. McIntyre. 2009. "Preventing Mother-to-Child Transmission of HIV." *BJOG* 116 (Supplement 1): 71–76.
- Moatti JP, et al. 2003. "Access to Antiretroviral Therapy and Sexual Behaviors of HIV-Infected Persons Aware of their HIV-Status in Cote d'Ivoire." *AIDS* 17: S69–77.
- Mofenson, L. and B. Laughton. 2007. "Human Immunodeficiency Virus: *Mycobacterium Tuberculosis*, and Pregnancy: A Deadly Combination." 2007. *Clinical Infectious Diseases* 45: 250–253.
- Mohamed, M. 2008. "Youth's Behaviors and Hazard of HIV/AIDS to the Health of People in the Refugee Camps in the Eastern Part of Sri Lanka Due to Conflicts and Tsunami Disaster." Abstract WEPE0687, XVII International AIDS Conference, Mexico City, Mexico. August 3–8.

- Mohd, A. 2008. "Capacity Building of People Living with HIV/AIDS (PLHIV) for Workplace Advocacy—Experiences from India." Abstract MOPE 0123, XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Mola, O., M. Mercer, R. Asghar, K. gimbel-Sherr, S. gimbel-Sherr, M. Micek and S. Gloyd. 2006. "Condom Use after Voluntary Counselling and Testing in Central Mozambique." *Tropical Medicine and International Health* 11 (2): 176–181.
- Molla M, Y Berhane and B Lindtjorn. 2008. "Traditional Values of Virginity and Sexual Behavior in Rural Ethiopian Youth: Results from a Cross-sectional Study." *BMC Public Health* 8 (9): 9–19
- Molla, M., A. Astrom and Y. Brehane. 2007. "Applicability of the Theory of Planned Behavior to Intended and Self-reported Condom Use in a Rural Ethiopian Population." *AIDS Care* 19 (3): 425–431.
- Monteforte, A., A. Cozzi-Lepri, A. Catagna, A. Antinori, A. De Luca, C. Mussini, S. Lo Caputo, M. Arlotti, G. Magnani, G. Pellizzer, F. Maggiolo and M. Puoti for the Icona Foundation Study Group. 2009. "Risk of Developing Specific AIDS-Defining Illnesses in Patients Coinfected with HIV and Hepatitis C Virus with or without Liver Cirrhosis." *Clinical Infectious Diseases* 49: 612–622.
- Montero, L. 2008. "HIV in a Prison Population in Nicaragua." Abstract WEPE0303, XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Moodiar, S., J. Moodley and T. Esterhuizen. 2007. "Complications associated with Caesarean Delivery in a Setting with High HIV Prevalence Rates." *European Journal of Obstetrics & Gynecology* 131: 138–145.
- Moodley, D., T. Esterhuizen, T. Pather, V. Chetty and L. Ngaleka. 2009. "High HIV Incidence during Pregnancy: Compelling Reason for Repeat Testing." *AIDS* 23: 1255–1259.
- Moodley, D., I. Msweli, A. Groves, E. Smith and S. Maman. 2008a. "Missed Opportunities to Prevent Unintended Pregnancy in Durban, South Africa." Abstract TUPE0838, XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Moodley, D., E. Smith, A. Groves and S. Maman. 2008b. "HIV-positive Women Describe their Control over Contraceptive Decision-making in Durban, South Africa" Abstract TUPE0846, XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Moodley, J., M. Hoffman, H. Carrara, B. Allan, D. Cooper, L. Rosenberg, L. Denny, S. Shapiro and A. Williamson. 2006. "HIV and Pre-Neoplastic and Neoplastic Lesions of the Cervix in South Africa: A Case-Control Study." *BMC Cancer* 6: 135.
- Moodley, M. and S. Mould. 2005. "Invasive Cervical Cancer and Human Immunodeficiency Virus (HIV) Infection in KwaZulu-Natal, South Africa." *Journal of Obstetrics and Gynecology* 25 (7): 706–710.
- Moorthy, A., A. Gupta, R. Bhosale, S. Tripathy, J. Sastry, S. Kulkarni, M. Thakar, R. Bharadwaj, A. Kagal, A. Bhore, S. Patil, V. Kulkarni, V. Venkataramani, U. Balasubramaniam, N. Suryavanshi, C. Ziemniak, N. Gupte, R. Bollinger, D. Persaud for the Inida SWEN Team. 2009. "Nevirapine Resistance and Breast-Milk HIV Transmission: Effects of Single and Extended-Dose Nevirapine Prophylaxis in Subtype C HIV-Infected Infants." *Public Library of Science* 4(1): e4096.
- Moreno V., F.X. Bosch, N. Muñoz, C. Meijer, K. Shah, J. Walboomers, R. Herrero and S. Franceschi. 2002. "Effect of Oral Contraceptives on Risk of Cervical Cancer in Women with Human Papillomavirus Infection: the IARC Multicentric Case-control study." *Lancet* 359: 1085–1092.
- Morrison, C., A. Turner and L. Jones. 2009. "Highly Effective Contraception and Acquisition of HIV and Other Sexually Transmitted Infections." *Best Practice & Research Clinical Obstetrics and Gynaecology* 23: 263–284.

- Morrison, C. 2009. "Hormonal Contraception and HIV Acquisition." Abstract. International Conference on Family Planning. Muyonyo, Uganda. November 15–18. [www.fpconference.org](http://www.fpconference.org)
- Morrison, C., J. Wang, B. Van Der Pol, N. Padian, R. Salata and B. Richardson. 2007. "Pregnancy and the Risk of HIV-1 Acquisition Among Women in Uganda and Zimbabwe." *AIDS* 21(8): 1027–1034.
- Morrison, C. and W. Cates. 2007. "Preventing Unintended Pregnancy and HIV Transmission: Dual Protection or Dual Dilemma?" *Sexually Transmitted Diseases* 34 (11): 873–875.
- Moses, A., C. Zimba, E. Kamanga, J. Nkhoma, A. Maida, F. Martinson, I. Mofolo, G. Joaki, J. Muita, A. Spensley, I. Hoffman, C.M. van der Horst; UNC Project Call to Action Program. 2008. "Prevention of mother-to-child transmission: program changes and the effect on uptake of the HIVNET 012 regimen in Malawi." *AIDS* 22(1): 83–7.
- Moyer, E., J. Lugalia, G. Kwesigabo, P. Ndubani and F. Samuels. 2008. "When Free Medicines Are Not Enough: The Social and Economic Costs of ART Sustainability in Tanzania and Zambia." Abstract MOPE0737. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Moyo, W., B. Levandowski, C. MacPhail, H. Rees and A. Pettitfor. 2008. "Consistent Condom Use in South Africa Youth's Most Recent Sexual Relationships." *AIDS Behavior* 12: 431–440.
- Msamanga, G., T. Taha, A. Young, E. Brown, I. Hoffman, J. Read, V. Mudenda, R. Goldenberg, U. Sharma, M. Sinkala and W. Fawzi. 2009. "Placental Malaria and Mother-to-Child Transmission of Human Immunodeficiency Virus-1." *American Journal of Tropical Medicine and Hygiene* 80 (4): 508–515.
- Msellati, P. 2009. "Improving Mothers' Access to PMTCT Programs in West Africa: A Public Health Perspective." *Social Science and Medicine* 69: 807–812.
- Msellati, P., C. Sakaarovich, L. Bequet, H. Atta, A. Alioum, I. Viho, O. Timothee, V. Leroy, C. Welffens-Ekra, F. Dabis, ANRS Ditrane and Ditrane Plus Studies Group. 2006. "Decrease of Human Immunodeficiency Virus Prevalence in Antenatal Clinics in Abijan, Cote d'Ivoire, 1995–2002." *International Journal of STD & AIDS* 17: 57–60.
- Mthembu, P., A. Ntombela, B. Hull. 2006. "Approaches, tools and lessons learned: building advocacy capacity for HIV-positive women to advocate for their sexual and reproductive health and rights (SRHR) and access to care treatment and support (ACTS) in southern Africa." Abstract no. THPE0945. AIDS 2006—XVI International AIDS Conference. Toronto, Canada.
- Muchini, B., R. Mate, D. Halperin, T. Magure, O. Mugurundi, C. Benedikt, B. Campbell and K. Ampomah. 2008. "HIV Decline in Zimbabwe. Update on Results from Qualitative Research and Historical Mapping of HIV Prevention Programming." Abstract TUPE0330. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Muga, G. and W. Onyango-Ouma. 2009. "Changing Household Composition and Food Security Among the Elderly Caretakers in Rural Western Kenya." *J Cross Cult Gerontol* 10823 (008): 9090–6.
- Muga, R., I. Ferreros, K. Langohr, P. Garcia de Olalla, J. del Romero, M. Quintana, I. Alastrue, J. Belda, J. Tor, S. Perez-Hoyos, J. del Amo and the Spanish Multicenter Study Group of Seroconverters (GEMES). 2007. "Changes in the incidence of tuberculosis in a cohort of HIV-seroconverters before and after the introduction of HAART." *AIDS* 21: 2521–2527.
- Mugisha, V., R. Sahabo, P. Twyman, G. VanDebriel, E. Manzi, F. Ndamaje, D. Hoos, D. Nash for the Internataional Center for AIDS Care and Treatment Programs (ICAP), Rwanda. 2008. "Expanding HIV Care and Treatment to Rwandan Prisons: A Comparison of Early Outcomes to Those of the Rwandan National ART Program." Abstract TUPE0215. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Mugore, L., B. Engelsmann, T. Ngoro, F. Dabis and F. Perez. 2008. "An Assessment of the Understanding of the Offer of Routine HIV Testing among Pregnant Women in Rural Zimbabwe." *AIDS Care* 20 (6): 660–666.
- Mukasa, S. and A. Gathumbi. 2008. *HIV/AIDS, Human Rights, and Legal Services in Uganda: A Country Assessment*. New York: Open Society Initiative. www.soros.org.
- Mukherjee, J., F. Leandre, W. Lambert, C. Gans-Rugerebregt, P. Nevil, A. Yang, M. Seaton, M. Raymonville, P. Farmer and I. Ivers. 2008a. "Excellent Outcomes, High Retention in Treatment, and Low Rate of Switch to Second Line AART in Community based HIV Treatment Program in Haiti." Abstract THPE0119. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Mukherjee, J., P. Farmer, L. Ivers, F. Leandre, W. Lambert, M. Raymonville, J. Furin, K. Joseph, H. Satti and M. Rich. 2008b. "The Intersection of Access and Adherence—Improving Retention in HIV Programs in Resource Poor Settings." Abstract MOPE0146. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Mujawayo, E. and M. Blewitt. 1999. "Sexual Violence Against Women: Experiences from AVEGA's work in Kigali." Paper presented at the Silent Emergency Seminar, London, June.
- Mullick, S., M. Menziwa, N. Mosery, D. Khoza and E. Maroga. 2008. "Feasibility, Acceptability, Effectiveness and Cost of Models of Integrating HIV Prevention and Counseling and Testing for HIV within Family Planning Services in North West Province, South Africa." Washington, DC: Population Council. www.popcouncil.org.
- Mulumba, R., M.L. Field-Nguer, J. Sekgothe, C. Lombard, N. Swebushe, Q. rgers-Bloch and J. Nicholson. 2008. "What Do Expanded HIV Services Leave Behind? Finding and Implications from South Africa's First National Survey on Injection Safety and Health Care Management." Abstract WEPE0240. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Mundy, L., P. Kalluri, K. Meredith, V. Fraser and P. Thompson. 2002. "Women with HIV infection: a model of university-based care, training and research." *AIDS Care* 14(1): S95–107.
- Munene, E. and L. Simiyu. 2008. "Situation and Challenges Facing the Human Resource for Health and its Influence to Health Care Services in Kenya." Abstract MOPE0810. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Mung'ala, L., N. Kilonzo, P. Angala, S. Theobald, M. Taegtmeier. 2006. "Promoting Female Condoms in HIV Voluntary Counselling and Testing Centres in Kenya." *Reproductive Health Matters* 14(28): 99–103.
- Mung'ala, L., N. Kilonzo, P. Angala, and M. Taegtmeier. 2005. "Factors Influencing the Uptake of Female Condoms within Voluntary Counseling and Testing Centres in Kenya." Nairobi, Kenya: Liverpool VCT and Care Kenya.
- Munro, S., S. Lewin, H. Smith, M. Engel, A. Fretheim and J. Volmink. 2007. "Patient Adherence to Tuberculosis Treatment: A Systematic Review of Qualitative Research." *PLOS Medicine* 4(7): e238.
- Mupenda, B. C. Holub, A. Pettifor, M. Kashosi, E. Taylor, S. Duvall, M. Kiyombo, S. Rennie and F. Behets. 2008. "Informing Measures for Positive Prevention: Perceived Stigma, Depression and Social Support among Youth Living with HIV/AIDS in Kinshasa, Democratic Republic of the Congo (DRC)." Abstract THPE0449. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Murray, L., K. Semrau, E. McCurley, D. Thea, N. Scott, M. Mwiya, C. Kankasa, J. Bass and P. Bolton. 2009. "Barriers to Acceptance and Adherence of Antiretroviral Therapy in Urban Zambian Women: A Qualitative Study." *AIDS Care* 21 (1): 78–86.
- Murray, J. 1990. "Cursed Duet: HIV Infection and Tuberculosis." *Respiration* 57: 210–220.

- Musaba, E., C. Morrison, M. Sunkutu, and E. Wong. 1998. "Long-term Use of the Female Condom among Couples at High Risk of Human Immunodeficiency Virus Infection in Zambia." *Sexually Transmitted Diseases* 25: 260–264.
- Mutakin, T. 2008. "The Destiny of Transvestite Sex Workers after HIV/AIDS in Solo, Central Java, Indonesia." Abstract MOPE0617. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Muyisa, B., G. Kambale, D. Baabo, A. Gashinge, A. Talibo, F. Jacquet and S. Zompi. 2008. "HIV Prevention for Youth and Adolescents in Goma (DRC)—Medecins du Monde—France (MDM-F) Holistic Approach." Abstract WEPE0529. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Mwachari, C., T. Chipato, R. Nguti, H. Armando, T. Farley and C. Craig. 2008. "A Prospective Observational Cohort Study on Hormonal Contraceptives and HIV-1 Disease Progression among Women in Kenya and Zimbabwe." Abstract TUPE0222. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Mwanahamuntu, M., V. Sarasrabuddhe, K. Pfaendler, v. Mudenda, M. Hicks, S. Vermund, J. Stringer and G. Parham. 2009. "Implementation of 'See-and-Treat' Cervical Cancer Prevention Services Linked to HIV Care in Zambia." *AIDS* 23: N1–N5.
- Mwapasa, V., J. Kandandira and S. Bennett. 2008. "Impact of Expanded Implementation of HIV Services on non-HIV Interventions in Malawi." Abstract WEPE1044. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Mwapasa, V., S.J. Rogerson, J.J. Kwiek, P.E. Wilson, D. Milner, M.E. Molyneux, D.D. Kamwendo, E. Tadesse, E. Chaluluka, S.R. Meshnick. 2006. "Maternal Syphilis Infection Is Associated with Increased Risk of Mother-to-child Transmission of HIV in Malawi." *AIDS* 20(14): 1869–77.
- Myer, L., R. Carter, M. Katyai, P. Toro, W. El-Sadr and E. Abrams. 2010. "Impact of Antiretroviral Therapy on Incidence of Pregnancy among HIV-infected Women in Sub-Saharan Africa: A Cohort Study." *PLoS Medicine* 7 (2): e1000229. www.plosmedicine.org.
- Myer, L., K. Reber, and C. Morroni. 2007a. "Missed Opportunities to Address Reproductive Health Care Needs among HIV-infected Women in Antiretroviral Therapy Programmes." *Tropical Medicine and International Health* 12 (12): 1484–1489.
- Myer, L., L. Denny, T. Wright and L. Kuhn. 2007b. "Prospective Study of Hormonal Contraception and Women's Risk of HIV Infection in South Africa." *International Journal of Epidemiology* 36: 166–174.
- Myer, L., C. Mathews, F. Little and S. Karim. 2001. "The Fate of Free Male Condoms Distributed to the Public in South Africa." *AIDS* 15 (6): 789–793.
- Nabaggala, R. 2008. "HIV/AIDS among Older Adults of 50 Years and Above: Coping with the Challenges of HIV/AIDS—A Case Study of the Mildmay Centre Uganda." Abstract MOPE0821. XVII International AIDS Conference. Mexico City, Mexico.
- Nabaggala, C., S. Turyahabwe, A. Naturinda and H. Mugisha. 2008. "The Impact of a Community ART Program on ART Service Delivery at the AIDS Support Organization (TASO) in Mbarara, Uganda." Abstract MOPE0743. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Nachega, J., D. Stein, D. Lehman, D. Hlatshwayo, R. Mothopeng, R. Chaisson and A. Karstaedt. 2004. "Adherence to Antiretroviral Therapy in HIV-Infected Adults in Soweto, South Africa." *AIDS Research and Human Retroviruses* 26(10): 1053–1056.
- Nagelkerke, N., S. Moses, S. de Vlas and R. Bailey. 2007. "Modelling the Public Health Impact of Male Circumcision for HIV Prevention in High Prevalence Areas in Africa." *BMC Infectious Diseases* 7 (16).

- Nagot, N., A. Ouédraogo, V. Foulongne, I. Konaté, H.A. Weiss, L. Vergne, M.C. Defer, D. Djagbaré, A. Sanon, J.B. Andonaba, P. Becquart, M. Segondy, R. Vallo, A. Sawadogo, P. Van de Perre, P. Mayaud; ANRS 1285 Study Group. 2007. "Reduction of HIV-1 RNA levels with therapy to suppress herpes simplex virus." *New England Journal of Medicine* 356(8): 790-9.
- Naidoo, S. and C. Jinabhai. 2006. "TB in Health Care Workers in KwaZulu Natal, South Africa." *Int J Tuberc Lung Dis* 10 (6): 676-682.
- Nakayiwa, S., B. Abang, L. Packel, J. Lifshay, D. Purcell, R. King, E. Ezati, J. Mermin, A. Coutinho and R. Bunnell. 2006. "Desire for Children and Pregnancy Risk Behavior among HIV-infected Men and Women in Uganda." *AIDS Behavior* 10: S95-S104.
- Nam, S., K. Fielding, A. Avalos, D. Dickinson, T. Gaolathe and P. Geissler. 2008. "The Relationship of Acceptance or Denial of HIV-status to Antiretroviral Adherence among Adult HIV Patients in Urban Botswana." *Social Science & Medicine* 67: 301-310.
- Naniche, D., M. Lahuerta, A. Bradaji, B. Sigauque, C. Romagosa, A. Berenguera, I. Mandomando, C. David, S. Sanz, J. Aponte, J. Ordi, P. Alonso and C. Menendez. 2008. "Mother-to-child Transmission of HIV-1: Association with Malaria Prevention, Anemia and Placental Malaria." *HIV Medicine* 9: 757-764.
- Napierala, S., M. Kang, T. Chipato, N. Padian and A. van der Straten. 2008. "Female Condom Uptake and Acceptability in Zimbabwe." *AIDS Education and Prevention* 20 (2): 121-134.
- Nath, A. 2009. "HIV/AIDS and Indian Youth—A Review of the Literature (1980-2008)." *Journal of Social Aspects of HIV/AIDS* 6 (1): 2-8.
- National Institute of Allergy and Infectious Diseases, National Institutes of Health. NIAID Web Bulletin, January 21, 2010. "New Study Examines Best Ways to Prevent Mother-to-Child HIV Transmission and Preserve Maternal and Infant Health". Available at: <http://www3.niaid.nih.gov/news/newsreleases/2010/PROMISE.htm>. [3/8/2010].
- Nattabi, B., J. Li, S. Thompson, C. Orach and J. Earnest. 2009. "A Systematic Review of Factors Influencing Fertility Desires and Intentions among People Living with HIV/AIDS: Implications for Policy and Service Delivery." *AIDS Behavior* 13(5): 949-68.
- Navas-Nacher, E., J. Read, R. Leighty, R. Tuomala, C. Zorrilla, S. Landesman, H. Rosenblatt and R. Hershow for the Women and Infants Transmission Study Group. 2006. "Mode of Delivery and Postpartum HIV-1 Disease Progression: The Women and Infants Transmission Study." *AIDS* 20: 429-436.
- Nawavvu, C. et al. 2008. "Urban Home Based HIV Counseling and Testing Can Improve Identification of Infected Household Members of Index Clients in Kampala." Abstract WEAC0104. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Ndlovu, H., M. Gafos and M. Newell. 2008. "Assessment of Sensitivity and Specificity of Syndromic Management of STIs When Compared to Laboratory Diagnosis in HIV Uninfected Women Aged 18 Years and Over, Enrolled in the MDP301 Clinical Trial in the Umkhanyakude District of Northern KwaZulu Natal." Abstract MOPE0269. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Nduna, M. and L. Farlane. 2009. "Women Living with HIV in South Africa and Their Concerns about Fertility." *AIDS Behavior* 13: S62-S65.
- Nebrie, Y., N. Meda, V. Leroy et al. 2001. "Sexual and Reproductive Life of Women Informed of Their Seropositivity: A Prospective Cohort Study in Burkina Faso." *J Acquir Immune Defi Syndr* 28: 367-372.

- Nelson, K., D. Celentano, S. Euimtrakol, D. Hoover, C. Beyrer, S. Suprasert, S. Kuntaolbutra and C. Khamboonruang. 1996. "Changes in Sexual Behavior and a Decline in HIV Infection Among Young Men in Thailand." *New England Journal of Medicine* 335(5): 297–303.
- Nelson, Roxanne. 2007. "Female-initiated Prevention Strategies Key to Tackling HIV." *Lancet Infectious Diseases* 7 (10): 637.
- Neukom, J. and L. Ashford. 2003. "Changing Youth Behavior Through Social Marketing: Program Experiences and Research Findings from Cameroon, Madagascar, and Rwanda." Washington, DC: Population Reference Bureau.
- Newell, M., H. Coovadia, M. Cortina-Borja, P. Galliard and F. Dabis. 2004. "Mortality of Infected and Uninfected Infants Born to HIV-infected Mothers in Africa: A Pooled Analysis." *Lancet* 364: 1236–1243.
- Newman, C., N. Makoae, E. Reavely and L. Fogarty. 2009. "Alleviating the Burden of Responsibility: Report on a Study of Men as Providers of Community-based HIV/AIDS Care and Support in Lesotho." Chapel Hill, NC: The Capacity Project, IntraHealth International, Inc. [www.capacityproject.org](http://www.capacityproject.org).
- Ngede, S. R. Kioko, J. Wachira, S. Kimwattan, J. Kibet, J. Rugut, H. Campbell, S. Kimiayo, J. Mamlin, W. Nyadiko and W. Tierney. 2008. "Increasing Access to HIV Counseling and Testing in Western Kenya: Towards Effective Strategies." Abstract THPE0511. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ngema, S., A. Chowodza, H. van rooyen, L. Makhonza, L. Richer and T. Coates. 2008. "Gendered Constructions of HIV Risk in Rural Swa-Zulu Natal, South Africa." Abstract WEPE0323. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ngo, A., E. Ratiff, S. McCurdy, M. Ross, C. Markham and H. Pham. 2007. "Health-seeking Behavior for Sexually Transmitted Infections and HIV Testing among Female Sex Workers in Vietnam." *AIDS Care* 19 (7): 878–887.
- Ngubane, T., H. van Rooyen, L. Richter, A. Chirowodza, P. Joseph and T. Coates. 2008a. "Innovative Mobilization Strategies for Attracting at Risk Youth and Young Adults to Participate in Community-based Voluntary Counseling and Testing in Rural Kwa-Zulu Natal, South Africa." Abstract MOPE 0425. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ngugi, E., M. Chakkalackal, A. Sharma, E. Bukusi, B. Njoroge, J. Kimani, K. MacDonald, J. Bwayo and C. Cohen. 2007. "Sustained Changes in Sexual Behavior by Female Sex Workers After Completion of a Randomized HIV Prevention Trial." *Journal of Acquired Immune Deficiency Syndrome* 45 (5): 588–594.
- Ngure, K., R. Heffron, N. Mugo, E. Irungu, C. Celum and J. Baeten. 2009. "Successful Increase in Contraceptive Uptake among Kenyan HIV-1-serodiscordant Couples Enrolled in an HIV-1 Prevention Trial." *AIDS* 23 (Supplement 1): S89–S95.
- Nguyen, T., P. Oosterhoff, Y. Ngoc, P. Wright and A. Hardon. 2009. "Self-help Groups Can Improve Utilization of Postnatal Care by HIV-infected Mothers." *Journal of the Association of Nurses in AIDS Care* 20 (2): 141–152.
- Nguyen, T., N. Khuu, A. Ngyuen., L. Truong and R. Detels. 2008a. "High Association between Drug Use and HIV among Female Sex Workers in a Mekong Delta Province of Vietnam." Abstract MOPE0291. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Nguyen, T., C. Vu, V. Phung, T. Chu, H. Le, D. ha, H. Pham and M. Wolfe. 2008b. "Referrals to HIV-testing Services: Coordinating Peer Outreach Programs Sponsored by Different Donors in Vietnam." Abstract MOPE0916. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Nguyen, T., N. Khuu, A. Nguyen, L. Truong and R. Detels. 2008c. "Correlates of Asymptomatic Chlamydial and/or Gonorrhoeal Cervical Infection Among Vietnamese Female Sex Workers." Abstract MOPE0352. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Nguyen, H., H. T. Nyugen, H. Le, T. Nguyen, G. Le, T. Le, H. Pham and M. Wolfe. 2008d. "Improving Access to HIV Care and Treatment among Drug Users and Sex Workers through Peer Outreach Program: Lessons Learned from Ho Chi Minh City, Vietnam." Abstract THPE0545. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Nguyen, T., P. Oosterhoff, A. Hardon, H. Tran, R. Coutino and P. Wright. 2008e. "A Hidden HIV Epidemic among Women in Vietnam." *BMC Public Health* 8: 37.
- Nguyen, T., P. Oosterhoff, Y. Ngoc, P. Wright and A. Hardon. 2008f. "Barriers to Access to Prevention of Mother-to-Child Transmission for HIV Positive Women in a Well-resourced Setting in Vietnam." *AIDS Research and Therapy* 5: 7.
- Nguyen, V. and M. Scannapieco. 2008. "Drug Abuse in Vietnam: A Critical Review of the Literature and Implications for Future Research." *Addiction Review* 103: 535–543.
- Nicastri, E., S. Leone, C. Angeletti, L. Palmisano, L. Sarmati, A. Chiesi, A. Geraci, S. Vella, P. Narciso, A. Corpolongo and M. Andreoni. 2007. "Sex Issues in HIV-1-infected Persons during Highly Active Antiretroviral Therapy: A Systematic Review." *Journal of Antimicrobial Chemotherapy* 60: 724–732.
- Nielsen-Saines, K., M. Melo, I. Varella, R. Fonseca, R. Lira, M. Turella, I. Canti, C. Campello, A. Moreira and B. Santos. 2008. "Primary HIV-1 Infection during Pregnancy: High Rate of HIV-1 MTCT in a Cohort of Patients in Southern Brazil." *Retrovirology* 5 (Supplement 1): OI.
- Nissapatorn, V., I. Kuppusamy, B. Sim, Q. Kia Fatt and A. Khairul Anuar. 2006. "Pulmonary Tuberculosis in a Hospital Setting: Gender Differences." *Journal of the Royal Institute of Public Health* 120: 441–443.
- Niyirenda, L, P. Nkhonjera and B. Simwaka. 2008. "You Must Openly Disclose Your HIV Serostatus or You Won't Benefit from Community Home-based Care Services" : Leaving out the Fearful from Care and Support." Abstract THPE0698. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Noel, F., S. Mehta, Y. Zhu, P. Rouzier, A. Marcelin, J. Shi, C. Nolte, L. Severe, M. Deschamps, D. Fitzgerald, W. Johnson, P. Wright and J. Pape. 2008. "Improving Outcomes in Infants of HIV-infected Women in a Developing Country Setting." *PLoS One* 3 (11): e3723.
- Norman, A., M. Chopra and S. Kadiyala. 2007. "Factors Related to HIV Disclosure in 2 South African Communities." *American Journal of Public Health* 97 (10): 1775–1781.
- Norr, K., B. McElmurray, S. Tlou and M. Moeti. 2004. "Impact of Peer Group Education on HIV Prevention among Women in Botswana." *Health Care for Women International* 25: 210–226.
- Nour, N. 2006. "Health Consequences of Child Marriage in Africa." *Emerging Infectious Diseases* 12 (11): 1644–1649.
- Ntanda, H., P. Olupot-Olupot, P. Mugenyi, C. Kityo, R. Lowes, C. Cooper, V. Lima and E. Mills. 2009. "Orphanhood Predicts Delayed Access to Care in Ugandan Children." *The Pediatric Infectious Disease Journal: Orphans and HIV* 28(2): 153–155.
- Nussenblatt, V., N. Kumwenda, V. Lema, T. Quinn, M. Neville, R. Broadhead, T. Taha and R. Semba. 2006. "Effect of Antibiotic Treatment of Subclinical Mastitis on Human Immunodeficiency Virus Type 1 RNA in Human Milk." *Journal of Tropical Pediatrics* 52(5): 311–315.
- Nuwaha, F., E. Tumwesigye, S. Kasasa, S. Asimwe, G. Wana, M. Achom, D. Kabatesi, S. Malamba, J. Tappero and S. Gupta. 2009. "Population-level Changes of HIV Status, Stigma and HIV Risk Behavior after District-wide Door-to-Door Voluntary Counseling and Testing: Bushenyi District, Uganda." *16<sup>th</sup> Conference on Retroviruses and Opportunistic Infections*. Montreal, Canada.

- Nyamukapa A., S. Gregson, B. Lopman, S. Saito, H. Watts, R. Monasch and M. Jukes. 2008. "HIV-Associated Orphanhood and Children's Psychosocial Distress: Theoretical Framework Tested With Data From Zimbabwe." *American Journal of Health* 98(1): 133-141.
- Nyamukapa, C. and S. Gregson. 2005. "Extended Family's and Women's Role in Safeguarding Orphans' Education in AIDS-Afflicted Rural Zimbabwe." *Social Science & Medicine* 60: 2155-2167.
- Nyandiko, W., S. Ayaya, E. Nabakwe, C. Tenge, J. Sidle, C. Yiannoutsos, B. Musick, K. Wools-Kaloustian and W. Tierney. 2006. "Outcomes of HIV-Infected Orphaned and Non-Orphaned Children on Antiretroviral Therapy in Western Kenya". *J Acquir Immune Defic Syndr* 43 (4): 418-425.
- Nyangara, F., T. Thurman, P. Hutchinson, and W. Obiero. 2009. *Effects of Programs Supporting Orphans and Vulnerable Children: Key Findings, Emerging Issues, and Future Directions from Evaluations of Four Projects in Kenya and Tanzania*. Chapel Hill, NC: MEASURE Evaluation.
- Nyangara, F., W. Obiero, Z. Kalungwa, and T. Thurman. 2009. "Community-Based Psychosocial Intervention for HIV-Affected Children and their Caregivers: Evaluation of The Salvation Army's Mama Mkubwa Program in Tanzania." Chapel Hill, NC: MEASURE Evaluation. SR-09-50.
- Nyanzi-Wakholi, B., A. Lara, C. Watera, P. Munderi, C. Gilks and H. Grosskurth. 2009. "The Role of HIV Testing, Counselling and Treatment in Coping with HIV/AIDS in Uganda: A Qualitative Analysis." *AIDS Care* 21 (7): 903-908.
- Nyanzi, S., R. Pool and J. Kinsman. 2001. "The Negotiation of Sexual Relationships among School Pupils in South-western Uganda." *AIDS Care* 13 (1): 83-98.
- Nyblade, L., A. Stngl, E. Weiss and K. Ashburn. 2009. "Combating HIV Stigma in Health Care Settings: What Works?" *Journal of International AIDS Society* 12: 15.
- Nyblade, L. 2009. "Communities Confront Stigma in Viet Nam." Presentation and powerpoint slide. Washington, DC: International Center for Research on Women. April 30.
- Nyblade, L., K. Hong, N. Anh, J. Ogden, A. Jain, A. Stangl, Z. Douglas, N. Tao and K. Ashbrun. 2008. *Communities Confront HIV Stigma in Viet Nam: Participatory Interventions Reduce HIV-Related Stigma in Two Provinces*. Washington, DC: International Center for Research on Women.
- Nyblade, L., R. Pande, S. Mathur, K. McQuarrie, R. Kidd, H. Banteyerga, A. Kidanu, G. Kilonzo, J. Mwambo and V. Bond. 2003. *Disentangling HIV and AIDS Stigma in Ethiopia, Tanzania, and Zambia*. Washington, DC: International Center for Research on Women.
- Nyiraneza, F., N. Muganinka, J. Mkamusomi and A. Mutesi. 2008. "A Peer-based Model for Counseling HIV-positive Women in the Aftermath of the Rwandan Genocide." Abstract THAX0106. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Nyirenda, L., P. Nkonjera and B. Simwaka. 2008. "'You Must Openly Disclose Your HIV Serostatus or You Won't Benefit from Community Home-based Care Services': Leaving Out the Fearful from Care and Support." Abstract THPE0698. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Nyombi, J., H. Birungi and J. Mugisha. 2008. "Sexual Behavior and Practices among Perintally HIV-infected Adolescents in Uganda: Implications for Programming." Abstract MOAD01. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Nyong'o, D. and O. Ongalo. 2005. *From Despair to Hope: Women's Right to Own and Inherit Property*. Nairobi, Kenya: POLICY Project and Kenya National Commission on Human Rights.
- O'Hare B.A., J. Venables, J.F. Nalubeg, M. Nakakeeto, M. Kibirige, D.P. Southall. 2005. "Home-based Care for Orphaned Children Infected with HIV/AIDS in Uganda." *AIDS Care* 17(4): 443-50.

- Oanh, K., K. Ashburn, J. Pulerwitz, J. Ogden and L. Nyblade. 2008. "Improving Hospital-based Quality of Care in Vietnam by Reducing HIV-related Stigma and Discrimination." New York, NY: Population Council.
- Obermeyer, C.M. and M. Osborn. 2007. "The Utilization of Testing and Counseling for HIV: A Review of the Social and Behavioral Evidence." *American Journal of Public Health* 97(10): 1762-74.
- Ochieng, V., D. Ochieng, J. Sidle, M. Holdsworth, A. Silka, C. Yiannoutsos, W. Nyandiko, M. Owiti, S. Kimaiyo and P. Braisteing. 2008. "Gender and Loss-to-follow-up (LFTU) from a Large HIV Treatment Program in Western Kenya." Abstract TUAB0202. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Odiahl, P. 2008. "The Economic Burden of Illness for Household in Lagos: A Study Focusing on HIV/AIDS and OVC: Home Based Care Experience." Abstract MOPE0709. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Odjo F., A. Azondekon, I. Adeyandju, A. Monzorgui, A. Keitchion, A. Sagui, A. Toudonou, R. Akpoli, S. Ogou, E. Homawoo, J. Sehonou and A. Gnanon 2008. "Management of HIV Children Psychological Conditions in Resource-constraints Settings: What Can Be Gained?" Abstract WEAD0104. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Offe, J. and A. van Roenne. 2007. *German HIV Practice Collection: Involving People Living with HIV: Support to PLWH Organisations in Cameroon*. Eschborn, Germany: GTZ, Federal Ministry for Economic Cooperation and Development.
- Ogden, J., E. Esim and C. Grown. 2006. "Expanding the Care Continuum for HIV/AIDS: Bringing Carers into Focus." *Health Policy and Planning* 25 (1): 333-342.
- Ogden, J., S. Eism and C. Grown. 2004. "Expanding the Care Continuum for HIV/AIDS: Bringing Carers into Focus." *Horizons Report*. Washington, DC: Population Council and International Center for Research on Women.
- Oglethorpe, J. and N. Gelman. 2008. "AIDS, Women, Land and Natural Resources in Africa: Current Challenges." *Gender & Development* 16 (10): 85-100.
- Ohajinwa, C. 2008. "Patterns of Sharp Injuries among Biomedical Waste Handlers in Ibadan, Nigeria." Abstract MOPE0333. XVII International AIDS Conference. Mexico City, Mexico. XVII International AIDS Conference. August 3-8.
- Oja, K. 2008. "Sexual Cleansing, Widow Inheritance and HIV: Multirisk Interventions." Canadian HIV/AIDS Legal Network.
- Ojijutu, B., H. Zheng, R. Walensky, Z. Lu, E. Losinia, J. Giddy and K. Freedberg. 2008. "Predictors of Mortality in Patients Initiating Antiretroviral Therapy in Durban, South Africa." *S Afr Med J* 98 (3): 204-208.
- Okal, J., S. Abdalla, J. Chokwe, N. Kongola, S. Luchters, M. Temmerman, S. Tsui, J. Alaii and E. Sunderland. 2008. "Trends and Determinants of Gender Based Violence among Female Sex Workers in Kenya." Abstract THPDD206. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Okie, S. 2006. "Fighting HIV—Lessons from Brazil." *New England Journal of Medicine* 354 (19): 1977-1981.
- Okundi, B. 2009. "Understanding HIV-positive Women's Barriers to FP/RH Services: PLHIV and Provider Knowledge and Experiences in Kenya." Abstract. International Conference on Family Planning. Muyonyo, Uganda. November 15-18. www.fpconference.org.
- Okunlola, M., I. Morhason-Bello, K. Owonkinko and A. Adegunle. 2006. "Female Condom Awareness, Use and Concerns among Nigerian Female Undergraduates." *Journal of Obstetrics and Gynecology* 26 (4): 353-356.

- Olaleye, A., D. Polsy, D. Atamawanlen, K. Polsky, O. Ibe, S. Shannon, CRS/Nigeria and Partners. 2008. "Risky Sexual Behaviors among the Orphans and Vulnerable Children (OVC) in the North Central Nigeria." Abstract WEPE0605. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Olebara, C. and K. Barrera. 2008. "Reaching Hidden Cases of HIV+ Women in Rural Communities of Plateau State Northern Nigeria." Abstract TUPE0227. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Oliveira, F. 2007. "Women Living with HIV/AIDS Who Are Sexual Partners of Injecting Drug Users." *Rev Saude Publica* 41 (2).
- Oliveira, F., L. Kerr, A. Froat, A. Nobrega, Z. Burno, T. Leitao, C. Kendall and M. Galvao. 2007. "HIV-positive Women in Northeast Brazil: Tubal Sterilization, Medical Recommendation and Reproductive Rights." *AIDS Care* 19 (10): 1258–1265.
- Olley, B.O. 2006. "Improving well-being through psycho-education among voluntary counseling and testing seekers in Nigeria: a controlled outcome study." *AIDS Care* 18(8): 1025–31.
- Oloriegbel, I. and U. Adirieje. 2008. "Impact of Indirect Costs on Accessibility of 'ART' by 'PLWHAs' in Nigeria." Abstract MOPE0165. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Onah, H., G. Hoabachie, S. Obi, F. Ezugwu and J. Eze. 2002. "Nigerian Male Sexual Activity during Pregnancy." *International Journal of Gynecology & Obstetrics* 76(2): 219–223.
- Oosterhoff, P. A. Hardon, T. Nguyen, N. Pham and P. Wright. 2008. "Dealing with a Positive Result: Routine HIV Testing of Pregnant Women in Vietnam." *AIDS Care* 20 (6): 654–659.
- Open Society Institute (OSI). 2009. "Women, Harm Reduction and HIV: Key Findings from Georgia, Kyrgyzstan, Russia, and Ukraine." New York, NY.
- Open Society Institute (OSI). 2008. *Tipping the Balance: Why Legal Services Are Essential to Health Care for Drug Users in Ukraine*. New York, NY.
- Open Society Insitite (OSI). 2007. "HIV/AIDS Policy in Vietnam: A Civil Society Perspective." New York, NY.
- Opio, A., M. Vinod, R. Hong, J. Musinguzi, W. Kirungi, A. Cross, J. Mermin and R. Bunnell. 2008. "Trends in HIV-related Behaviors and Knowledge in Uganda, 1998–2005: Evidence of a Shift toward More Risk-taking Behaviors." *Journal of Acquired Immune Deficiency Syndromes & Human Retrovirology* 49 (3): 320–326.
- Orbach, D. 2007. "Committed to Caring: Older Women and HIV & AIDS in Cambodia, Thailand and Vietnam." London, UK: Helpage International. www.helpage.org.
- Orner, P., D. Cooper, J. Harries and M. de Bruyn. 2009. "A Qualitative Exploration of HIV-positive Women's Decision-making Regarding Abortion in Cape Town, South Africa." October 5 Powerpoint presented at XIX FIGO World Congress of Gynecology and Obstetrics. Cape Town, South Africa.
- Orner, P., D. Cooper, L. Myer, V. Zweigenthal, L. Gail-Becker and J. Moodley. 2008. "Clients' Perspectives on HIV/AIDS Care and Treatment and Reproductive Health Services in South Africa." *AIDS Care* 20 (10): 1217–1223.
- Orroth, K., E. Korenromp, R. White, A. Gavyole, R. Gray, L. Muhangi, N. Weankambo, M. Quigley, M. Wawer, J. Whitworth, H. Grosskurth, J. Habbema and R. Hayes. 2003. "Higher Risk Behavior and Rates of Sexually Transmitted Diseases in Mwanza Compared to Uganda May Explain HIV Prevention Outcomes." *AIDS* 17: 2653–2660.
- Ortíz Ibarra, F., N. Plazola Camacho, A. Esteves Jaramillo, D. Pimentel Nieto, M. Escalante, A. Ramírez Landin, C. del Rio Chiriboga and G. Pérez Palacios. 2008. "Utility of a Facilitated Consent for Human Immunodeficiency

- Virus 1/2 (HIV<sub>1/2</sub>) Rapid Testing among Pregnant Women in a Perinatal Center in Mexico City, Mexico.” Abstract WEPE0048. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Oosterjoff, P., N. Thu Anh, G. Thuy Hanh, P. Ngoc Yen, P. Wright and A. Hardon. 2008. “Holding the Line: Family Response to Pregnancy and the Desire for a Child in the Context of HIV in Vietnam.” *Culture, Health and Sexuality* 10(4): 403–416.
- Ospina, A. and O. Letouze. 2008. “Highlighting Risk Contexts Differences among Male, Female and Transgender Sex Workers: Evidence from Mexico.” Abstract WEPE0772. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Otieno, V., R. Marima, J. Odhiambo, J. Penner, H. Ooko, K. Agot, E. Bukusi and C. Cohen. 2008. “Improving Enrollment and Retention of Youth into HIV Services: Lessons Learned from Kisumu, Kenya.” Abstract WEPE0212. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ottenberger, D., M. Mancilla, H. Hernandez, and I. Matute. 2008. “Handling of HIV/AIDS Diagnosis and its Impact in Familiar Environment.” Abstract WEPE0630. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ovaro, C., and C. Kaduwa. 2008. “Acclearing Uptake of PMTCT Services Through Improved Male Accompaniment.” Abstract THPE0560. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Oyefara, J. 2007. “Food Insecurity, HIV/AIDS Pandemic and Sexual Behavior of Female Commercial Sex Workers in Lagos Metropolis, Nigeria.” *Journal of Social Aspects of HIV/AIDS* 4(2): 626–635.
- Ozouaki, F., A. Ndjoi-Mbiguino, J. Legoff, I.N. Onas, E. Kendjo, A. Si-Mohamed, F.X. Mbopi-Kéou, J.E. Malkin and L. Bélec. 2006. “Genital Shedding of Herpes Simplex Virus Type 2 in Childbearing-aged and Pregnant Women Living in Gabon.” *International Journal of STD & AIDS* 17(2): 124–7.
- Padian, N., S. McCoy, J. Balkus and J. Wasserheit. 2010. “Weighing the Gold in the Gold Standard: Challenges in HIV Prevention Research.” *AIDS* 24 (5): 621–635.
- PAHO and UNICEF. 2007. *Evaluacion de la Respuesta del Sistema Nacional de Salud al VIH/SIDA en la Republica Dominicana: Una Herramienta Politica, Gerencial y Tecnica para Avanzar Hacia el Acceso Universal*. May. Washington, DC: PAHO.
- Pai, N. and M. Klein, 2009. “Rapid Testing at Labor and Delivery to Prevent Mother-to-child Transmission in Developing Settings: Issues and Challenges.” *Women's Health* 5 (1): 55–62.
- Pai, N., R. Barick, J. Tulsy, P. Shivkumar, D. Cohan, S. Kalantri, M. Pai, M. Klein and S. Chhabra. 2008. “Impact of Round the Clock Testing of Women in Labor in Rural India.” *PLoS Medicine* 5 (5): e92.
- Painter, T., K. Diaby, D. Matia, L. Lin, T. Sibailly, M. Kouassi, E. Ekpini, T. Roels and S. Wiktor. 2004. “Women’s Reasons for Not Participating in Follow Up Visit before Starting Short Course Antiretroviral Prophylaxis for Prevention of Mother to Child Transmission of HIV: Qualitative Interview Study.” *British Medical Journal* 329: 543.
- Paiva, V., E. Filipe and A. Segurado. 2008. “Disclosure of HIV-Positive Status of Men Who Have Sex with Women in Sao Paulo, Brazil.” Abstract THPE0693. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Paiva, V., N. Santos, I. Franca-Junior, E. Filipe, J. Ayres and A. Segurado. 2007. “Desire to Have Children: Gender and Reproductive Rights of Men and Women Living with HIV: A Challenge to Health Care in Brazil.” *AIDS Patient Care and STDs* 21 (4): 268–277.

- Paiva, V., E. Felipe, N. Santos, T. Lima and A. Segurado. 2003. "The Right to Love: The Desire for Parenthood among Men Living with HIV." *Reproductive Health Matters* 11(22): 91–100.
- Palmer, S., F. Maldarelli, A. Wiegand, B. Bernstein, G. Hanna, S. Brun, D. Kempf, J. Mellors, J. Coffin and M. King. 2008. "Low-level Viremia Persists for at Least 7 Years in Patients on Suppressive Antiretroviral Therapy." *PNAS* 105 (10): 3879–3884. [www.pnas.org](http://www.pnas.org).
- Palombi, L., M. Marazzi, A. Voetberg and N. Magid. 2007. "Treatment Acceleration Program and the Experience of the DREAM Program in Prevention of Mother-to-child Transmission of HIV." *AIDS* 21 Suppl 4: S65–71.
- Pan American Health Organization (PAHO) and NORAD. 2007. "HIV Prevention in Young People Final Report: An Interprogrammatic Approach Family and Community Health Area." A report by the HIV/AIDS/STI Unit and Child and Adolescent Health Unit. The Pan America Health Organization (PAHO) and NORAD.
- Pan American Health Organization (PAHO). 2006. *Toward Universal Access to HIV Prevention, Care, and Treatment: 3 by 5 Report for the Americas*. Washington, DC.
- Panchanadeswaran, S., S. Johnson, S. Sivaram, A. Srikrishnan, C. Latkin, M. Bentley, S. Solomon, V. Go and D. Celentano. 2008. "Intimate Partner Violence Is as Important as Client Violence in Increasing Street-based Female Sex Workers' Vulnerability to HIV in India." *International Journal of Drug Policy* 19: 106–112.
- Pancic, A. 2008. "Peer Education as an Effective Approach for HIV Prevention among School Children in Rural Bosnia and Herzegovina (BiH)." Abstract WEPE0532. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Panel on Antiretroviral Guidelines for Adults and Adolescents. 2009. Guidelines for the use of antiretroviral agents in HIV-1-infected adults and adolescents. Department of Health and Human Services. December 1, 2009; 1–161. Available at <http://www.aidsinfo.nih.gov/ContentFiles/AdultandAdolescentGL.pdf>. Accessed March 17, 2010.
- Pankham, T. S. Chaitongwongwatthana, P. Noysamtrang, S. Sirivichayakul, M. Khongphattanayothin, S. Tantipalbulvut and P. Phanuphak. 2008. "Sperm Wash in HIV Serodiscordant Couples at the Anonymous clinic, Thai Red Cross AIDS Research Centre." Abstract MOPE0474. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Panozzo, L., Bategay, M., A. Friedl, P. Vernazza and the Swiss HIV Cohort Study. 2003. "High Risk Behavior and Fertility Desires among Heterosexual HIV-Positive Patients with a Serodiscordant Partner—Two Challenging Issues." *Swiss Medical Weekly* 133: 124–127.
- Paoli, M., N. Mkwanazi, L. Richter and N. Rollins. 2008. "Early Cessation of Breastfeeding to Prevent Postnatal Transmission of HIV: A Recommendation in Need of Guidance." *Acta Paediatrica* 97: 1663–1668.
- Pape, J., S. Jean, J. Ho, A. Hafner and W. Johnson. 1993. "Effect of Isoniazid Prophylaxis of the Incidence of Active Tuberculosis and Progression of HIV Infection." *Lancet* 342: 268–272.
- Papo, J., E. Bauni, E. Sanders and H. Jaffe. 2008. "Quantifying the Condom Gap: Condom Access and Condom Use in Rural Kenya." MOPE0531. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Paredes, R., I. Cheng, D. Kuritzes, R. Tuomala, for the Women and Infants Transmission Study Group. 2010. "Postpartum Antiretroviral Drug Resistance in HIV-1-infected Women Receiving Pregnancy-limited Antiretroviral Therapy." *AIDS* 24: 45–53.
- Parham, G., V. Saharabudde, M. Mwanahamuntu, B. Shepherd, M. Hicks, E. Stringer and S. Vermund. 2006. "Prevalence and Predictors of Squamous Intraepithelial Lesions of the Cervix in HIV-infected Women in Lusaka, Zambia." *Gynecologic Oncology* 103: 1017–1022.

- Parkhurst, J. 2008. "What Worked?": The Evidence Challenges in Determining the Causes of HIV Prevalence Decline." *AIDS Prevention and Education* 20 (3): 275–283.
- Parliamentarians for Women's Health. 2007. "Networking Proves Vital Strategy to Improving Women's Health Care: Relationships between Parliamentarians and HIV-positive Women Fosters Change." Washington, DC: ICRW, Centre for the Study of AIDS, University of Pretoria; ICW; and Realizing Rights. www.icw.org.
- Parodi, C. and P. Lyra. 2008. "Analysis of Latin America and Caribbean HIV Media Campaign through the Gender Lens." Abstract THPE0286. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Pasha, M. and M. Qazi. 2008. "Women's Health and HIV/AIDS: Researching with Home Based Sex Workers in Quetta, Pakistan." Abstract THPE0326. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- PATH and United Nations Population Fund (UNFPA). 2006. "Female Condom: A Powerful Tool for Protection." New York: United Nations Population Fund. [http://www.unfpa.org/upload/lib\\_pub\\_file/617\\_filename\\_female\\_condom.pdf](http://www.unfpa.org/upload/lib_pub_file/617_filename_female_condom.pdf).
- Patterson, K., S. Cohn, J. Uyanik, M. Hughes, M. Smurzynski and J. Enron. 2009. "Treatment Responses in Antiretroviral Treatment Naïve Premenopausal and Postmenopausal Women: An Analysis from AIDS Clinical Trials Study Group." *Clinical Infectious Diseases* 49: 473–476.
- Patterson, T., B. Mausbach, R. Lozada, H. Staines-Orozco, S. Semple, M. Fraga-Vallejo, P. Orozovich, D. Abramovitz, A. de la Torre, H. Amaro, G. Martinez, C. Magis-Rodriguez and S. Strathdee. 2008. "Efficacy of a Brief Behavioral Intervention to Promote Condom Use Among Female Sex Workers in Tijuana and Ciudad Juarez, Mexico." *American Journal of Public Health* 98 (11): 2051–2057.
- Paul-Ebhohimhen, V., A. Poobalan and E. van Teijlingen. 2008. "A Systematic Review of School-based Sexual Health Interventions to Prevent STI/HIV in Sub-Saharan Africa." *BMC Public Health* 8 (4).
- Paulo, M., A. Borges, G. Duarte, S. Quintana, M. Montes and M. Tolo. 2007. "The Environmental Cofactors in Carcinogenesis in High Risk HPV/HIV-Positive Women." *Brazilian Journal of Infectious Diseases* 11 (2): 189–195.
- Paavonen, J., P. Naud, J. Salmeron, C. Wheeler, S. chow, D. Apter, H. Kitchener, X. Castellsague, J. Teixeira, S. Skinner, J. Hedrick, U. Jaisamran, G. Limson, S. Garland, A. Szarewski, B. Romanowski, F. Aoki, T. Schwarz, W. Papp, F. Cosch, D. Jenkins, K. Hardt, T. Zahaf, D. Descamps, F. Struyf, M. Lehtinen, G. Dubin, for the HPV PATRICIA Study Group. 2009. "Efficacy of Human Papillomavirus (HPV)—16/18 Aso4-adjuvanted Vaccine against Cervical Infection and Precancer Casued by Oncogenic HPV Types (PATRICIA): Final Analysis of a Double-Blind, Randomised Study in Young Women." *The Lancet*.
- Paxton, S. 2002. "The Impact of Utilizing HIV-Positive Speakers in AIDS Education." *AIDS Education and Prevention* 14(4): 282–294.
- Paxton, S., A. Welbourn, P. Kousalya, A. Yuvaraj, S. Mall and M. Seko. 2004a. "Oh! This One is Infected!": Women, HIV & Human Rights in the Asia Pacific Region." Paper Commissioned by the UN Office of the High Commissioner for Human Rights, from ICW. Website: www.icw.org.
- Paxton, S., B. Wong, G. Gray, A.K., K. Nair, K. Uppadaew, B. Thephtien, G. Gonzales, M. Marin, A. Quesada, S. Okta and T. Merati. 2004b. "AIDS Discrimination in Asia." Asia Pacific Network of People Living with HIV/AIDS.
- Paxton, S., G. Gonzales, K. Uppakaew, K.K. Abraham, S. Okta, C. Green, K.S. Nair, T.P. Merati, B. Thephtien, M. Marin, A. Quesada. 2005. "AIDS-related discrimination in Asia." *AIDS Care* 17(4): 413–24.

- Peacock, D. 2009. "Working with Men and Boys to Achieve Gender Equality and Social Justice." Presentation to the USAID Interagency Gender Working Group. Dec. 3. Washington, DC.
- Peacock, D., J. Redpath, M. Weston, K. Evans, A. Daub and A. Greig for Sonke Gender Justice Network. 2008. "Literature Review on Men, Health and HIV and AIDS in South Africa." Johannesburg, South Africa: Sonke Gender Justice Network. [www.genderjustice.org.za](http://www.genderjustice.org.za).
- Pearce, N. and G. Smith. 2003. "Is Social Capital the Key to Inequalities in Health?" *American Journal of Public Health* 93: 122–129.
- Pearson, C., S. Cassels, a. Kurth, P. Montoya and S. Gloyd. 2008. "Change in Unsafe Sexual Behavior among HIV-positive Mozambicans One Year After Initiation of Antiretroviral Therapy." Abstract THPE0831. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Pearson, C., M. Micek, J. Simoni, P. Hoff, E. Matediana, D. Martin and S. Gloyd. 2007. "Randomized Control Trial of Peer-delivered, Modified Directly Observed Therapy for HAART in Mozambique." *Journal of Acquired Immune Deficiency Syndromes* 46(2): 238–44.
- Pecheny, M. and H. Manzelli. 2008. "Adherence to HAART and to Self-care Behaviours: Quantitative and Qualitative Data from a National Survey in Argentina." Abstract MOPE0736. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Peck, R., D. Fitzgerald, B. Liautaud, M. Deschamps, R. Verdier, M. Beaulieu, R. GrandPierre, P. Joseph, P. Severe, F. Noel, P. Wright, W. Johnson, Jr. and J. Pape. 2003. "The Feasibility, Demand, and Effect of Integrating Primary Care Services with HIV Voluntary Counseling and Testing. Evaluation of a 15-Year Experience in Haiti, 1985–2000." *Journal of Acquired Immune Deficiency Syndromes* 33(4): 470–475.
- Peeling, R., D. Mabey, D. Fitzgerald and D. Watson-Jones. 2004. "Avoiding HIV and Dying of Syphilis." *The Lancet* 364: 1561–1563.
- Peltzer, K., L. Chao and P. Dana. 2009. "Family Planning among HIV Positive and Negative Prevention of Mother to Child Transmission (PMTCT) Clients in a Resource Poor Setting in South Africa." *AIDS Behavior* 13 (5): 973–9.
- PEPFAR. 2009. Care for People Living with HIV/AIDS. Updated January 2009. [www.pepfar.gov/press/84749.htm](http://www.pepfar.gov/press/84749.htm).
- Perchal, P., B. Assefa, O. Babenko and L. Collins. 2008. "Integration of Primary HIV/STI Prevention in MCH Programs: Promising Practices from Ethiopia and Ukraine." Abstract THPE0526. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Perez, F., C. Zvandziva, B. Engelsmann, F. Dabis. 2006. "Acceptability of routine HIV testing ("opt-out") in antenatal services in two rural districts of Zimbabwe." *Journal of Acquired Immune Deficiency Syndromes* 41 (4): 514–20.
- Perrault, S., J. Hajek, K. Zhong, S. Owino, M. Sichangi, G. Smith, Y. Shi, J. Moore and K. Kain. 2009. "Human Immunodeficiency Virus Co-Infection Increases Placental Parasite Density and Transplacental Malaria Transmission in Western Kenya." *American Journal of Tropical Medicine and Hygiene* 80 (1): 119–125.
- Peterson, L., D. Taylor, R. Roddy, G. Belai, P. Phillips, K. Nanda, R. Grant, E. Clarke, A. Doh, R. Ridzon and H. Jaffee. 2009. "Tenofovir Disoproxil Fumarate for Prevention of HIV Infection in Women: A Phase 2, Double-Blind Randomized, Placebo-controlled Trial." *PLoS Clinical Trials* May e 27.
- Peterson, M., Y. Wang, M. van der Lann, D. Guzman, E. Riley and D. Bangsberg. 2007. "Pillbox Organizers Are Associated with Improved Adherence to HIV Antiretroviral Therapy and Viral Suppression: A Marginal Structural Model Analysis." *Clinical Infectious Diseases* 45: 908–915.

- Pettifor, A., K. O'Brien, C. MacPhail, W. Miller and H. Rees. 2009. "Early Coital Debut and Associated Risk Factors among Young Women and Men in South Africa." *International Perspectives on Sexual and Reproductive Health* 35 (2): 74–82.
- Pettifor, A. E., B.A. Levandowski, C. MacPhail, N.S. Padian, M.S. Cohen and H.V. Rees. 2008a. "Keep Them in School: The Importance of Education as a Protective Factor against HIV Infection among Young South African Women." *International Journal of Epidemiology* 37: 1266–1273.
- Pettifor, A., C. MacPhail, A. Cornell, J. Sibeko, S. Mwale, J. Moyes, C. van Mollendorf, M. Cohen and H. Rees. 2008b. "Sexual Behavior of Individuals with Acute HIV Infection in Johannesburg, South Africa, and Lilongwe, Malawi: CHAVI 011." Abstract MOPE0311. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Pfeiffer, J., K. Sherr, P. Montyoya, A. Baptista, A. Sousa and M. Micek. 2008. "Integration of HIV/AIDS Treatment into Primary Health Care in Mozambique: A Health System Strengthening Approach." Abstract MOPE0077. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Phadke, M.A., Bulakh, P.M. & Kshirsagar, N.A. 2008. "Nevirapine to Prevent HIV Transmission via Breastfeeding". *The Lancet*, Vol. 372, pp. 287.
- Pham, H., K. Hagen, C. del Rio, A. Chu, H. vu, T. Le, M. Kamb, H. Nguyen and M. Wolfe. 2008. "HIV Risk Behaviors and Barriers to HIV Service Access among Female Returnees from 05/06 Cnter in Hanoi, Vietnam." Abstract THPE0327. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Phanuphak, N., T. Apornpong, S. Teeratakulpisarn, S. Chaithongwongwatthana, C. Taweepolcharoen, S. Mangclaviraj, S. Limpongsanurak, T. Jadwattanakul, P. Eiamapichart, W. Luesomboon, A. Apisarnthanarak, A. Kamudhamas, A. Tangsathapornpong, C. Vitavasiri, N. Singhakowinta, V. Attakornwattana, R. Kriengsinoyot, P. Methajittiphun, K. Chunloy, W. Preetiyathorn, T. Aumchantr, P. Toro, E.J. Abrams, W. El-Sadr and P. Phanuphak. 2007. "Nevirapine-Associated Toxicity in HIV-Infected Thai Men and Women, Including Pregnant Women." *HIV Medicine* 8: 357–366.
- Philpott, A., W. Knerr, V. Boydell. 2006. "Pleasure and Prevention: When Good Sex is Safer Sex." *Reproductive Health Matters* 14(28): 23–31.
- Phetla, G., J. Busza, J. R. Hargreaves, P.M. Pronyk, J.C. Kim, L.A. Morison, C. Watts and J. D. H. Porter. 2008. "They Have Opened Our Mouths': Increasing Women's Skills and Motivation for Sexual Communication with Young People in Rural South Africa." *AIDS Education and Prevention* 20(6): 504–518.
- Phinney, H. 2008. "Rice Is Essential but Tiresome; You Should Get Some Noodles': Doi Moi and the Olitical Economy of men's Extramarital Sexual Relations and Marital HIV Risk in Hanoi, Vietnam." *American Journal of Public Health* 98(4): 650–660.
- Physicians for Human Rights (PHR). 2007a. *Epidemic of Inequality: Women's Rights and HIV/AIDS in Botswana and Swaziland*. Boston, MA. www.physiciansforhumanrights.org.
- Physicians for Human Rights (PHR). 2007b. "Success Stories from the Field: Curbing the Spread of HIV/AIDS among Drug Injectors." Boston, MA. www.physiciansforhumanrights.org.
- Physicians for Human Rights (PHR) and UNAMSIL. 2002. *War-Related Sexual Violence in Sierra Leone: A Population-Based Assessment*. Physicians for Human Rights: Boston, MA.
- Pick, S., M. Givaudan, J. Sirkin and I. Ortega. 2007. "Communication as a Protective Factor: Evaluation of a Life Skills HIV/AIDS Prevention Program for Mexican Elementary-School Students." *AIDS Education and Prevention* 19(5): 408–421.

- Pillai, S., M. Seshu and M. Shivdas. 2008. "Embracing the Rights of People in Prostitution and Sex Workers, to Address HIV and AIDS Effectively." *Gender & Development* 16 (2): 313–326.
- Pinkerton, S. 2008. "Probability of HIV Transmission during Acute Infection in Rakai, Uganda." *AIDS Behavior* 12 (5): 677–684.
- Pinkham, S. and K. Malinowska-Sempruch. 2008. "Women, Harm Reduction and HIV." *Reproductive Health Matters* 16 (3): 168–181.
- Pinkham, S. and K. Malinowska-Sempruch. 2007. *Women, Harm Reduction, and HIV*. New York: International Harm Reduction Development Program of the Open Society Institute.
- Pinto, V.M., M.V. Tancredi, N.A. Tancredi, C.M. Buchalla. 2005. "Sexually Transmitted Disease/HIV Risk Behaviour among Women Who Have Sex with Women." *AIDS* 19 Suppl 4: vS64–9.
- Piot, P., M. Kazatchkine, M. Dybul and J. Lob-Levyt. 2009. "AIDS: Lessons Learnt and Myths Dispelled." *The Lancet* 374 (9702): 1675–1676.
- Piot, P., M. Bartos, H. Larson, D. Zewdie and P. Mane. 2008. "Coming to Terms with Complexity: A Call to Action for HIV Prevention." *The Lancet* 372: 845–859.
- Pirkle, C., R. Soundardjee and A. Stella. 2007. "Female Sex Workers in China: Vectors of Disease?" *Sexually Transmitted Diseases* 34 (9): 695–703.
- Piroth, L. 2009. "Coinfection with Hepatitis C Virus and HIV: More than Double Trouble." *Clinical Infectious Diseases* 49: 623–625.
- Pisani, E. 2008. *The Wisdom of Whores: Bureaucrats, Brothels and the Business of AIDS*. NY: W.W. Norton & Company.
- Pisey, K. 2008. "The Prevention Programs in Banteay Meanchey Province, Cambodia." Abstract THPE0305. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Piwoz, E.G., J.H. Humphrey, N.V. Tavengwa, P.J. Iliff, E.T. Marinda, C.D. Zunguza, K.J. Nathoo, K. Mutasa, L.H. Moulton, B.J. Ward. 2007. "The Impact of Safer Breastfeeding Practices on Postnatal HIV-1 Transmission in Zimbabwe." *American Journal of Public Health* 97(7): 1249–54.
- Piwoz, E., Y. Ferguson, M. Bentley, A. Cornelia, A. Moses, J. Nkhoma, B. Tohill, B. Mtimuni, Y. Ahmed, D. Jamieson, C. van der Horst, P. Kazembe and the UNC Project Ban Study Team. 2006. "Differences between International Recommendations on Breastfeeding in the Presence of HIV and the Attitudes and Counselling Messages of Health Workers in Lilongwe, Malawi." *International Breastfeeding Journal* 1 (2).
- Plangraun, N., N. Boonyabuddhi and S. Bamber. 2008. "Thailand's Experience: Comprehensive Services for Adolescents Living with HIV." Abstract THPE0717. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Platt, L., T. Rhodes, C. Lowndes, P. Madden, A. Sarang, L. Mikhailova, A. Renton, Y. Pevzner, K. Sullivan and M. Khutorskoy. 2005. "Impact of Gender and Sex Work on Sexual and Injecting Risk Behaviors and their Association with HIV Positivity among Injecting Drug Users in an HIV Epidemic in Togliatti City, Russian Federation." *Sexually Transmitted Diseases* 32 (10): 605–612.
- Plipat, T., T. Naiwatanakul, N. Rattanasuporn, O. Sangwanloy, P. Amornwichee, A. Teeraratkul, K. Ungchusak, P. Mock, W. Levine, M.S. McConnell, R. Simonds, M. Culnane. 2007. "Reduction in Mother-to-child Transmission of HIV in Thailand, 2001–2003: Results from Population-based Surveillance in Six Provinces." *AIDS* 21(2): 145–51.
- Polis, C., R. Gray, T. Lutalo, F. Nlugoda, D. Serwadda, G. Kogozi, J. Kagaayi, N. Kiwanuka, N. Sewankambo, M. Chen and M. Wawer. 2009. "Effect of Hormonal Contraceptive Use on Time-to-death in Female Incident

- HIV Seroconverters in Rakai, Uganda.” Abstract. International Conference on Family Planning. Muyonyo, Uganda. November 15–18. [www.fpconference.org](http://www.fpconference.org).
- Potts, M., D. Halperin, D. Kirby, A. Swindler, E. Marseille, J. Klausner, N. Hearst, R. Wmai, J. Kahn and J. Walsh. 2008. “Resassessing HIV Prevention.” *Science* 320: 749–750.
- Poudel, K., S. Nakahara, K. Poudel-Tandukar and M. Jimba. 2007. “Perceptions towards Preventive Behaviors against HIV Transmission among People Living with HIV/AIDS in Kathmandu, Nepal.” *Public Health* 121: 958–961.
- Poulsen, H. 2006. “The Gendered Impact of HIV/AIDS on Education in South Africa and Swaziland: Save the Children’s Experiences.” *Gender and Development* 14(1): 47–56.
- Powers, K., C. Poole, A. Pettifor and M. Cohen. 2008a. “Rethinking the Heterosexual Infectivity of HIV-1: A Systematic Review and Meta-analysis.” *The Lancet* 8: 533–563.
- Powers, K., G. Kamanga, C. Mapanje, s. Phiri, H. Kanyamula, B. Ndalama, E. Jere, A. Mwaipape, N. Mkandawire, A. Mwanyimbo, K. Reynolds, F. Martinson and I. Hoffman. 2008b. “Predictors of HIV Counseling and Testing Uptake and HIV Infection in a Malawian STI Clinic.” Abstract TUPE0429. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Prabakaran, S. 2008. Abstract THPE0411. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Pramualratana, A. 2008. “National Certification Scheme on HIV/AIDS Prevention and Management in the Workplace.” Abstract WEPE1024. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Prata N, L Morris, E Mazive, F Vahidnia and M Stehr. 2006. “Relationship Between HIV Risk Perception And Condom Use: Evidence from a Population-Based Survey in Mozambique.” *International Family Planning Perspectives* 32(4): 192–200.
- Prohow, S. 2009. “Injecting Drug Use and Youth: PSI’s Programs.” Presentation for the Interagency Youth Working Group Conference on “Young People Most at Risk for HIV/AIDS,” Washington, DC. June 25.
- Pronyk, P., J. Kim, T. Abramsky, G. Phetla, J. Hargreaves, L. Morison, C. Watts, J. Buzsa and J. Porter. 2008. “A Combined Microfinance and Training Intervention Can Reduce HIV Risk Behaviour in Young Female Participants.” *AIDS* 22: 1659–1665.
- Pronyk, P., J. Hargreaves, J. Kim, L. Morison, G. Phetla, C. Watts, J. Busza and J. Porter. 2006. “Effect of a Structured Intervention for the Prevalence of Intimate-partner Violence and HIV in Rural South Africa: A Cluster Randomised Trial.” *The Lancet* 368: 1973–1983.
- Pujari, D., S. Mane, M. Seshu and M. Ditmore. 2008. “Disruption of HIV/AIDS Prevention and Health Services by an International NGO in India.” Abstract TUPE1092. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Pulerwitz, Julie, Gary Barker, Marcio Segundo, and Marcos Nascimento. 2006. *Promoting More Gender-equitable Norms and Behaviors Among Young Men as an HIV/AIDS Prevention Strategy*. Washington, DC, Horizons Program.
- Pulerwitz, J., J. Izazola-Licea and S. Gortmaker. 2001. “Extrarelationship Sex Among Mexican Men and Their Partners’ Risk of HIV and Other Sexually Transmitted Diseases.” *American Journal of Public Health*. Vol. 91, No. 10: 1650–1652.
- Pulerwitz, J., S. Gortmaker and W. DeJong. 2000. “Measuring Relationship Power in HIV/STD Research.” *Sex Roles*. 42 (7/8): 637–660.

- Puntos de Encuentro. 2008. *Final Evaluation: Somos Diferentes, Somos Iguales. Nicaragua: Puntos de Encuentro.* With Population Council/Horizons, PATH and CIDS-UNAN-Leon.
- Putnam, L. 1993. *Making Democracy Work: Civic Traditions in Modern Italy.* Princeton: Princeton University Press.
- Qin, Q., G. Ji, J. Xu, Q. Jiang, H. Hong, X. Chu, R. Chen and D. Ye. 2009. "Risk of Sexual HIV Transmission among Wives Left Behind and Wives of Nonmigrant Men in Rural Areas of China." *Journal of the Association of Nurses in AIDS Care* 20 (4): 308–315.
- Qin, Q., G. Ji and D. Ye. 2008. "Condom Use and Knowledge among Married Women in Rural Areas of China." *International Federation of Gynecology and Obstetrics* : 175–76.
- Quesada, A. 2008. "Multi-country Study on the HIV-vulnerabilities Faced by Female Migrant Workers: From Asia to the Middle East." Abstract THDE203. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Quigley, M., A. Mwinga, M. Hosp, I. Lisse, D. Fuchs, J. Porter and P. Godfrey-Fausett. 2000a. "The effect of gender on HIV progression and mortality in a cohort of Zambian adults, followed for up to 7 years." Abstract TuOrB401. XIII International Conference on AIDS: Durban, South Africa.
- Quigley, M., D. Morgan, S. Malamba, B. Mayanja, M. Okongo, L. Carpenter and J. Whitworth. 2000b. "Case-control Study of Risk Factors for Incident HIV Infection in Rural Uganda." *Journal of Acquired Immune Deficiency Syndromes* 23: 418–425.
- Quinn, T., M. Wawer, N. Sewankambo, D. Serwadda, C. Li, F. Wabwire-Mangen, M. Meehan, T. Lutalo and R. Gray R. 2000. "Viral load and heterosexual transmission of human immunodeficiency virus type 1." *New England Journal of Medicine* 342 (13): 921–9.
- Raghavan, S., G. Oleti, S. Angappan, F. Joseph, J. Sridya, G. Srinivas and S. Sahu. 2008. "Delivering Family Centered Care Services in Public Health Settings: The Tamil Nadu Model." Abstract WEPE0217. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Raguenaud, M., P. Issakidis, S. Khim, C. Ping, C. Kim, L. Martello and T. Reid. 2008. "Cervical Cancer Screening in Rural Cambodia: A Pilot Programme." Abstract THDB205. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Rajaraman, D., S. Russell and J. Heymann. 2006. "HIV/AIDS, Income Loss and Economic Survival in Botswana." *AIDS Care* 18 (7): 656–662.
- Ralon, G., F. Bastos, L. Latorre, M. Villa, D. Rossi, M. Weissenbacher and W. Calaffa. 2008. "Vulnerability Associated with HIV Transmission among Drug Users in Three countries in South America: Argentina, Brazil and Uruguay (1998–2004)." Abstract MOPE0399. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ramachandran, R., V. Chandrasekaran, M. Muniyandi, K., Jaggarajamma, A. Bagchi and S. Sahu. 2009. "Cross-referral between HIV counselling and testing centres and smear microscopy centres in Tamil Nadu." *The International Journal of Tuberculosis and Lung Disease* 13(2): 221–225.
- Ramlagan, S. 2008. "ART Adherence and HIV Positive Respondents Beliefs and Use of Traditional, Complementary and Alternative Medication (TCAM) in Rural KwaZulu-Natal." Abstract MOPE0742. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ramogale, M., J. Moodley and M. Sebitloane. 2007. "HIV-associated Maternal Mortality—Primary Causes of Death at King Edward VIII Hospital, Durban." *South African Medical Journal* 97: 363–366.

- Ramos, A., L. Mataida, V. Saraceni, M. Veras and R. Pontes. 2007. "Control of Mother-to-child Transmission of Infectious Diseases in Brazil: Progress in HIV/AIDS and Failure in Congenital Syphilis." *Cad Saude Publica Supplement* 23: S370–S378.
- Ramsey, A., M. Bonnet, L. Gadnidze, W. Githul, F. Varaine and P. Guerin. 2009. "Sputum and Scanty Smears: New Case Definition May Reduce Sex Disparities in Smear-positive Tuberculosis." *The International Journal of Tuberculosis and Lung Disease* 13(5): 613–619.
- Rasch, V., F. Yambesi and S. Massawe. 2006. "Post-abortion Care and Voluntary HIV Counselling and Testing—An Example of Integrating HIV Prevention into Reproductive Health Services." *Tropical Medicine and International Health* 11 (5): 697–704.
- Ratinthorn, A., A. Meleis and S. Sindhu. 2009. "Trapped in Circles of Threats: Violence against Sex Workers in Thailand." *Health Care for Women International* 30 (3): 249–269.
- Raviglione, M., P. Nunn, A. Kochi, And R. O'Brien. 1996. "The Pandemic of HIV-Associated Tuberculosis." Pp. 87–96 in *AIDS in the World II*, edited by J. Mann and D. Tarantola. New York: Oxford University Press.
- Ravindran, T., S. Alex and B. Ninan. 2002. *Gender and Poverty Issues in Tuberculosis: A Summary and Overview of Selected Studies from the WHO South East Asia Region*. Trivandran, Kerala, India: WHO Regional Office for South East Asia.
- Ray, P. 2008. "Demystifying the Discourse: The Sonagachi Experience." Abstract TUPE0995. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Read, J., P. Cahn, M. Losso, J. Pinto, E. Joao, G. Duarte, E. Cardoso, L. Freimanis-Hance and S. Stoszek for the NISDI Perinatal Study Group. 2007. "Management of Human Immunodeficiency Virus-Infected Pregnant Women at Latin American and Caribbean Sites." *Obstetrics & Gynecology* 109(6): 1358–1366.
- Rebbapragada, A., C. Wachihi, C. Pettengell, S. Sunderji, S. Huibner, W. Jaoko, B. Ball, K. Fowke, T. Mazzulli, F.A. Plummer, R. Kaul. 2007. "Negative Mucosal Synergy between Herpes Simplex type 2 and HIV in the Female Genital Tract." *AIDS* 21(5): 589–98.
- Reddi, A. and S. Leeper. 2008. "Antiretroviral Therapy Adherence in Children: Outcomes in Africa." *AIDS*, 22: 906–907.
- Reddy, P., D. Saleh Onoya, S. Sifunda, D. Lang and G. Wingood. 2008a. "Economic Pressures and Sexual Relationships of Young Xhosa Women in Peri-urban Areas of the Western Cape Province of South Africa." Abstract MOPE0395. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Reddy, E., A. Mtalo, A. Moon, D. Itemba, F. Muro, J. Ostermann, T. Reeves, J. Shao, J. Barlett, J. Crump and N. Thielman. 2008b. "Barriers to Accessing HIV Services in Northern Tanzania: Factors Associated with Awareness of ART Availability among VCT Clients." Abstract TUPE0381. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Reddy, P. and S. James. 2003. "Programming for HIV Prevention in South African Schools." *Horizons Research Summary*. Population Council: Washington, DC.
- Reichman, L. and J. Tanne. 2002. *Timebomb: The Global Epidemic of Multi-Drug-Resistant Tuberculosis*. New York: McGraw-Hill.
- Reid, A., F. Scano, H. Getahun, B. Williams, C. Dye, P. Nunn, K. DeCock, C. Hankins, B. Miller, K. Castro and M. Raviglione. 2006. "Towards Universal Access to HIV Prevention, Treatment, Care and support: The Role of Tuberculosis/HIV Collaboration." *The Lancet* 6: 483–495.
- Remien, R., J. Chowdhury, J. Mokhbat, C. Soliman, M. El Adawy and W. El-Sadr. 2009. "Gender and Care: Access to HIV Testing, Care and Treatment." *J Acquir Immune Defic Syndr* 51 (Supplement 3): S106–S110.

- Reniers, G., T. Araya, G. Davey, N. Nagelkerke, Y. Berhane, R. Coutinho and E. Sanders. 2009. "Steep Declines in Population-Level AIDS Mortality Following the Introduction of Antiretroviral Therapy in Addis Ababa, Ethiopia." *AIDS* 23: 511–518
- Rennie, S. and F. Behets. 2006. "Desperately Seeking Targets: The Ethics of Routine HIV Testing in Low-Income Countries." *Bulletin of the World Health Organization* 84 (1): 52–57.
- Report of the Commission on AIDS in Asia. 2008. *Redefining AIDS in Asia*. New Delhi, India: Oxford University Press.
- Reproductive Health for Refugees Consortium (RHR Consortium). ND. *Reproductive Health for Refugees—The Next Step*. Reproductive health for Refugees Consortium: New York, NY.
- Reproductive Health Matters (RHM). 2008. "Round Up: HIV/AIDS and International AIDS Conference 2008." *Reproductive Health Matters* 16 (32): 198–204.
- Rerks-Ngarm, S., P. Pitsuttithum, S. Nitayaphan, J. Kaewkungwal, J. Ciu, R. Prais, N. Premisri, C. Namwat, M. de Souza, E. Adama, M. Benenson, S. Gurunathan, J. Tartaglia, J. McNeil, D. Francis, D. Stablien, D. Bix, S. Chunsuttiwat, C. Khamboonruang, P. Thongachroen, M. Robb, N. Michael, P. Kunasol and J. Kim for the MOPH-TAVEG Investigators. 2009. "Vaccination with ALVAC and AIDSVAX to Prevent HIV-1 Infection in Thailand." *The New England Journal of Medicine* 361: 1–12.
- Reynaga, E. 2008. Plenary presentation. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Reynolds, S., F. Makumbi, J. Kaggayi, G. Nakigozi, R. Galiwongo, T. Quinn, M. Wawer, R. Gray and D. Serwadda. 2009. "ART Reduced the Rate of Sexual Transmission of HIV among HIV-discordant Couples in Rural Rakai, Uganda." Abstract #52a. 16<sup>th</sup> Conference on Retroviruses and Opportunistic Infections. Montreal, Canada.
- Reynolds, H., B. Janowitz, R. Wilcher and W. Cates. 2008. "Contraception to Prevent HIV-positive Births: Current Contribution and Potential Cost Savings in PEPFAR Countries." *Sex Transm Inf* 84: ii49–ii53.
- Reynolds, H.W., B. Janowitz, R. Homan, L. Johnson. 2006a. "The Value of Contraception to Prevent Perinatal HIV Transmission." *Sexually Transmitted Diseases* 33(6): 350–6.
- Reynolds, S., A. Risbud, M. Shepherd, A. Rompalo, M. Ghate, S. Godbole, S. Joshi, A. Divekar, R. Gangakhedkar, R. Bollinger and S. Mehendale. 2006b. "High Rates of Syphilis among STI Patients Are Contributing to the Spread of HIV-1 in India." *Sexually Transmitted Infections* 82: 121–126.
- Reza, A., M. Breiding, J. Gulaid, J. Meercy, C. Blanton, Z. Mthethwa, S. Bamrah, L. Dahlberg and M. Anderson. 2009. "Sexual Violence and its Health Consequences for Female Children in Swaziland: A Cluster Survey Study." *The Lancet* 373: 1966–1972.
- Reza-Paul, S., T. Beattie, H. Syed, K. Venukumar, M. Venugopal, M. Fathima, H. Raghavendra, P. Akram, R. Manjula, M. Lakshmi, S. Isac, B. Ramesh, R. Washington, S. Mahagaonkar, J. Glynn, J. Blanchard and S. Moses. 2008. "Declines in Risk Behavior and Sexually Transmitted Infection Prevalence Following a Community-Led HIV Preventive Intervention among Female Sex Workers in Mysore, India." *AIDS* 22 (Supplement 5): S91–S100.
- Ribeiro, P., K. Jacobsen, C. Mathers and C. Garcia-Moreno. 2008. "Priorities for Women's Health from the Global Burden of Disease Study." *International Journal of Gynecology and Obstetrics* 102: 82–90.
- Ricardo, C. and G. Barker. 2008. *Men, Masculinities, Sexual Exploitation and Sexual Violence*. Promundo: Rio de Janeiro, Brazil. www.promundo.org.br and www.menengage.org
- Richardson, J., J. Milam, A. McCutchan, S. Stovanoff, R. Bolan, J. Weiss, C. Kemper, R. Larsen, H. Hollander, P. Weismuller, C. Chou and G. Marks. 2004. "Effect of Brief Safer-Sex Counseling by Medical Providers to HIV-1 Seropositive Patients: A Multi-Clinic Assessment." *AIDS* 18 (8): 1179–1186.

- Richey, C. and J Shelton. 2007. "Contraception for Women Taking Antiretroviral Medications (ARVs): An Update." Global Health Technical Briefs. Revised 11/6/07. Available at www.maqweb.org.
- Richter, M., M. Chersich, f. Scorgie, S. Luchters, M. Temmerman and R. Steen. 2010. "Sex Work and the 2010 FIFA World Cup: time for Public Health Imperatives to Prevail." *Globalization and Health* 6 (1).
- Richter, L. 2008. "No Small Issue: Children and Families, Universal Action Now," Plenary Presentation at the XVIIth International AIDS Conference, "Universal Action Now," Mexico City, August 6.
- Riono, P. and I. Praptoraharjo. 2008. "Sexual Behavior among Male to Female Transgenders (Warias) in 5 Indonesian Cities." Abstract TUACo403. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Roach, P. and M. Fontes. 2008. "First Sex: An Opportunity of a Lifetime for HIV/AIDS Prevention." Abstract WEPE0289. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Roberts, E. and L. Yeung. 2002. "Maternal-infant Transmission of Hepatitis C Virus Infection." *Hepatology*. 36(5 Suppl 1): S106-13.
- Robson, M. 2009. Phone Interview with Jill Gay. June 24. Dr. Mark Robson is Professor of Entomology and Dean of Agricultural and Urban Programs, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey, USA.
- Rochat, T., A. Stein and L. Richter. 2008. "Women's Feelings, Attitudes, and Experiences on Learning their HIV Status during Pregnancy in Rural South Africa." Abstract THPE0923. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Rogers, A., A. Meundi, A. Amma, A. Rao, P. Shetty, J. Antony, D. Sebastian, P. Shetty and A. Shetty. 2006. "HIV-related Knowledge, Attitudes, Perceived Benefits, and Risks of HIV Testing among Pregnant Women in Rural Southern India." *AIDS Patient Care and STDs* 20 (11): 803-811.
- Rojanapithayakorn, W. and R. Hannenberg. 1996. "The 100 Percent Condom Program in Thailand." *AIDS* 10: 107.
- Rollins, N., S. Mzolo, T. Moodley, T. Esterhuizen and H. van rooyen. 2009. "Universal HIV Testing of Infants at Immunization Clinics: An Acceptable and Feasible Approach for Early Infant Diagnosis and Feasible for Early Infant Diagnosis in High HIV Prevalence Settings." *AIDS* (23): 1851-1857.
- Rollins, N. and W. Mphatswe. 2008. "From Prevention of Mother-to-Child Transmission to Child Survival ... and Back." *Current Opinion in HIV and AIDS* 3: 180-185.
- Rollins, N., R. Becquet, R. Bland, A. Coutoudis, H. Coovadia and M. Newell. 2008. "Infant Feeding, HIV Transmission and Mortality at 18 Months: The Need for Appropriate Choices by Mothers and Prioritization with Programmes." *AIDS* 22: 2349-2357.
- Rompay, K., P. Madhivanan, M. Rafiq, K. Krupp, V. Chakrapani and D. Selvam. 2008. "Empowering the People: Development of an HIV Peer Education Model for Low Literacy Rural Communities in India." *Human Resources for Health* 6 (6).
- Rosen, S., M. Fox and C. Gill. 2007. "Patient Retention in Antiretroviral Therapy Programs in Sub-Saharan Africa: A Systematic Review." *PLoS Medicine* 4 (10): e298.
- Ross, M., S. McCurdy, G. Kilonzo, M. Williams and M. Lesabari. 2008. "Drug Use Careers and Blood-borne Pathaden Risk Behavior in Male and Female Tanzanian Heroin Injectors." *Am J Trop Med Hyg*: 338-343.

- Ross, D., J. Chagalucha, A. Obasi, J. Todd, M. Plummer, B. Clephas-Mazige, A. Anemona, D. Everett, H. Weiss, D. Mabey, H. Grosskurth and R. Hayes. 2007a. "Biological and Behavioral Impact of an Adolescent Sexual Health Intervention in Tanzania: A Community Randomized Trial." *AIDS* 21: 1943–1955.
- Ross, R., W. Sawatphanit, C. Draucker and T. Suwandsujarid. 2007b. "The Lived Experiences of HIV-Positive Pregnant Women in Thailand." *Health Care for Women International* 28: 731–744.
- Ross, D., B. Dick and J. Ferguson. 2006. *Preventing HIV in Young People: A Systematic Review of Evidence from Developing Countries*. Geneva, Switzerland: WHO.
- Ross, JA and E Frankenberg. 1993. *Findings from two decades of family planning research*. New York: The Population Council.
- Ross Quiroga, G. 2006. Presentation to the XV International AIDS Conference. Toronto, Canada.
- Rothman, S. and D. Rothman. 2009. "Marketing HPV Vaccine: Implications for Adolescent Health and Medical Professionalism." *JAMA* 302 (7): 781–786.
- Rottach, E, SR Schuler and K Hardee. 2010. *Gender Perspectives Improve Reproductive Health Outcomes: New Evidence*. Forthcoming. Washington, DC: The Interagency Gender Working Group. [www.igwg.org](http://www.igwg.org).
- Rottingen, J., D. Cameron and G. Garnett. 2001. "A Systematic Review of the Epidemiologic Interactions between Classic Sexually Transmitted Diseases and HIV: How Much is Really Known?" *Sexually Transmitted Diseases* 28 (10): 579–597.
- Rou, K., Z. Wu, S.G. Sullivan, F. Li, J. Guan, C. Xu, W. Liu, D. Liu, Y. Yin. 2007. "A Five-city Trial of a Behavioural Intervention to Reduce Sexually Transmitted Disease/HIV Risk among Sex Workers in China." *AIDS* 21 (Supplement 8): S95–101.
- Roura, M., M. Urassa, J. Busza, D. Mbata, A. Wringe and B. Zaba. 2008. "Scaling Up Stigma? The Effects of Antiretroviral Roll-out on Stigma and HIV Testing. Early Evidence from Tanzania." *Sexually Transmitted Infections* 85: 308–312. doi:10.1136/sti.2008.033183.
- Ruark, A., J. Shelton, D. Halperin, M. Wawer and R. Gray. 2009. "Universal Voluntary HIV Testing and Immediate Antiretroviral Therapy. Letter Response to Granich et al." *The Lancet* 373 (9669): 1078. [http://www.projectinform.org/testandtreat/granich\\_letters.pdf](http://www.projectinform.org/testandtreat/granich_letters.pdf).
- Rucker, J. and X. Ren. 2008. "Sex Worker Incarceration in the People's Republic of China." *Sex Trans Inf* 84: 34–35.
- Rugira, I., M. Franke, L. Uwamaru, B. Bucyibaruta, G. Iyamungu, F. Mukamanzi, P. Drobac, J. Mukherjee, P. Farmer and S. Stulac. 2008. "Low HIV Transmission and Mortality in an Integrated Program to Prevention Postnatal Maternal to Child Transmission." Abstract MOPE0524. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Russo, G., M. Lichtner, F. Taditi and V. Vullo. 2009. "Is the Time for an AIDS-free New Generation Different in Resource-limited and Industrialized Countries?" *AIDS* 23: 293–296.
- Rutenberg, N., C. Baek, S. Kalibala and J. Rosen. 2003. "Evaluation of United Nations-supported pilot projects for the prevention of mother-to-child transmission of HIV." New York, UNICEF. [www.popcouncil.org/pdfs/horizons/pmtctunicefevalovrvw.pdf](http://www.popcouncil.org/pdfs/horizons/pmtctunicefevalovrvw.pdf).
- Rutenberg, N., S. Kabila, C. Mwai and J. Rosen. 2001. "Integrating HIV Prevention and Care into Maternal and Child Health Settings: Lessons Learned from the Horizons Studies: July 23–27, 2001 Masai Mara and Nairobi Kenya Consultant Report." Washington, DC: Population Council.

- Rutta, E., R. Gongo, A. Mwasasu, D. Mutasingwa, V. Rwegasira, S. Kishumbu, J. Tabayi, T. Masisin and H. Ramadhani. 2008. "Prevention of Mother-to-Child Transmission of HIV in a Refugee Camp Setting in Tanzania." *Global Public Health* 3 (1): 62–76.
- Rwemisisi, J., B. Wolff, A. Coutinho, H. Grosskurth, and J. Whitworth. 2008. "What If They Ask How I Got It? Dilemmas of Disclosing Parental HIV Status and Testing Children for HIV in Uganda." *Health Policy Plan* 23(1): 36–42.
- Sabin, L., M. Desilva, D. Hamer, X. Keyi, Y. Yue, F. Wen, L. Tao, H. Heggenhougen, L. Seton, I. Wilson and C. Gill. 2008. "Barriers to Adherence to Antiretroviral Medications among Patients Living with HIV in Southern China: A Qualitative Study." *AIDS Care* 20: 1242–1250
- Sable, M., M. Libbus, D. Jackson and H. Hausler. 2008. "The Role of Pregnancy Intention in HIV Prevention in South Africa: A Proposed Model for Policy and Practice." *African Journal of AIDS Research* 7 (2): 1–8.
- Safaeian, M., M. Kiddugavu, P. Gravitt, S. Gange, J. Ssekasanvu, D. Murokora, M. Sklar, D. Serwadda, M. Wawer, K. Shah and R. Gray. 2008. "Prevalence and Risk Factors for Carcinogenic Human Papillomavirus Infections in Rural Rakai, Uganda." *Sexually Transmitted Infections* 84: 306–311.
- Sagay, A., J. Musa, S. Ogwuch, E. Ejeliogu, G. Imade, C. Ekwempu, S. Kapiga, J. Sankale, J. Idoko and P. Kanki. 2008. "Outcome of Interventions to Prevent Mother-to-child Transmission of HIV-1 in Jose, Northern Nigeria." Abstract MOPE0526. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Saha, A. 2008. *Options and Challenges for Converging HIV and Sexual and Reproductive Health Services in India: Findings from an Assessment in Andhra Pradesh, Bihar, Maharashtra, and Uttar Pradesh*. Seattle, Washington: PATH. www.path.org.
- Saha, A., T. Sellers, I. Rani and S. Pongurlekar. 2008a. "Service Provider Stigma as a Barrier to Sex Workers' Access to Sexual and Reproductive Health Services in India." Abstract THPE0522. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Saha, A., C. Levin, J. Omega and I. Rani. 2008b. "Hidden Costs of Services: Prices of Female Sex Workers Pay for Accessing Reproductive and Health Services: An Exploratory Study from India." Abstract THPE0527. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sakar, A., J. Sk, L. Ramakrishnan, M. Mohanty and P. Dhall. 2008. "Non-formal Education and Income Generation Programmes Strengthen HIV Prevention in Male-to-Female Transgender Community Groups in Rural India." Abstract THPE1096. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Saloojee, H., S. Velaphi, Y. Goga, N. Afadapa, R. Steen, and O. Lincetto. 2004. "The Prevention and Management of Congenital Syphilis: An Overview and Recommendations". *Bulletin of the World Health Organization* 82.
- Samandari, T. 2009. "Randomized, Placebo-controlled Trial of 6 vs 36 Months Isoniazid TB Preventive Therapy for HIV-infected Adults in Botswana." Paper 104LB presented at 17<sup>TH</sup> Conference on Retroviruses and Opportunistic Infections. San Francisco, USA. February 18.
- Sambisa, W. 2008. "AIDS Stigma and Uptake of HIV Testing in Zimbabwe." DHS Working Paper No. 49. Calverton, MD: Macro International Inc. www.measuredhs.com.
- Samson, M., U. Lee, A. Ndleble, K. MacQueen, I. van Niekerk, V. Gandhi, et al. 2004. *Final Report: The Social and Economic Impact of South Africa's Social Security System*. Research Paper #37. Cape Town, South Africa: Economic Policy Research Institute.
- Samuels, F., A. Sarna, J. Simbaya, A. Fakova, S. Geibel and N. Ndubani. 2008. "Unburdening Health Systems: The Role of Community Engagement in Supporting HIV Prevention and Adherence to ART. Findings from

- an Operations Research Study in Zambia.” Abstract MOPE0734. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sanches, K. and T. Guillen. 2008. “Changing Trends in the Population Aged 50 and Older.” Abstract THPE0907. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sanchez, V., P. Pardo, N. Escobar and A. Guevara. 2008. “Peer-led Assessment of Transgender Sex Workers in Cali, Colombia.” Abstract THPE0412. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sandgren, E., S. Sandgren, M. Urazalin and R. Andersson. 2008. “HIV/AIDS Awareness and Risk Behaviour among Pregnant Women in Semey, Kazakhstan, 2007.” *BMC Public Health* 8: 295.
- Sandøy I., K. Dzikedzeke and K. Fylkesnes. 2008. “Prevalence and Correlates of Concurrent Sexual Partnerships in Zambia.” *AIDS Behavior* 14(1): 59–71.
- Sandøy I, C Michelo, S Siziya and K Fylkesnes. 2007. “Associations between Sexual Behavior Change in Young People and Decline in HIV Prevalence in Zambia.” *BMC Public Health* 7 (60).
- Sangala, W., P. Briggs, S. Theobald, S. Squire and J. Kemp. 2006. “Screening for Pulmonary Tuberculosis: An Acceptable Intervention for Antenatal Care Clients and Providers?” *The International Journal of Tuberculosis and Lung Disease* 10(7): 789–794.
- Sangani P., G. Rutherford and D. Wilkinson. 2004. “Population-based Interventions for Reducing Sexually Transmitted Infections, Including HIV Infection.” *Cochrane Database Systematic Review* (3): CD001220.
- Sankaranarayanan, R., B. Nene, S. Shastri, K. Jayant, R. Muwonge, A. Budukh, S. Hingmire, S. Malvi, R. thorat, A. Kothari, R. Chinoy, R. Kelkar, S. Kane, S. Desai, V. Keskar, R. Rajeshwarkar, N. Panse and K. Dinshaw. 2009. “HPV Screening for Cervical Cancer in Rural India.” *The New England Journal of Medicine* 360 (14): 1385–1394.
- Saravanamuthy, P., L. Ramakrishnan, M. Narayanswamy, G. Ashok, K. Kalairais, P. Kalpana, D. Dineshkumar, S. Raghavan and S. Sahu. 2008. “Factors Influencing STI Service Uptake by Male-to-female Transgenders at Government Clinics in Chennai, India.” Abstract WEPE0714. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sarkar, K. B. Bal, R. Mukherjee, S. Chakratory, S. Saha, A. Gosh and S. Parsons. 2008. “Sex Trafficking, Violence, Negotiating Skill, and HIV Infection in Brothel-based Sex Workers of Eastern India, Adjoining Nepal, Bhutan, and Bangladesh. *J Health Popl Nutr* 6 (2): 223–231.
- Sarkar, N. 2008. “Barriers to Emergency Contraception (EC): Does Promoting EC Increase Risk for Contactin Sexually Transmitted Infections, HIV/AIDS?” *Int J Clin Pract* 62 (11): 1769–1775.
- Sarna, A, S M F Luchters, S Geibel, S Kaai, P Munyao, K S Shikely, K Mandaliya, J van Dam and M Temmerman. 2008. “Sexual Risk Behavior and HAART: A Comparative Study of HIV-Infected Persons on HAART and on Preventive Therapy in Kenya.” *International Journal of STD & AIDS* 19: 85–89.
- Sarr, M., B. Ndiaye, B., H. Loemba and M. Yasa. 2008. “Overall and Diarrhea or Lower Respiratory Infections Related Mortality among Formula Fed and Breastfed Children of HIV-1 Infected Women in Africa: A Meta-Analysis.” Abstract THACo404. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Satcher D. 2001. “From the Surgeon General. Global HIV / AIDS Revisited.” *JAMA* 286 (20): 2535.
- Sati, W. 2008. “Mainstreaming Disability into HIV Counseling and Testing, Care and Treatment Services by the Deaf Community through the Delivery of Deaf Mobile VCT Services.” Abstract TUPE0455. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Sax, P. and L. Baden. 2009. "When to Start Antiretroviral Therapy—Ready When You Are?" *The New England Journal of Medicine*.
- Schmid, G. B. Williams, J. Garcia-Calleja, C. Miller, E. Segar, M. Southworth, D. Tonyan, J. Wacloff and J. Scott. 2009. "The Unexplored Story of HIV and Ageing." *Bulletin of the World Health Organization* 87: 161–162.
- Schmid, G., D. Smith, J. Mernin, C. Maliyackel, U. Laukamm-Josten, M. Egger and C. Gilks. 2008. "Superinfection, Serosorting, Condoms and Public Health: Unrecognized Big News, or No News? The Need for Data and Appropriate Policy." Abstract MOPE0316. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Schottenfeld, R., M. Chawarski and M. Mazlan. 2008. "Maintenance Treatment with Buprenorphine and Naltrexone for Heroin Dependence in Malaysia: A Randomised, Double-Blind, Placebo-controlled Trial." *The Lancet* 371: 2192–2200.
- Schubert, B., D. Webb, M. Temin, and P. Masabane. 2007. *The Impact of Social Cash Transfers on Children Affected by HIV and AIDS: Evidence from Zambia, Malawi and South Africa*. Lilongwe, Malawi: UNICEF/ESARO.
- Schuler, S., S. Hashemi, and S. Badal. 1998. "Men's Violence against Women in Rural Bangladesh: Undermined or Exacerbated by Microcredit Programmes?" *Development in Practice* 8 (2): 148–157.
- Schuler, S., S. Hashemi, A. Riley and S. Akhter. 1996. "Credit Programs, Patriarchy and Men's Violence against Women in Rural Bangladesh." *Social Science and Medicine* 43(12): 1729–1742.
- Schutt-Aine J and M Maddaleno. 2003. *Sexual health and development of adolescents and youth in the Americas: Program and policy implications*. Washington DC: Pan American Health Organization. www.paho.org.
- Sciarra, J. 2009. "Global Issues in Women's Health." *International Journal of Gynecology and Obstetrics* 104: 77–79.
- Searing, H., B. Farrell, S. Gutin, N. Johri, L. Subrmaian, H. Kakade, G. Nagendi, M. Randiki, M. Msiat-Mwangi. 2008. "Evaluation of a Family Planning and Antiretroviral Therapy Pilot in Mbale, Uganda." NY, NY: Acquire Evaluation and Research Studies. Website: [http://www.acquireproject.org/fileadmin/user\\_upload/ACQUIRE/Publications/FP-ART-Integration-final.pdf](http://www.acquireproject.org/fileadmin/user_upload/ACQUIRE/Publications/FP-ART-Integration-final.pdf).
- Sears, D., C. Cabrera-Rodriguez, F. Ortiz-Mejia, B. Anderson and M. Stein. 2008. "Sexual Risk Behavior among HIV-positive Patients at an Urgan Clinic in Santiago, Dominican Republic." *AIDS Care* 20 (2): 191–197.
- Sebitloane, H., J. Moodley and T. Esterhuizne. 2009. "Determinants of Postpartum Infectious Complications among HIV Uninfected and Antiretroviral Naïve-HIV Infected Women Following Vaginal Delivery: A Prospective Cohort Study." *European Journal of Obstetrics & Gynecology and Reproductive Biology* 145: 158–162.
- Sebitloane, H. and R. Mhlanga. 2008. "Changing Patterns of Maternal Mortality (HIV/AIDS Related) in Poor Countries." *Best Practice & Research Clinical Obstetrics and Gynaecology* 22 (3): 489–499.
- Sebuliba, I., A. Nkyoyoyo and C. Nabiryo. 2008. "Factors Associated with Patients Registered in WHO Stages 3 and 4: A Case of TASO Uganda (2004–2007)." Abstract THPE0646. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sedio, G. 2009. "HIV and Sexual and Reproductive Health and Rights: Moving Toward a Comprehensive Approach." Presentation for UNAIDS. Washington, DC. Oct. 15.
- Sedio, G. 2008. Presentation TUSAT09. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Seely, J., S. Russell, K. Khana, R. King and R. Bunnell. 2008. "Sex after ART: The Nature of Sexual Partnerships Established by HIV-infected Persons Taking Anti-retroviral Therapy in Eastern Uganda." Abstract THPE0819. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Sekirime, W. and J. Lule. 2009. "Outcome of Cesarean Section in Asymptomatic HIV-1 Infection in Kampala, Uganda." *Journal of Obstetric and Gynaecological Research* 35(4): 679–699.
- Sellers, T., A. Saha, I. Khan and J. Omega. 2008. "Identifying HIV and SRH Service Integration Options to Increase Access to Family Planning and Safe Abortion for HIV Positive Women in India." Abstract THPE0527. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Semprini, A., L. Hollander, A. Vucetich, and C. Gilling-Smith. 2008. "Infertility Treatment for HIV-Positive Women." *Women's Health* 4 (4): 369–382.
- Semrau, K., L. Kuhn, C. Vwalika, P. Kasonde, M. Sinkala, C. Kankasa, E. Shutes, G. Aldrovandi, D.M. Thea. 2005. "Women in Couples Antenatal HIV Counseling and Testing Are Not More Likely to Report Adverse Social Events." *AIDS* 19(6): 603–9.
- Senefeld, S., M. Farmer, S. Ahmed, C. Lee. 2008. "Food and Nutrition Security of Orphans and Vulnerable Children: Programmatic Implications Resulting from a Five-country Evaluation." Abstract WEPE0624. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sengupta, S. and T. Tandon. 2008. "Policy and Politics: Rights of Indian Sex Workers." Abstract TUPE0952. XVII International AIDS Conference. Mexico City, Mexico.
- Sepulveda, J. 2008. Plenary presentation MOPL0102. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sepulveda, J., C. Carpenter, J. Curran, W. Holzemer, H. Smits, K. Scott and M. Orza, editors and the IOM Committee for the Evaluation of PEPFAR Implementation. 2007. *PEPFAR Implementation: Progress and Promise*. Washington, DC: National Academies Press.
- Seth, P., L. McNair and G. Wingood. 2008. "Gender Differences in Risky Sexual Practices, Condom Efficacy, and Sexual Attitudes among Young Adults in Agra, India." Abstract WEPE0913. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Severe, L., S. Nerette, C. Nolte, D. Fitzgerald and J. Pape. 2008. "Eradication of Congenital Syphilis." Abstract MOPE0351. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sgombich Mancilla, M., D. Ottenberger, L. Moay, C. Pedraza, H. Hernandez, I. Matute, L. Valdebenito and J. Gonzalez. 2008. "Quality of Life, Determinants, Gender and Sexual Orientation." Abstract THPE0659. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Shah, M., N. Osborne, M. Mbilizi, and G. Vilili. 2001. *Impact of HIV/AIDS on Agriculture Productivity and Rural Livelihoods in the Central Region of Malawi*. Lilongwe, Malawi: Care International in Malawi.
- Shahmanesh, M., V. Patel, D. Mabey and F. Cowan. 2008. "Effectiveness of Interventions for the Prevention of HIV and Other Sexually Transmitted Infections in Female Sex Workers in Resource Poor Setting: A Systematic Review." *Tropical Medicine and International Health* 13 (5): 659–679.
- Shaibu, S. 2006. "Community Home-based Care in a Rural Village: Challenges and Strategies." *Journal of Transcultural Nursing* 17 (1): 86–94.
- Shannon, K., A. Kaida, B. Rachlis, E. Lloyd-Smith, G. Gray and S. Strathdee. 2008. "Reconsidering the Impact of Conflict on HIV Infection among Women in the Era of Antiretroviral Treatment Scale-up in Sub-Saharan Africa: A Gender Lens." *AIDS* 22: 1705–1707.
- Shapiro, R., L. Smeaton, S. Lockman, I. Thior, R. Rossenkhana, C. Wester, L. Stevens, C. Moffat, P. Arimi, P. Ndase, A. Asmelash, J. Leidner, V. Novitsky, J. Makhema and M. Essex. 2009. "Risk Factors for Early and Late Transmission of HIV via Breast-Feeding among Infants Born to HIV-Infected Women in a Randomized Clinical Trial in Botswana." *Journal of Infectious Diseases* 199(3): 414–418.

- Shapiro, K. and S. Ray. 2007. "Sexual Health for People Living with HIV." *Reproductive Health Matters* 15 (9): 67–92.
- Shapiro, R, S. Lockman, I. Thior, L. Stocking, P. Kebaabetswe, C. Wester, T. Peter, R Marlink and M Essex. 2003. "Low Adherence to Recommended Infant Feeding Strategies Among HIV-Infected Women: Results from the Pilot Phase of a Randomized Trial to Prevent Mother-to-Child Transmission in Botswana." *AIDS Education and Prevention*, 15(3), 221–230.
- Sharma, D. and P. Spearman. 2008. "The Impact of Cesarean Delivery on Transmission of Infectious Agents to the Neonate." *Clinical Perinatology* 35: 407–420.
- Sharma, M., E. Oppenheimer, T. Saidel, V. Ioo and R. Garg. 2009. "A Situation Update on HIV Epidemics among People Who Inject Drugs and National Responses in South-east Asia Region." *AIDS* 23: 1405–1413.
- Shaw, D. 2009. "Access to Sexual and Reproductive Health for Young People: Bridging the Disconnect between Rights and Reality." *International Journal of Gynecology and Obstetrics* 106: 132–136.
- Shelton, J., D. Halperin, V. Nantulya, M. Potts, H. Gayle and K. Holmes. 2004. "Partner Reduction is Crucial for Balanced 'ABC' Approach to HIV Prevention." *BMJ* 328: 891–893.
- Shelton JD and AE Peterson. 2004. "The imperative for family planning in ART in Africa." *The Lancet* 364: 1916–1918.
- Sherman, S., A. Kamarulzaman and P. Spittal. 2008. "Women and Drugs across the Globe: A Call to Action." *The International Journal of Drug Policy* 19: 97–98.
- Sherman, S.G., D. German, Y. Cheng, M. Marks, M. Bailey-Kloche. 2006. "The Evaluation of the JEWEL Project: An Innovative Economic Enhancement and HIV Prevention Intervention Study Targeting Drug using Women Involved in Prostitution." *AIDS Care* 18(1): 1–11.
- Sherr, L. 2008a. *Strengthening families through HIV/AIDS Prevention, Treatment, Care and Support*. Technical Report. Boston, MA: Joint Learning Initiative on Children and HIV/AIDS (JLICA).
- Sherr, L. 2008b. "Gender, Young Children and AIDS—Evidence, Ignorance and Neglect." Abstract WEPE0831. Abstract MOPE0475. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sherr, L., B. Lopman, M. Kakowa, S. Dube, G. Chawira, C. Nyamukapa, N. oberzaucher, I. Cremin and S. Gregson. 2007. "Voluntary Counselling and Testing: Uptake, Impact on Sexual Behavior, and HIV Incidence in a Rural Zimbabwean Cohort." *AIDS* 21: 851–860.
- Shetty, A., C. Marangwanda, L. Stranix-Chibanda, W. Chandisarewa, E. Chirapa, A. Mahomva, A. Miller, M. Simoyi and Y. Maldonado. 2008a. "The Feasibility of Preventing Mother-to-Child Transmission of HIV Using Peer Counselors in Zimbabwe." *AIDS Research and Therapy* 5 (17).
- Shetty, P., R. Granich, A. Patil, S. Sawant, S. Sahu, D. Wares, L. Chauhan and P. Joshi. 2008b. "Cross-referral between voluntary HIV counseling and testing centres and TB services, Maharashtra, India, 2003–2004." *The International Journal of Tuberculosis and Lung Disease* 12(3): S26–S31.
- Shetty, A.K., M. Mhazo, S. Moyo, A. von Lieven, P. Mateta, D.A. Katzenstein, Y. Maldonado, D. Hill, M.T. Bassett. 2005. "The Feasibility of Voluntary Counselling and HIV Testing for Pregnant Women using Community Volunteers in Zimbabwe." *International Journal of STD & AIDS* 16(11): 755–9.
- Sheue-Rong, L., H. Tsuei-Mi, H. Hui-Chun and S. Lai-Chu. 2008. "The Successful Pilot Harm Reduction Campaign in Taoyuan County." Abstract WEPE1080. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Shuey, D., B. Baishangire, S. Omiat, and S. Bagarukayo. 1999. "Increased Sexual Abstinence among In-school Adolescents as a Result of School Health Education in Soroti District, Uganda." *Health Education Research* 14(3): 411–419.
- Sidibé, M. 2009. Presentation at the UN Commission on the Status of Women. New York. March 2.
- Sidibe, M. 2009. Press release from the HIV Vaccines and Microbicides Resource Tracking Group. Capetown, South Africa. IAC. July 20.
- Siika, A., W. Nyandiko, A. Mwangi, M. Waxman, J. Sidle, S. Kimaiyo and K. Wools-Kaloustian. 2009. "The Structure and Outcomes of a HIV Postexposure Prophylaxis Program in a High HIV Prevalence Setup in Western Kenya." *J Acqui Immune Defic Syndr* 51 (1): 47–53.
- Sikkema, K., S. Neufeld, N. Hansen, R. Mohlahane, M. Rensburg, M. Watt, A. Fox and M. Crewe. 2009. "Integrating HIV Prevention into Services for Abused Women in South Africa." *AIDS and Behavior*. 14 (2): 431–439. DOI 10.1007/s10461-009-9620-4.
- Silberschmidt, M. and V. Rasch. 2001. "Adolescent Girls, Illegal Abortions and "Sugar-daddies" in Dar es Salaam: Vulnerable Victims and Active Social Agents." *Social Science & Medicine* 52(12): 1815–1826.
- Silva, N. and J. Ayres. 2008. "Disease Control, Immorality, Illegality: Concepts of Health Professionals about Notifying Sexual Partners, in STD/AIDS Specialized Health Services of the City of Sao Paulo, Brasil." Abstract MOPE0475. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Silverman, J., M. Decker, N. Saggurti, D. Balaiah and A. Raj. 2008. "Intimate Partner Violence and HIV Infection among Married Indian Women." *JAMA* 300 (6): 703–710.
- Simic, M. and t. Rhodes. 2009. "Violence, Dignity and HIV Vulnerability: Street Sex Work in Serbia." *Sociology of Health & Illness* 31 (1): 1–16.
- Simwaka, B., G. Bello, H. Banda, R. Chimizi, B. Squire and S. Theobald. 2007. "The Malawi National Tuberculosis Programme: An Equity Analysis." *International Journal for Equity in Health* 6: 24.
- Singh, D., K. Anastos, D. Hoover, R. Burk, Q. Shi, L. Ngendahayo, E. Mutimura, A. Cajigas, V. Bigirimani, X. Cai, J. Rwamwejo, M. Vuolo, M. Cohen and P. Castle. 2009a. "Human Papillomavirus Infection and Cervical Cytology in HIV-Infected and HIV-Uninfected Rwandan Women." *Journal of Infectious Disease* 199: 1851–1861.
- Singh, K., W. Sambisa, S. Munyati, B. Chandiwana, A. Chingono, R. Monash and S. Weir. 2009b. "Targeting HIV Interventions for Adolescent Girls and Young Women in Southern Africa: Use of the PLACE Methodology in Hwange, Zimbabwe." *AIDS and Behavior*. 14 (1): 200–208. DOI 10.1007/s10461-009-9572-8.
- Singh, S., J. Darroch, L. Ashford and M. Vlassoff. 2009c. *Adding it Up: The Costs and Benefits of Investing in Family Planning and Maternal and Newborn Health*. New York, NY: The Guttmacher Institute and UNFPA.
- Singh, A. 2008. "Workplace Policies on HIV/AIDS and the Right to Non-discrimination: Pilot Initiatives in Nepal." Abstract WEPE0941. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Singh, S., J. Darroch and A. Bankole. 2003a. *A, B and C in Uganda: The Roles of Abstinence, Monogamy and Condom Use in HIV Decline*. Occasional Report No. 9. New York, NY: Guttmacher Institute.
- Singh S., J. Darroch, M. Vlassoff and J. Nadeau. 2003b. *Adding It Up: The Benefits of Investing in Sexual and Reproductive Health Care*. Washington, DC: Guttmacher Institute and UNFPA.
- Singh, Y. and Y. Singh. 2008. "Health and Treatment Seeking Behavior among Hijras." Abstract MOAX0203. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sinha, G., D. Peters and R. Bollinger. 2009. "Strategies for Gender-equitable HIV Services in Rural India." *Health Policy and Planning* 24: 197–208.

- Sinha, G., A. Dyalchand, M. Khale, G. Kulkarni, S. Vasudevan and R. C. Bollinger. 2008. "Low Utilization of HIV Testing During Pregnancy: What are the Barriers to HIV Testing for Women in Rural India?" *Journal of Acquired Immune Deficiency Syndromes* 47(2): 248–252.
- Sinkala, M., K. Conley, c. Nguni, L. Mbulo, M. Mbecchi and S. Hamilton. 2008. "Zambian Men Take the Lead in Accessing VCT Services." Abstract TUPE0374. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sirivongrangsorn, P., L. Bollen, A. Chaovavanich, O. Suksripanich, P. Virapat, P. Tunthanathip, J. Ausavapipit, S. Lokpichat, U. Siangphoe, N. Jirarojwat, V. Pobkeeree, S. Supawitkul, J. Tappero and W. Levine. 2007. "Screening HIV-Infected Women for Cervical Cancer in Thailand: Findings from a Demonstration Project." *Sexually Transmitted Diseases* 34 (2): 104–107.
- Six Week Extended-Dose Nevirapine Writing Team (SWEN). 2008. "Extended-dose Nevirapine to 6 Weeks of Age for Infants to Prevent HIV Transmission via Breastfeeding in Ethiopia, India, and Uganda: An Analysis of Three Randomized Controlled Trials." *The Lancet* 372: 300–313.
- Skinner D., U. Rivette, C. Bloomberg. 2007. "Evaluation of Use of Cellphones to Aid Compliance with Drug Therapy for HIV Patients." *AIDS Care* 19(5): 605–7.
- Skinner-Adams, T., J. McCarthy, D. Gardiner and K. Andrews. 2008. "HIV and Malaria Co-Infection: Interactions and Consequences of Chemotherapy." *Trends in Parasitology* 24 (6): 264–271.
- Slaymaker, E., J. Bwanika, I. Kasamba, T. Lutalo, D. Maher and J. Todd. 2009. "Trends in Age at First Sex In Uganda: Evidence from Demographic and Health Survey Data and Longitudinal Cohorts in Masaka and Rakai." *Sex Transm Infect* 85 (Supplement II: 112–119).
- Slonim-Nevo, V. and L. Mukuka. 2007. "Child Abuse and AIDS-related Knowledge, Attitudes and Behavior among Adolescents in Zambia." *Child Abuse and Neglect* 31: 143–159.
- Slutsker, L. 2009. Email to Jill Gay. July 2. Dr. Slutsker is Chief, Malaria, Branch, Centers for Disease Control in the US.
- Slutsker, L. and B. Marston. 2007. "HIV and Malaria: Interactions and Implications." *Current Opinion in Infectious Diseases* 20: 3–10.
- Smart, T. and K. Alcorn. 2009. "Switching from Efavirenz to Nevirapine in Women with Higher CD4 Counts." *HIV & AIDS in Treatment in Practice* 136: 1–8. www.aidsmap.com.
- SMART—The Strategies for Management of Antiretroviral Therapy (SMART) Study Group. 2006. "CD4+ Count-Guided Interruption of Antiretroviral Treatment." *New England Journal of Medicine* 355 (22): 2283–2296.
- Smith, R., J. Li, R. Gordon and J. Hefferman. 2009. "Can We Spend Our Way Out of the AIDS Epidemic? A World Halting AIDS Model." *BMC Public Health* 1 (Supplement 1): S15.
- Smith, R. and R. Rimal. 2009. "The Impact of Social Capital on HIV-related Actions as Mediated by Personal and Proxy Efficacies in Namibia." *AIDS Behavior*. 13: 133–144.
- Smith, O., T. Minior, N. Jordan, J. Woolford, D. Vitalis and D. Storm. 2008. "A Multidisciplinary Approach to Improving Adherence to Antiretroviral Therapy." Abstract THPE0145. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Smith, C., M. Battin, L. Francis and J. Jacobson. 2007. "Should Rapid Tests for HIV Infection Now Be Mandatory during Pregnancy? Global Differences in Scarcity and A Dilemma of Technological Advance." *Developing World Bioethics* 7 (2): 86–103.

- Smith D. 2007. "Modern Marriage, Men's Extramarital Sex, and HIV Risk in Southeastern and HIV Risk in Southeastern Nigeria." *American Journal of Public Health* 97(6): 997-1005.
- Snelling D, D. Omibara, S. Hong, K. Georgiades, Y. Racine and M. Boyle. 2006. "HIV/AIDS Knowledge, Women's Education, Epidemic Severity and Protective Sexual Behavior in Low- and Middle-Income Countries." *Journal of Biosocial Science* 39: 421-442.
- Snow, R., M. Madaleni and M. Poulsen. 2008. "Are Men Testing? Sex Differentials in HIV Testing in Mpumalanga, South Africa." Abstract MOPE0882. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Sodhi, G. and M. Verma. 2003. "Sexual Coercion amongst Unmarried Adolescents of an Urban Slum in India." Pp. 91-94 in *Towards Adulthood: Exploring the Sexual and Reproductive Health of Adolescents in South Asia*, edited by S. Jejeebhoy, I. Shah and C. Puri. Geneva, Switzerland: World Health Organization.
- Sogarwal, R., D. Bachani and K. Rao. 2008. "Situational Analysis and Client Satisfaction Evaluation of ART Centers in India." Abstract MOPE0887. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Sohn, A., T. Thanh, L. Thinh, T. Khanh, H. Thu, L. Giang and T. Lien. 2009. "Failure of Human Immunodeficiency Virus Enzyme Immunoassay to Rule Out Infection among Polymerase Chain Reaction-negative Vietnamese Infants at 12 Months of Age." *Pediatrics Infectious Disease Journal* 28 (4): 273-276.
- Solarzano, I., A. Bank, R. Pena, H. Espinosza, M. Ellsberg and J. Pulerwitz. 2008. "Catalyzing Personal and Social Change around Gender, Sexuality and HIV: Impact Evaluation of Puntos de Encuentro's Communication Strategy in Nicaragua." *Horizons Final Report*. Washington, DC: Population Council.
- Soliman, C., Z. El Taher, A. El Sattar, S. Shawky, B. Beyisetan, D. Oraby, S. Elkamhawi, D. Khaled, E. Salah and N. El Sayed. 2008. "Key Findings of Bio-BSS among High Risk Groups in the Middle East, Egypt Case Study." Abstract TUPE0273. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Solomon, S., K. Venkatesh, L. Brown, P. Verma, A. Cecelia, C. Daly, V. Mahendra, N. Cheng, N. Kumarasamy and K. Mayer. 2008. "Gender-related Differences in Quality of Life Domains of Persons Living with HIV/AIDS in South India in the Era Prior to Greater Access to Antiretroviral Therapy." *AIDS Patient Care* 22 (12): 999-1005.
- Solomon, S., S. Solomon, B. Masse, A. Srikrishnan, G. Baeuchamp, E. Thanburaj, M. Gulvady, S. Anand and K. Mayer. 2006. "Risk Reduction Counseling Is Associated with Decreased HIV Transmission-associated Behaviors in High-risk Indian Heterosexuals." *J Acquir Immune Defic Syndr* 42 (4): 478-483.
- Somma, D., B. Thomas, F. Karim, J. Kemp, N. Arias, C. Auer, G. Gosoni and A. Abouihia. 2008. "Gender and socio-cultural determinants of TB-related stigma in Bangladesh, India, Malawi and Colombia." *The International Journal of Tuberculosis and Lung Disease* 12(7): 856-866.
- Songbandith, T., S. Sheridan, P. Ounapho, N. Chilivong and M. Toole. 2008. "Sexual Behaviour and Vulnerability of Young Females, Vientiane Capital, Lao People's Democratic Republic." Abstract TUPE0322. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Soorapanth, S., S. Sansom, M. Bulterys, M. Besser, G. Theron, M.G. Fowler. 2006. "Cost-effectiveness of HIV Rescreening during Late Pregnancy to Prevent Mother-to-child HIV Transmission in South Africa and Other Resource-limited Settings." *Journal of Acquired Immune Deficiency Syndromes* 42(2): 213-21.
- Sotgiu, G., A. Abore, V. Cojacuriu, A. Piana, G. Ferrar, D. Cirillo, A. Matteelli, P. Castiglia, L. Ditui, A. Spanevello, J.-P. Zellweger, T. Mihaescu and G. Migliori. 2008. "High Risk of Tuberculosis in Health Care Workers in Romania." *Int J Tuberc Lung Dis* 12 (6): 606-611.

- Spaulding, A., D. Brickley, C. Kennedy, L. Almers, L. Packetl, J. Mirhangir, G. Kennedy, L. Collins, K. Osborne and M. Mbizvo. 2009. "Linking Family Planning with HIV/AIDS Interventions: A Systematic Review of the Evidence." *AIDS* 23 (supplement 1): S79–S88.
- Spaulding, A., C. Kenndy, L. Almers, D. Brickly, G. Kenndy, L. Packel, M. Mbizo, L. Collins and K. Osborne. 2008. "Linking Family Planning with HIV/AIDS Services: A Systematic Review of the Evidence for Effectiveness." Abstract THPE0531. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Speight, C., A. Klufio, N. Kilonzo, C. Mbugua, E. Kurai, J. Bunn and M. Taegtmeier. 2006. "Piloting Post-exposure Prophylaxis in Kenya Raises Specific Concerns for the Management of Childhood Rape." *Transactions of the Royal Society of Tropical Medicine and Hygiene* 100: 14–18.
- Speizer, I., R. Magnani and C. Colvin. 2003. "The Effectiveness of Adolescent Reproductive Health Interventions in Developing Countries: A Review of the Evidence." *Journal of Adolescent Health* 33: 324–348.
- Spiegel, P., A. Bennedson, J. Clacass, N. Patterson, D. Yiweza, M. Schilperood. 2007. "Prevalence of HIV Infection in Conflict-affected and Displaced People in Seven Sub-Saharan African Countries: A Systematic Review." *The Lancet* 369: 2187–2195.
- Spino, A., M. Clark and S. Stash. 2009. "HIV Prevention for Serodiscordant Couples." Arlington, VA. USAID/JSI. Website: : www.aidstar-one.com.
- Sprague, C. 2009. "Cuo Bono? A Capabilities Approach to Understanding HIV Prevention and Treatment for Pregnant Women and Children in South Africa." Submitted for the Degree of Doctor of Philosophy. University of Witwatersrand. South Africa.
- Sreeramareddy, C, K. Panduru, S. Verma, H. Joshi, and M. Bates. 2008. "Comparison of Pulmonary and Extrapulmonary Tuberculosis in Nepal—A Hospital-based Retrospective Study. *BMC Infectious Diseases* 8 (8). doi:10.1186/1471-2334-8-8.
- Sreevidya, J., V. Kanagasabapathy, G. Srinivas, S. Sahu, N. Tarakeshwar. 2008. "Psychosocial impact on infected and affected children in the Tamil Nadu Family Continuum Care (TNFCC) Program in India." Abstract THPE0866. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Ssengonzi, R. 2007. "The Plight of Older Persons as Caregivers to People Infected / Affected By HIV/AIDS: Evidence from Uganda." *Journal of Cross-Cultural Gerontology* 22(4): 339–353.
- Ssewamala, F., C.-H. Han, and T. Neilands. 2009. "Asset Ownership and Health and Mental Health Functioning Among AIDS-Orphaned Adolescents: Findings from a Randomized Clinical Trial in Rural Uganda." *Social Science & Medicine* 69: 191–198.
- Ssewamala, F., S. Alicea, W. Bannon and L. Isayilova. 2008. "A Novel Economic Intervention to Reduce HIV Risks among School-Going AIDS Orphans in Rural Uganda." *Journal of Adolescent Health* 42: 102–104.
- Ssewankambo, F., C. Naluga, G. Namale, I. Luatalo and A. Kambugo. 2009. "Determinants of Contraceptive Use among HIV Infected Women Attending Care in an Urban Center." Abstract. International Conference on Family Planning. Muyonyo, Uganda. November 15–18. www.fpconference.org.
- Stachonwiak, J. and A. Peryshkina. 2007. "Women's Health and Women's Rights: Selling Sex in Moscow." Pp. 88–104 in Edited by D. Beyrer and H. Pizer. 2007. *Public Health and Human Rights: Evidence-based Approaches*. Baltimore, MD: Johns Hopkins University Press.
- Stadler, J., S. Delany and M. Mntambo. 2007. "Sexual Coercion and Sexual Desire: Ambivalent Meanings of Heterosexual Anal Sex in Soweto, South Africa." *AIDS Care* 19 (10): 1189–1193.
- Stadler, J. and S. Delany. 2006. "The 'Healthy Brothel': The Context of Clinical Services for Sex Workers in Hillbrow, South Africa." *Culture, Health & Sexuality* 8 (5): 451–463.

- Stanwood N., S. Cohn, J. Heiser and M. Pugliese. 2007. "Contraception and Fertility Plans in a Cohort of HIV-positive Women in Care." *Contraception* 75(4): 294–298.
- Steen, R., T. Wi, A. Kamali and F. Ndowa. 2009. "Control of Sexually Transmitted Infections and Prevention of HIV Transmission: Mending a Fractured Paradigm." *Bulletin World Health Org* 87: 858–865.
- Steen, T.W., K. Seipone, L. Gomez Fde, M.G. Anderson, M. Kejelepula, K. Keapoletswe, H.J. Moffat. 2007. "Two and a half years of routine HIV testing in Botswana." *Journal of Acquired Immune Deficiency Syndromes* 44 (4): 484–8.
- Steinberg, M., S. Johnson, G. Schierhout, D. Ndegwa, K. Hall and B. Russell. 2002. *Hitting home: how households cope with the impact of the HIV/AIDS epidemic. A Survey of Households Affected by HIV/AIDS in South Africa*. Washington, DC. The Henry J Kaiser Family Foundation.
- Steinbrook, R. 2008. "The AIDS Epidemic—A Progress Report from Mexico City." *New England Journal of Medicine* 359 (9): 885–887.
- Steiner, B., M. Benner, E. Sondrop, P. Xhmitz, U. Mesmer and S. Rosenberger. 2008. "Sexual Violence in the Protracted Conflict of DRC Programming for Rape Survivors in South Kivu." *Conflict and Health* 3 (3): 1–8. doi:10.1186/1752-1505-3-3
- Steinzor, Nadia. 2003. "Women's Property and Inheritance Rights: Improving Lives in Changing Times." Final Synthesis and Conference Proceedings Paper. Washington: WIDTECH and Development Alternatives, Inc. Website: [http://www.usaid.gov/our\\_work/crosscutting\\_programs/wid/pubs/womens\\_property\\_inheritance.pdf](http://www.usaid.gov/our_work/crosscutting_programs/wid/pubs/womens_property_inheritance.pdf).
- Stek, A. 2008. "Antiretroviral Treatment in Pregnancy." *Current Opinion in HIV and AIDS* 3(2): 155–160.
- Stephenson, J. 2008. "HIV Prevention Studies Yield Mixed Results." *Journal of American Medical Association* 299 (13): 1529–1530.
- Stephenson, R., E. Mendenhall, L. Muzizi, B. Vwalika, E. Chomba, Y. Ahmed, L. Clark, D. Roth, J. Telfair, A. Haworth, S. Allen. 2008. "The Influence of Motivational Messages on Future Planning Behaviors among HIV Concordant Positive and Discordant Couples in Lusaka, Zambia." *AIDS Care* 20(2): 150–60.
- Stephenson, R. 2007. "Human Immunodeficiency Virus and Domestic Violence: The Sleeping Giants of Indian Health?" *Indian Journal of Medical Sciences* 61 (5): 251–252.
- Stevens, M. 2009. "Guidelines for Women of Reproductive Age." Policy Brief No. 1. Durban, South Africa: Health Systems Trust. [www.hst.org.za](http://www.hst.org.za).
- Stevens, M. 2008. "From HIV Prevention to Reproductive Health Choices: HIV/AIDS Treatment Guidelines for Women of Reproductive Age." *African Journal of AIDS Research* 7 (3): 353–359.
- Stoneburner, R. and D. Low-Beer. 2004. "Population-Level HIV Declines and Behavioral Risk Avoidance in Uganda." *Science* 304: 714–718.
- Storer, G. 2007. "Sexual and Reproductive Health Programming for Young Urban Males." Phnom Penh, CARE International in Cambodia.
- Storla, D., S. Yimer and G. Bjune. 2008. "A Systematic Review of Delay in the Diagnosis and Treatment of Tuberculosis." *BMC Public Health* 8: 15.
- Stover, J., B. Fidzani, B. Molomo, T. Moeti and G. Musuka. 2008. "Estimated HIV Trends and Program Effects in Botswana." *PLoS One* 3 (11): e3729.

- Stover, J., S. Bertozzi, J. Gutierrez, N. Walker, K. Stanecki, R. Greener, E. Gouws, C. Hankins, G. Garnett, J. Salomon, J. Boerma, P. De Lay and P. Ghys. 2007. "The Global Impact of Scaling Up HIV/AIDS Prevention Programs in Low-and Middle-Income Countries." *Science* 311: 1474–1476.
- Stover, J. and M. Fahnstock. 2006. *Coverage of Selected Services for HIV/AIDS Prevention, Care, and Treatment in Low- and Middle-Income Countries in 2005*. Washington, DC: Constella Futures, POLICY Project. Website: [www.ConstellaFutures.com](http://www.ConstellaFutures.com).
- Strachan, M., A. Kwateng-Addo, K. Hardee, S. Subramaniam, N. Judice and K. Agarwal. 2004. *An Analysis of Family Planning Content in HIV/AIDS, VCT and PMTCT Policies in 16 Countries*. Working Paper Series No. 9. Washington, DC: POLICY Project.
- Strand, R.T., L. Fernandes Dias, S. Bergström and S. Andersson. 2007. "Unexpected Low Prevalence of HIV among Fertile Women in Luanda, Angola. Does War Prevent the Spread of HIV?" *International Journal of STD & AIDS* 18 (7): 467–71.
- Strathdee, S., M. Newell, F. Bastos and T. Patterson. 2006. "HIV Prevention Programmes: An Overview." Pp. 67–85. In edited by E. Beck, N. Mays, A. Whiteside, J. Zuniga and L. Holland. *The HIV Pandemic: Local and Global Implications*. Oxford, UK: Oxford University Press.
- Strebel, A., M. Crawford, T. Shefer, A. Cloete, N. Henda, M. Kaufman, L. Simbayi, K. Magome and S. Kalichman. 2006. "Social Constructions of Gender Roles, Gender-based Violence and HIV/AIDS in Two Communities of the Western Cape, South Africa." *Journal of Social Aspects of HIV/AIDS* 3 (3): 516–528.
- Strickland, R. 2004. "To Have and To Hold: Women's Property and Inheritance Rights in the Context of HIV/AIDS in Sub-Saharan Africa." International Center for Research on Women Working Paper. Washington, DC: International Center for Research on Women.
- Stringer, E. 2009. "An Overview of Hormonal Contraception and HIV Progression." Abstract. International Conference on Family Planning. Muyonyo, Uganda. November 15–18. [www.fpconference.org](http://www.fpconference.org).
- Stringer, E., M. Giganti, R. Carter, W. El-Sadr, E. Abrams, and J. Stringer. 2009. "Hormonal Contraception and HIV Disease Progression: A Multicountry Cohort Analysis of the MTCT-Plus Initiative." *AIDS* 23 (Supplement 1): S69–S67.
- Stringer, E., N. Chintu, J. Levy, M. Sinkala, B. Chi, J. Muyanga, M. Bulterys, M. Bweupe, K. Megazzini and J. Stringer. 2008. "Declining HIV Prevalence among Young Pregnant Women in Lusaka, Zambia." *Bulleting of the World Health Organization* 86 (9): 697–702.
- Stringer, E., C. Kaseba, J. Levy, M. Sinkala, R. Goldenberg, B. Chi, I. Matongo, S. Vermund and M. Mwannahamuntu. 2007. "A Randomized Trial of the Intrauterine Contraceptive Device vs. Hormonal Contraception in Women Who Are Infected with the Human Immunodeficiency Virus." *American Journal of Obstetrics & Gynecology* 197: 144e1–144e8.
- Stringer, J.S., I. Zulu, J. Levy, E.M. Stringer, A. Mwangi, B.H. Chi, V. Mtonga, S. Reid, R.A. Cantrell, M. Bulterys, M.S. Saag, R.G. Marlink, A. Mwinga, T.V. Ellerbrock, M. Sinkala. 2006. "Rapid scale-up of antiretroviral therapy at primary care sites in Zambia: feasibility and early outcomes." *Journal of the American Medical Association* 296(7): 782–9
- Stuart, G. 2009. "Fourteen Million Women with Limited Options: HIV/AIDS and Highly Effective Reversible Contraception in Sub-Saharan Africa." *Contraception*.
- Stubbel, K., G. soon, M. Min, K. Chan-Tack, J. Murray and D. Birnkrant. 2009. "Meta-analysis of Efficacy Outcomes for Treatment-naïve and Treatment-experienced HIV-infected Women in Randomized Controlled Clinical Trials: 2000 to 2008." Abstract 987B. 16<sup>th</sup> Conference on Retroviruses and Opportunistic Infections. Montreal, Canada.

- Stuikyte, R. S. Schonning and S. Merkinaite. 2008. "Access to ARV for IDU in Eastern Europe and Central Asia: The Challenge of Using Available Funds Rights." Abstract TUPE0205. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Stumer, M., H. Doerr, A. Berger and P. Gute. 2008. "Case Report: Is Transmission of HIV-1 in Non-viraemic Serodiscordant Couples Possible?" *Antiretroviral Therapy* 13: 729–732.
- Subhaluaksuksakorn, P., T. Jinavong and U. Udomsubpayakul. 2008. "Sexual Risk Behavior among HIV-infected Persons Receiving Antiretroviral Therapy in Thailand." Abstract TUPE0844. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Sullivan, P., K. Kayitenkore, E. Chomba, E. Karita, L. Mwanayanda, C. Vwalika, M. Conkling, N. Luisi, A. Tichacek and S. Allen. 2009. "Reduction of HIV Transmission Risk and High Risk Sex While Prescribed ART: Results from Discordant Couples in Rwanda and Zambia." Abstract 52LB. 16<sup>th</sup> Conference on Retroviruses and Opportunistic Infections. Montreal, Canada.
- Sullivan, S. and Z. Wu. 2007. "Rapid Scale Up of Harm Reduction in China." *International Journal of Drug Policy* 18: 118–127.
- Sunthornchart, S. R. Linkins, V. Natephisarnwanish, W. Levine, K. Maneesinthu, R. Lolekha, J. Trappero, N. Trirat, S. Muktier, P. Chancarastong, K. fox, S. Donchalernpak, C. Vitek and S. Supwitkul. 2008. "Prevalence of Hepatitis C, Tetanus, Hepatitis A, Human Immunodeficiency Virus and Feasibility of Vaccine Delivery among Injecting Drug Users in Bangkok, Thailand, 2003–2005." *Addiction* 103: 1687–1695.
- Suryavanashi, N., A. Erande, H. Pisai, A. Shankar, R. Bhosale, R. Bollinger, M. Phadke and J. Sastry. 2009. "Repeated Pregnancy among Women with Known HIV Status in Pune, India." *AIDS Care* 20 (9): 1111–1118.
- Susser, I. and Z. Stein. 2000. "Culture, Sexuality, and Women's Agency in the Prevention of HIV/AIDS in Southern Africa." *American Journal of Public Health* 90(7): 1042–1048.
- Sutherland, E., J. Alaii, J. Liku, M. Green, S. Tsui, S. Luchers, N. King'ola, S. Abdallah, J. Okai and M. Temmerman. 2008. "Estimating the Contraceptive Needs of Women Traditionally Targeted for HIV/STI Services in Kenya." Abstract WEPE0781. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Swal, G., H. Mponzuya and V. Tembe. 2008. "Political Will Offers Hope in Halting and Reversing the HIV/AIDS Disaster in sub Saharn African Countries: The Case of Tanzania." WEPE0988. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Swaminathan, H., N. Bhatla and S. Chakraborty. 2007. *Women's Property Rights as an AIDS Response: Emerging Efforts in South Asia*. Washington, DC: International Center for Research on Women.
- Swan, T. and D. Raymond. 2004. *Hepatitis CVirus and HIV/HCV Co-infection: Updated 2004. A Critical Review of Research and Treatment*. NY, NY: Treatment Action Group.
- Szreter, S. and M. Woolcock. 2004. "Health by Association? Social Capital, Social Theory, and the Political Economy of Public Health." *International Journal of Epidemiology* 33: 700–704.
- Taegtmeier, M., N. Kilonzo, L. Mung'ala, G. Morgan and S. Theobald. 2006. "Using Gender Analysis to Build a Voluntary Counseling and Testing Responses in Kenya." *Royal Society of Tropical Medicine and Hygiene* 100: 305–311.
- Taha, T., D. Hoover, N. Kumwenda, S. Fiscus, G. Kafulafula, C. Nkhoma, S. Chen, E. Piowowar, R. Broadhead, J. Jackson and P. Miotti. 2007. "Late Postnatal Transmission of HIV-1 and Associated Factors." *Journal of Infectious Diseases* 196: 10–14.

- Taha, T. N. Kumwenda, D. Hoover, G. Kafullafula, S. Fiscus, C. Nkhoma, S. Chen and R. Broadhead. 2006. "The Impact of Breastfeeding on the Health of HIV-positive Mothers and their Children in Sub-Saharan Africa." *Bulletin of the World Health Organization* 84 (7): 546–554.
- Tai, J.H., M.A. Udoji, G. Barkanic, D.W. Byrne, P.F. Rebeiro, B.R. Byram, A. Kheshti, J.D. Carter, C.R. Graves, S.P. Raffanti and T. R. Sterling. 2007. "Pregnancy and HIV Disease Progression during the Era of Highly Active Antiretroviral Therapy." *Journal of Infectious Diseases* 196: 1044–1052.
- Taiju, R. and R. Mehta. 2008. "Adolescents' Health Seeking Behavior and its Implication on HIV/AIDS Prevention in Urban India." Abstract WEPE0919. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Taj, J., M. Udoji, G. Brakanic et al. 2007. "Pregnancy and HIV Disease Progression during the Era of Highly Active Antiretroviral Therapy." *The Journal of Infectious Diseases* 196: 1044–1052.
- Takas, J., Y. Amirkhanian, J. Kelly, A. Kirsanova, R. Khoursine and L. Mocsonaki. 2006. "Condoms Are Reliable but I Am Not': A Qualitative Analysis of AIDS-related Beliefs and Attitudes of Young Heterosexual Adults in Budapest, Hungary, and St. Petersburg, Russia." *Cent Eur J Publi Health* 14 (2): 59–66.
- Taljaard, D. R. Rain-Tlgaard, C. Nhlapo and B. Auvert. 2008. "Female Parents and Partners to an HIV Male Circumcision and Intervention." Abstract MOPE0546. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Tallis, V. 2008. "WSW: HIV Is an Issue that Affects Us! Exposing Our Marginalization." Abstract WEPE0753. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Tann, C., H. Mpairwe, L. Morison, K. Nassimu, P. Hughes, M. Omara, D. Mabey, M. Muwanga, H. Grosskurth, and A. Elliot. 2006. "Lack of Effectiveness of Syndromic Management in Targeting Vaginal Infections in Pregnancy in Entebbe, Uganda." *Sexually Transmitted Infections* 82: 285–289.
- Tanner, M. and C. Vlassof. 1998. "Treatment Seeking Behavior for Malaria: A Framework Based on Endemicity, Age and Gender." *Social Science and Medicine* 46: 523–532.
- Tang, C. and B. Lai. 2008. "A Review of Empirical Literature on the Prevalence and Risk Markers of Male-on-female Intimate Partner Violence in Contemporary China." *Aggression and Violent Behavior* 13 (1): 10–28.
- Taoka, S., R. Baggaley, K. Hughes, E. Ndongoo, J. Masila, N. Wambua. 2008. "Do Savings and Loans Associations (SLAs) Improve Diets and Nutritional Status of Orphans and Vulnerable Children (OVC)?" Abstract TUPE0661. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Tarimo, E., T. Kohi, A. Outwater and A. Blystad. 2009. "Gender Roles and Informal Care for Patients with AIDS: A Qualitative Study from an Urban Area in Tanzania." *J Transcult Nurs* 20 (61): 61–68.
- Taslina, J. and M. Mulongo. 2008. "Reduced Prevalence of Malaria among PLHIV on ART." Abstract CDB0111. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Tataryn, M. and S. Shome. 2008. "Enabling Inclusion: Challenges and Successes in Addressing the Exclusion of Women with Disabilities from HIV/AIDS Prevention, Testing and Treatment Services." Abstract WEAD0206. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Tavengwa, N., E. Piwoz, P. Iliff, L. Mountlon, C. Zunguza, K. Nathoo, J. Hargrove, the ZVITAMBO Study Group and J. Humphrey. 2007. "Adoption of Safer Infant Feeding and Postpartum Sexual Practices and their Relationship to Maternal HIV Status and Risk of Acquiring HIV in Zimbabwe." *Topical Medicine and International Health* 12 (1): 97–106.

- Taylor, E. A. Pettifor, B. Mupenda, K. Mujalambo, C. Holub, S. Duvall, S. Rennie, and F. Behets. 2008. "Knowledge of HIV Status and Wellbeing reported by HIV-positive Adolescents in Kinshasa." Abstract WEPE0555. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Teeraratkul, A., R. Simonds, S. Asavapiriyant, A. Chalermchokcharoenkit, N. Vanprapa, T. Chotpitayasunondh, P. Mock, M. Stat. N. Skunodum, K. Neeypun, B. Jetsawang, M. Culnane and J. Tappero for the Bangkok Collaborative Perinatal HIV Transmission Study Group. 2005. "Evaluating Programs to Prevent Mother-to-Child HIV Transmission in Two Large Bangkok Hospitals, 1999–2001." *J Acquir Immune Defic Syndr* 38 (2): 208–212.
- TEMA ANRS 12109 Study Group, E. Arrivé, M. Chaix, E. Nerrienet, S. Blanche, C. Rouzioux, P. Coffie, S. Kruij, J. McIntyre, D. Avit, V. Srey, G. Gray, T. N'Dri-Yoman, A. Diallo, D. Ekouévi and F. Dabis. 2009. "Tolerance and Viral Resistance after Single-Dose Nevirapine with Tenofovir and Emtricitabine to Prevent Vertical Transmission of HIV-1." *AIDS* 27(7): 825–833.
- Ter Kuile, F. 2009. Email to Jill Gay, July 2. Dr. ter Kuile is Professor at the Liverpool School of Tropical Medicine, Liverpool, UK.
- Ter Kuile, F.O., M.E. Parise, F.H. Verheoff, V. Udhayakumar, R.D. Newman, A.M. van Eijk, S.J. Rogerson and R.W. Steketee. 2004. "The Burden of Co-Infection with Human Immunodeficiency Virus Type 1 and Malaria in Pregnant Women in Sub-Saharan Africa." *American Journal of Tropical Medicine and Hygiene* 71(2): 41–54.
- Terry, P. E., M. Mhloyi, T. Masvaire and S. Adlis. 2006. "An Examination of Knowledge, Attitudes and Practices Related to HIV/AIDS Prevention in Zimbabwean University Students: Comparing Intervention Program Participants and Non-participants." *International Journal for Infectious Diseases* 10: 38–46.
- Thammakhanty, V. 2008. "Extending Health Services to Migrant Sex Workers in Lao PDR." Abstract TUPE0578. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Thanh, D., K. Moland and K. Fylkesnes. 2009. "The Context of HIV Risk Behaviors among HIV-positive Injection Drug Users in Viet Nam: Moving toward Effective Harm Reduction." *BMC Public Health* 9: 98.
- Thea, D., G. Aldrovandi, C. Kankasa, P. Kasonde, W. Decker, K. Semrau, M. Sinkala and L. Kuhn. 2006. "Post-Weaning Breast Milk HIV-1 Viral Load, Blood Prolactin Levels and Breast Milk Volume." *AIDS* 20 (11): 1539–1547.
- Theobald, S., R. Tolhurst and S. Squire. 2006. "Gender, Equity: New Approaches for Effective Management of Communicable Diseases." *Transactions of the Royal Society of Tropical Medicine* 100: 299–304.
- Theuring, S., P. Mbezi, B. Jordan, A. Kunz and G. Harms. 2008. "Assessment on Male Involvement in ANC/PMTCT Services in Mbeya Region, Tanzania." Abstract TUPE0680. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Thior, I., L. Gabaitiri, J. Grimes, r. Shapiro, S. Lockman, S. Kim, E. Garmey, M. Montano, T. Peter, S. Chang, R. Marlink and M. Essex. 2007. "Voluntary Counseling and Testing among Post-partum Women in Botswana." *Patient Educ Couns* 65 (3): 296–302.
- Thior, I., S. Lockman, S., L. Smeaton, R. Shapiro, C. Wester, J. Heymann, P. gilbert, L. Stevens, T. Peter, S. Kim, E. van Widenfeldt, C. Moffat, P. Ndase, P. Arimi, P. Keabaetswe, P. Mazonde, J. Makhema, K. McIntosh, V. Novitsky, T. Lee, R. Marlink, S. Lagakos, M. Essex for the Mashai Study Tema. 2006. "Breastfeeding Plus Infant Zidovudine Prophylaxis for 6 Months vs Formula Feeding Plus Infant Zidovudine for 1 Month to Reduce Mother-to-Child HIV Transmission in Botswana: A Randomized Trial: The Mashai Study." *JAMA* 296(7): 794–805.

- Thirumurthy, H., R. Saravanan, G. Srinivas, A. Jafri, J. Sreevidya and S. Sahu. 2008. "The Impact of Antiretroviral Therapy on Socio-economic Outcomes of HIV-infected Patients in Tamil Nadu Family Care Continuum Program (TNFCC), India." Abstract THAD0204. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Thomas, C. 2008. "HPV Vaccines: Bring Me Your Daughters!" *SAMJ* 98 (4): 259–261.
- Thompson, S. and E. Nordfjell. 2008. "Children's Perceptions of Sexuality and HIV/AIDS Prevention Work in Sub-Saharan Africa." Abstract WEPE0880. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Thomsen, S. C. 2007. *Tell Me More! Children's Rights and Sexuality in the Context of HIV/AIDS in Africa*. Stockholm, Sweden: Save the Children Sweden and the Swedish Association for Sexuality Education.
- Thomsen, S., W. Ombidi, C. Torotich-Ruto, E. Wong, H. Tucker, R. Homan, N. Kingola and S. Luchters. 2006. "A Prospective Study Assessing the Effects of Introducing the Female Condom in a Sex Worker Population in Mombasa, Kenya." *Sexually Transmitted Infections* 82: 397–402.
- Thorne, C., I. Semenko, T. Pilipenko, R. Malyuta and the Ukraine European Collaborative Study Group. 2009. "Progress in Prevention of Mother-to-child Transmission of HIV Infection in Ukraine: Results from a Birth Cohort Study." *BMC Infectious Diseases* 9 (40); doi: 10.1186/1471-2334-9-40.
- Thorne, C., R. Malyuta, I. Semenko, T. Pilipenko, A. Stelmah, S. Posokhova and M. Newell. 2008. "Mother-to-child Transmission Risk is Increased among HIV-infected Pregnant Women in Ukraine with Serological Test Results Positive for Syphilis." *CID* 47: 1114–1115.
- Thorsen, V., J. Sundby and F. Martinson. 2008. "Potential Initiators of HIV-Related Stigmatization: Ethical and Programmatic Challenges for PMTCT Programs." *Developing World Bioethics* 8 (1): 43–50.
- Thorson, A., N. Long and L. Larsson. 2007. "Chest X-ray Findings in Relation to Gender and Symptoms: A Study of Patients with Smear Positive Tuberculosis in Vietnam." *Scandinavian Journal of Infectious Diseases* 39: 33–37.
- Thurman, T., L. Snider, N. Boris, E. Kalisa, L. Nyirazinyoye and L. Brown. 2008a. "Barriers to the Community Support of Orphans and Vulnerable Youth in Rwanda." *Social Science and Medicine* 66(7): 1557–67.
- Thurman, T., J. Rice, L. Ikamari. 2008b. "Community Health Workers for OVC Guardians: Evaluating the impact on Guardians and Children." Abstract WEPE0581. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Thurman, T., A. Hoffman, M. Chatterji and L. Brown. 2007. *Community-Based HIV/AIDS Prevention, Care and Support Program: A Case Study*. Chapel Hill, NC: Measure Evaluation.
- Ticconi, C., M. Mapfumo, M. Dorruci, N. Naha, E. Tarira, A. Pietropolli and G. Rezza. 2003. "Effect of Maternal HIV and Malaria Infection on Pregnancy and Perinatal Outcome in Zimbabwe." *Journal of Acquired Immune Deficiency Syndrome* 34: 289–294.
- Titus, M. and J. Moodley. 2009. "Women Living with HIV and AIDS: Right to Prevention, Treatment and Health Care." *International Journal of Gynecology and Obstetrics* 106: 137–140.
- Tlale, J., K. Keapoletswe, M. Anderson, F. de la Hoz Gomez, M. Mmesele and K. Seipone. 2008. "Mother-to-Child HIV Transmission Rate in Botswana—Analysis of Dried Blood Spot (DBS) Results from the National PMTCT Programme." Abstract THAC0402. XVII International AIDS Conference. Mexico, City, Mexico. August 3–8.
- Titus, M. and J. Moodley. 2009. "Women Living with HIV and AIDS: Right to Prevention, Treatment and Health Care." *Internationall Journal of Gynecology and Obstetrics* 106: 137–140.

- Todd, J., D. Maher, I. Kasamba, E. Slaymaker, B. Zaba and H. Grosskurth. 2009. "Is ABC Enough to Explain Changes in HIV Prevalence in Rural Uganda?" XXVI IUSSP International Population Conference. Marrakech, Morocco.
- Tonwe-Gold, B., D. Ekouevi, C. Bosse, S. Toure, M. Koné, R. Becquet, V. Leroy, P. Toro, F. Dabis, W. El Sadr and E. Abrams. 2009. "Implementing Family-Focused HIV Care and Treatment: The First 2 Years' Experience of the Mother-to-Child Transmission-Plus Program in Abidjan, Côte d'Ivoire." *Tropical Medicine and International Health* 14(2): 204–212.
- Tonwe-Gold, B., D. Ekouevi, I. Viho, C. Amani-Bosse, S. Toure, P. Coffie, F. Rouet, R. Becquet, V. Leroy, W. El-Sadr, E. Abrams and F. Dabis. 2007. "Antiretroviral Treatment and Prevention of Peripartum and Postnatal HIV Transmission in West Africa: Evaluation of a Two-Tiered Approach." *Public Library of Science Medicine* 4(8): 1362–1373.
- Toole, M., C. Hughes, N. Chanlivong, W. Holmes and S. Sheridan. 2008. "A Gendered Approach to Reducing the Risk of Anal Sex as a Factor in HIV Transmission among Young Urban Men in Laos." Abstract MOPE0296. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Toussova, O., I. Shcherbakova, G. Volkova, L. Niccolai, R. Heimer and A. Kozlov. 2009. "Potential Bridges of Heterosexual Transmission from Drug Users to the General Population of St. Petersburg, Russia: Is it Easy to Be a Young Female?" *Journal of Urban Health: Bulletin of the New York Academy of Medicine* 86 (1): S121–S130.
- Tovar-Larrea, P., G. Campos-Aguilar, R. Chartt-Leon, R. Muñoz-Hernandez, P. Villalobos-Acosta, P. Martinez, G. Vazquez, J. Saucedo and N. Pavia-Ruz. 2008. "Cognitive Conductual Therapy, Alternative to the Management of Children and Adolescents with HIV/AIDS and Depression." Abstract THPE0859. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Towle, M. and D. Lende. 2008. "Community Approaches to Preventing Mother-to-child Transmission: Perspectives from Rural Lesotho." *African Journal of AIDS Research* 7 (2): 219–228.
- Townsend, C., M. Cortina-Borja, C. Peckham, A. de Ruiter, H. Lyall and P. Tookey. 2008. "Low Rates of Mother-to-child Transmission of HIV following Effective Pregnancy Interventions in the United Kingdom and Ireland, 2000–2006." *AIDS* 22: 973–981.
- Tran, D., V. Dao, H. Vu, H. Vo, T. Nguyen, K. White and M. Wolfe. 2008. "Integration of Voluntary HIV Counseling and Testing (VCT) Services in Rehabilitation Centers for Drug Users in Vietnam." Abstract TUPE0468. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Tran, T., R. Detels, N. Tran Hien, H. Thuy Long and P. Thi Hoang Nga. 2004. "Drug Use, Sexual Behaviors and Practices among Female Sex Workers in Hanoi, Vietnam—A Qualitative Study." *International Journal of Drug Policy* 15: 189–195.
- Tunthanathip, P., R. Lolekha, L. Bollen, A. Chaovavanich, U. Siangphoe, C. Nandavisai, O. Suksripanich, P. Sivirongrangson, A. Wiratchai, Y. Inthong, B. Eampokalap, J. Ausavapipit, P. Akaraewi and K. Fox. 2009. "Indicators for Sexual HIV Transmission Risk among People in Thailand Attending HIV Care: The Importance of Positive Prevention." *Sex Transm Inf* 85: 36–41.
- Tuomala, R., H. Watts, D. Li, M. Vajaranant, J. Pitt, H. Hammill, S. Landesman, C. Zorilla and B. Thompson for the Women and Infants Transmission Study. 2005. "Improved Obstetric Outcomes and Few Maternal Toxicities are Associated with Antiretroviral Therapy, Including Highly Active Antiretroviral Therapy during Pregnancy." *J Acquir Immune Defic Syndr* 38 (4): 449–473.
- Tucker, J. and X. Ren. 2008. "Sex Worker Incarceration in the People's Republic of China." *Sex Transm Inf* 84: 34–35.

- Turan, J., S. Miller, E. Bukusi, J. Sande, and C. Cohen. 2008a. "HIV/AIDS and Maternity Care in Kenya: How Fears of Stigma and Discrimination Affect Uptake of Labor and Delivery Services." *AIDS Care* 20 (8): 938–945.
- Turan, J., E. Bukusi, N. Kley, W. Holzemer and C. Cohen. 2008b. "Confidentiality Concerns and Anticipated Stigma as Predictors of Uptake of HIV Testing at ANC Clinics in Rural Kenya." Abstract THPE0914. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Turner, A.N., C.S. Morrison, N.S. Padian, J.S. Kaufman, R.A. Salata, T. Chipato, F.A. Mmiro, R.D. Mugerwa, F.M. Behets, W.C. Miller. 2007. "Men's Circumcision Status and Women's Risk of HIV Acquisition in Zimbabwe and Uganda." *AIDS* 21(13): 1779–89.
- Ubarijoro, S., M. Mukaminega and N. Fitch. 2008. "Efficacy of Providing pre-ART Care at PMTCT/VCT Sites vs. Referral of all HIV+ Patients to ART Sites." Abstract WEPE0973. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Uly, J., C. Armon, K. Buchacz, K. Wood and J. Brooks. 2009. "Initiation of HAART at Higher CD4 Cell Counts Is Associated with a Lower Frequency of Antiretroviral Drug Resistance Mutations at Virologic Failure." *J Acquir Immune Defic Syndr* 51 (4): 450–453.
- Uneke, C. and A. Ogbonna. 2009. "Malaria and HIV Co-Infection in Pregnancy in Sub-Saharan Africa: Impact of Treatment Using Antimalarial and Antiretroviral Agents." *Royal Society of Tropical Medicine and Hygiene* 103: 761–767.
- United Nations (UN). 2009. *The Millennium Development Goals Report 2009*. New York: United Nations.
- United Nations (UN). 2008. "Declaration of Commitment on HIV/AIDS and Political Declaration on HIV/AIDS: Midway to the Millennium Development Goals." Report of the Secretary General to the General Assembly. A/62/780.
- United Nations (UN). 2008b. *Caregiving in the Context of HIV/AIDS: Joint United Nations Programme on HIV/AIDS (UNAIDS)*. Division for the Advancement of Women Expert Group Meeting on "Equal sharing of responsibilities between women and men, including care-giving in the context of HIV/AIDS." October 6–9. Geneva: United Nations. [http://www.un.org/womenwatch/daw/egm/equalsharing/EGM-ESOR-2008-BP.4%20UNAIDS\\_Expert%20Panel\\_Paper\\_%20Final.pdf](http://www.un.org/womenwatch/daw/egm/equalsharing/EGM-ESOR-2008-BP.4%20UNAIDS_Expert%20Panel_Paper_%20Final.pdf).
- United Nations (UN). 1994. *International Conference on Population and Development: Programme of Action*. Cairo: UN.
- UNAIDS. 2010. *Home and Community-Based Care*. Geneva, Switzerland. <http://www.unaids.org/en/PolicyAndPractice/CareAndSupport/HomeCommunityCare/default.asp>.
- UNAIDS. 2009a. *HIV Transmission in Intimate Partner Relationships in Asia*. Geneva, Switzerland: UNAIDS.
- UNAIDS. 2009b. *Uganda: HIV Prevention Response and Modes of Transmission Analysis*. Geneva, Switzerland: UNAIDS.
- UNAIDS. 2009c. *Care and Support*. <http://www.unaids.org/en/PolicyAndPractice/CareAndSupport/default.asp>. Accessed November 27, 2009.
- UNAIDS. 2009d. *AIDS Epidemic Update*. December.
- UNAIDS. 2009e. *Towards Universal Access: Scaling Up Priority HIV/AIDS Interventions in the Health Sector. Progress Report*.
- UNAIDS. 2008. *Report on the Global AIDS Epidemic*. Geneva, Switzerland: UNAIDS.
- UNAIDS. 2007a. *AIDS Epidemic Update December 2007*. Geneva: UNAIDS.

- UNAIDS. 2007b. "The Positive Partnerships Program in Thailand: Empowering People Living with HIV." Geneva, Switzerland.
- UNAIDS. 2007c. *Review of Progress Secretary-General's Task Force on Women, Girls and HIV/AIDS in Southern Africa, 2003–2007*. Geneva: UNAIDS.
- UNAIDS. 2006. *Report on the Global AIDS Epidemic*. Geneva: UNAIDS.
- UNAIDS. 2005. "Treatment Education: A Critical Component of Efforts to Ensure Universal Access to Prevention, Treatment and Care."
- UNAIDS. 2004. "Making Condoms Work for HIV Prevention: Cutting-edge Perspectives." Geneva: UNAIDS.
- UNAIDS. 2000a. "AIDS: Palliative Care." Best Practice Collection. Oct. Technical Update.
- UNAIDS. 2000b. "Comparative Analysis: Research Studies from India and Uganda: HIV and AIDS-related Discrimination, Stigmatization and Denial." UNAIDS Best Practice Collection. May. Geneva, Switzerland. Website: : [www.unaids.org](http://www.unaids.org).
- UNAIDS. 2000c. "Female Sex Worker HIV Prevention Projects: Lessons Learnt from Papua New Guinea, India and Bangladesh." Case study. November. Geneva, Switzerland: UNAIDS/00.45E. ISBN: 92-9173-014-9. Website: : [www.unaids.org](http://www.unaids.org).
- UNAIDS. ND. <http://www.unaids.org/en/PolicyAndPractice/Prevention/UnivPrecaution/default.asp>. Accessed January 5, 2010.
- UNAIDS Inter-Agency Task Team on Education. 2006. *Review of the Evidence: Girls' Education and HIV Prevention CD-ROM*. Geneva, Switzerland: UNAIDS.
- UNAIDS, UNICEF and WHO. 2009. *Towards Universal Access: Scaling up HIV Services for Women and Children in the Health Sector: Progress Report 2008*. Geneva, Switzerland.
- UNAIDS Reference Group on HIV and Human Rights. 2007. "Provider-initiated Testing and Counseling in Health Facilities. Issue Paper 1."
- UNAIDS, UNFPA, IPPF and The Alan Guttmacher Institute. 2004a. "The Role of Reproductive Health Providers in Preventing HIV." Switzerland: Issues in Brief, UNAIDS.
- UNAIDS, UNFPA and UNIFEM. 2004b. *Women and HIV/AIDS: Confronting the Crises*.
- UNAIDS and UNICEF. 1999. *Children Orphaned by AIDS: Front-line Responses from Eastern and Southern Africa*. United Nations: New York, NY.
- UNAIDS and WHO. 2009. *AIDS Epidemic Update December 2009*. Geneva, Switzerland. [http://data.unaids.org/pub/Report/2009/jc1700\\_epi\\_update\\_2009\\_en.pdf](http://data.unaids.org/pub/Report/2009/jc1700_epi_update_2009_en.pdf).
- Underwood, C., H. Hachonda, E. Serlemitsos, and U. Bharath. 2001. "Impact of the HEART Campaign: Findings from Youth Surveys." Baltimore, Maryland: Johns Hopkins Population Communication Services Project.
- UNDP. 2008. *HIV Vulnerability Faced by Women Migrants: From Asia to the Arab States. From Silence, Stigma and Shame to Safe Mobility with Dignity, Equity and Justice*. Colombo, Sri Lanka. [www.undprcc.lk](http://www.undprcc.lk).
- UNDP. 2003a. *From Challenges to Opportunities: Responses to Trafficking and HIV/AIDS in South Asia*. New York, NY: UNDP.
- UNDP. 2003b. *Human Development Report*. New York, NY.
- UN, Department of Economic and Social Affairs, Division for the Advancement of Women. 2008. *Caring in the Context of HIV/AIDS*. EGM/ESOR/2008/BP.4.

- UNESCO (United Nations Educational, Scientific and Cultural Organization). 2009. *International Technical Guidance on Sexuality Education: An Evidence-informed Approach for Schools, Teachers and Health Educators. Volume 1: The Rationale for Sexuality Education*. Paris, France. [www.unesco.org/aids](http://www.unesco.org/aids)
- UNFPA. 2009. *State of the World Population 2009: Facing a Changing World: Women, Population and Climate*. New York, NY.
- UNFPA. 2008. Database for Donor Support for Contraceptives and Condoms for STI/HIV Prevention. New York: UNFPA.
- UNFPA Inter-Agency Task Team on HIV and Young People. 2008. "HIV Interventions for Most-at-risk Young People." New York, NY. [www.unfpa.org/hiv/iatt](http://www.unfpa.org/hiv/iatt).
- UNFPA. 2000a. "Maternal Mortality Update 1998–1999: A Report on UNFPA Support for Maternal Mortality Prevention." New York, NY.
- UNFPA. 2000b. "Partners for Change: Enlisting Men in HIV/AIDS Prevention." NY: UNAIDS. Website: <http://www.unaids.org/wac/2001/background/enlistingmen.doc>.
- United Nations General Assembly Special Session (UNGASS). 2008. "Declaration of Commitment on HIV/AIDS and Political Declaration on HIV/AIDS: Midway to the Millennium Development Goals." *Report of the Secretary-General*. New York: United Nations.
- United Nations General Assembly, 2006. *Political Declaration on HIV/AIDS*. New York: UN.
- United Nations General Assembly Special Session, 2001. *Declaration of Commitment on HIV/AIDS*. New York: UN.
- UN HABITAT. 2002. Position Paper on "Women and Secure Tenure" for Global Campaign for Secure Tenure. Nairobi: UN-HABITAT.
- UNHCR. 2002. *HIV/AIDS and Refugees: UNHCR's Strategic Plan 2002–2004*. Geneva, Switzerland: UNHCR.
- UNHCR. 2001. *The World of Children at a Glance*. [www.unhcr.ch/children/glance.html](http://www.unhcr.ch/children/glance.html).
- UNICEF, UNAIDS, WHO, and UNFPA. 2009. *Children and AIDS: Fourth Stocktaking Report*. New York: UNICEF. Website: [http://www.unicef.org/publications/files/Children\\_and\\_AIDS\\_Fourth\\_Stocktaking\\_Report\\_EN\\_120209.pdf](http://www.unicef.org/publications/files/Children_and_AIDS_Fourth_Stocktaking_Report_EN_120209.pdf)
- UNICEF, UANIDS, WHO and UNFPA. 2008. *Children and AIDS: Third Stocktaking Report, 2008*. New York, NY.
- UNICEF. 2009. *State of the World's Treatment*. New York, NY: UNICEF.
- UNICEF. 2005. *Progress for Children: A Report Card on Gender Parity and Primary Education, (No. 2)*. New York, NY: UNICEF.
- UNICEF. 2004a. *Girls, HIV/AIDS and Education*. New York: UNAIDS.
- UNICEF. 2004b. "Statistics prepared for the UN Statistics Division: Millennium Indicators Database." New York, NY: UNICEF. Website: [www.millenniumindicators.un.org](http://www.millenniumindicators.un.org).
- UNICEF. 2004c. *The State of the World's Children 2005: Childhood under Threat*. New York, NY: UNICEF.
- UNICEF. 2003a. "Malaria and HIV Factsheet." *UNICEF Technical Note* No. 6. February.
- UNICEF. 2003. "Statistics." New York, NY: UNICEF. [www.childinfo.org/eddb/hiv\\_aids/young.htm](http://www.childinfo.org/eddb/hiv_aids/young.htm).
- UNICEF. 2002. *Young People and HIV/AIDS: Opportunity in Crisis*. New York, NY: UNICEF.
- UNIFEM. 2010. Continually updated website on evidence, best practice and protocols for violence against women. Website: [www.endvawnow.org](http://www.endvawnow.org).

- UNIFEM. 2008. <http://www.genderandaids.org>. Accessed May 20, 2008.
- UNIFEM. 2006. Mainstreaming Gender Equality into National Response to HIV and AIDS: Nigerian Case Study. Abuja, Nigeria: UNIFEM [http://www.unifem.org/attachments/products/mainstreaming\\_gender\\_nigeria.pdf](http://www.unifem.org/attachments/products/mainstreaming_gender_nigeria.pdf).
- United Nations, Secretary-General. 2004. *Facing the Future Together: Report of the Secretary-General's Task Force on Women, Girls and HIV/AIDS in Southern Africa*. New York, NY: United Nations, Secretary-General.
- United Nations Office on Drugs and Crime. 2003. "Men Fly to Heaven, Women Go to Hell: Gender Implications of Drug Abuse, Findings of a Qualitative Research in Hai Phong, November, 2002." Hanoi, Vietnam.
- United States Institute of Peace. 2001. *AIDS and Violent Conflict in Africa*. Washington, DC.
- USAID/AIDSTAR-One. 2009. *Integrating Multiple Gender Strategies to Improve HIV and AIDS Interventions: A Compendium of Programs in Africa*. Washington, DC: International Center for Research on Women.
- USAID. 2008a. *Safe Schools Program Final Report*. Arlington, VA: DevTech. Website: [www.devtechsys.com](http://www.devtechsys.com)
- USAID. 2008b. HIV/AIDS Glossary. USAID Deliver Project. Arlington, VA: John Snow Inc. <http://deliver.jsi.com/dhome/resources/glossary/hivaids/glossary>.
- USAID/DELIVER PROJECT. 2008. "Global Fund Financing of Condoms and Contraceptive Security." *Policy Brief*. Washington DC: USAID/DELIVER PROJECT.
- Urdang, S. 2006. "The Care Economy: Gender and the Silent AIDS Crises in Southern Africa." *Journal of Southern African Studies* 32 (1): 165-177.
- Usdin, S., E. Scheepers, S. Goldstein and G. Japhet. 2005. "Achieving Social Change on Gender-Based Violence: A Report on the Impact Evaluation of Soul City's Fourth Series." *Social Science & Medicine* 61: 2434-2445.
- Vachani, N. and N. Krishnan. 2008. "Working with Bridge Populations: PSI's Experience in India." Abstract WEPE0440. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- van der Merwe, K., M.F. Chersich, K. Technau, Y. Umurungi, F. Conradie, A. Coovadia. 2006. "Integration of Antiretroviral Treatment within Antenatal Care in Gauteng Province, South Africa." *Journal of Acquired Immune Deficiency Syndromes* 43(5): 577-81.
- van der Pol, B., C. Kwok, B. Pierre-Louis, A. Rinaldi, R. Salata, P. Chen, J. van de Wijgert, F. Mmiro, R. Mugerwa, T. Chipato and C. Morrison. 2008. "Trichomonas Vaginalis infection and Human Immunodeficiency Virus Acquisition in African Women." *Journal of Infectious Diseases* 197(4): 548-54.
- Van Dyk, D., H. Wells and C. Mbatha. 2008. "Behaviors and Practices of Lesbian Women in Guateng, South Africa, with regard to Mental Health and Transmission of HIV and other STIs." Abstract WEPE0741. XVII International AIDS Conference. Mexico City, Mexico. August 3-8.
- Van Dyke, R., G. Jourdain, D. Shapiro, N. Ngo-Giang-Huong, L. Frenkel, P. Britto, A. Roongpisuthipong, P. Yuthavisuthi, S. Prommas, T. Puthanakit and IMPAACT P1032. 2009. "A Phase II Study of the Incidence of Nevirapine Resistance Mutations in HIV-infected Thai Women Receiving a Single Intrapartum Dose of NVP followed by a Postpartum Tail of ZDV/ddI or ZDV/ddI/LPV/r: IMPAACT P1032." Abstract 95aLB. Sixteenth Conference on Retroviruses and Opportunistic Infections. Montreal, Canada.
- Van Eerdewijk, A. 2009. "Silence, Pleasure and Agency: Sexuality of Unmarried Girls in Dakar, Senegal." *Cont Islam* 3: 7-24.
- Van Eijk, A., J. Ayisi, F. Ter Kuile, L. Slutsker, Y. Shi, V. Udhayakumar, J. Otieno, P. Kager, R. Lal, R. Steketee and B. Nahlen. 2007. "HIV, Malaria, and Infant Anemia as Risk Factors for Postneonatal Infant Mortality among HIV-seropositive Women in Kisumu, Kenya." *The Journal of Infectious Diseases* 196: 30-37.

- Van geertruyden, J. and U. D'Alessandro. 2007. "Malaria and HIV: A Silent Alliance." *Trends in Parasitology* 23 (10): 465–467.
- Van geertruyden, J., M. Mulenga, L. Mwananyanda, V. Chalwe, F. Moerman, R. Chilengi, W. Kasongo, C. Van Overmeir, J.-D. Dujardin, R. Colebunders, L. Kestens and U. D'Alessandro. 2006. "HIV-1 Immune Suppression and Antimalarial Treatment Outcome in Zambian Adults with Uncomplicated Malaria." *The Journal of Infectious Diseases* 194: 917–925.
- van Graan, A., E. Van der Walt, and M. Watson. 2007. "Community-based care of children with HIV in Potchefstroom, South Africa." *African Journal of AIDS Research (AJAR)* 6(3): 305–313.
- Van Hollen, C. 2007. "Navigating HIV, Pregnancy, and Childbearing in South India: Pragmatics and Constraints in Women's Decision Making." *Medical Anthropology* 26 (1): 7–52.
- Van Rie, A., M. Sabue, N. Jarrett, D. Westreich, F. Behets, J. Kokolomani and E. Bahati. 2008. "Counseling and Testing TB Patients for HIV: Evaluation of Three Implementation Models in Kinshasa, Congo." *The International Journal of Tuberculosis and Lung Disease* 12(3): S73–S78.
- van Schalkwyk, J., A. Alimenti, D. Khoo, E. Maan, J. Forbes, D. Burdge, S. Gilgoff and D. Money. 2008. "Serious Toxicity Associated with Continuous Nevirapine-Based HAART in Pregnancy." *British Journal of Obstetrics and Gynaecology* 115: 1297–1302.
- van Zyl, G., M. Claassen, S. Engelbrecht, J. Laten, M. Cotton, G. Theron and W. Preiser. 2008. "Zidovudine With Nevirapine for the Prevention of HIV Mother-to-Child Transmission Reduces Nevirapine Resistance in Mothers from the Western Cape, South Africa." *Journal of Medical Virology* 80: 942–946.
- Vandi, A., C. Walker and R. Baggaley. 2008. "Nutrition and Adherence to Antiretroviral Therapy in Sierra Leone." Abstract MOPE0731. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Vannarith, C., K. Samoeurn and K. Samnang. 2008. "From Exiting TB/HIV Activity Success in Banteaymeanchey (BMC), Cambodia to Continue and Possible Alternative." Abstract THPE0849. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Varada, N. and S. Selva. 2008. "Community Mobilization and Leadership—Case Study Tadipathri." Abstract MOPE1067. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Varkey, L., A. Mishra, A. Das, E. Ottolenghi, D. Huntington, S. Adamchak, M. Khan and F. Homan. 2004. *Involving Men in Maternity Care in India*. Frontiers in Reproductive Health Program, Population Council: New Delhi, India.
- Varma, S. 2008. "Vulnerability of Rural Women to HIV/AIDS in Rajasthan, India." Abstract THPE0754. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Vavrus, F. 2006. "Girls' Schooling in Tanzania: The Key to HIV/AIDS Prevention?" *AIDS Care* (18) 8: 863–871.
- Vechmee, C. 2008. "Integrating HIV/AIDS and Sexuality Education in Pre-service Teacher Training Program." Presentation. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Venkatesh, P., R. Bosch, K. McIntosh, F. Mugusi, G. Msamanga and W. Fawzi. 2005. "Predictors of Incident Tuberculosis among HIV-1-Infected Women in Tanzania." *The International Journal of Tuberculosis and Lung Disease* 9(10): 1105–1111.
- Venugopal, G., S. Seth, A. Singh, B. Singh and J. Vajpayee. 2008. "Engaging Men Living with HIV as Partners in Positive Prevention—Making a Difference in Gujarat and Uttar Pradesh India." Abstract THPE0445. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Vergidis, P., M. Falgas and D. Hamer. 2009. "Meta-analytical Studies on the Epidemiology, Prevention and Treatment of Human Immunodeficiency Virus Infection." *Infect Dis Clin Am* 23: 295–308.

- Verhoeff, F. B. Brabin, C. Hart, L. Chimsuku, P. Kazemba and R. Broadhead. 1999. "Increased Prevalence of Malaria in HIV-infected Pregnant Women and its Implications for Malaria Control." *Tropical Medicine and International Health* 4(1): 5–12.
- Verma, R., J. Pulerwitz, V.S. Mahendra, S. Khandkar, A.K. Singh, S.S. Das, S. Mehra, A. Nura, and G. Barker. 2008. *Promoting Gender Equality as a Strategy to Reduce HIV Risk and Gender-based Violence Among Young Men in India*. Horizons Final Report. Washington, DC: Population Council.
- Verma, R., J. Pulerwitz, V. Mahendra, S. Khandekar, A. Singh, S. Das, A. Nura and G. Barker. 2008. "Promoting Gender Equity as a Strategy to Reduce HIV Risk and Gender-based Violence among Young Men in India." Abstract WEPDC104. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Vernazza, P. and B. Hirschel. 2008. "Commentary: HIV Transmission Hunting—The Chase for Low Risk Events." *Antiretroviral Therapy* 13: 641–642.
- Vernazza, P. B. Hirschel, E. Bernasconi and M. Flepp. 2008. "Les Personnes Séropositives Ne Souffrant D'acucune autre MST et Suivant un Traitement Antiretroviral Efficace Ne Transmettent Pas le VIH par Voie Sexuelle." *Bulletin des Medecins Suisses* 89 (5): 165–169.
- Viani, R.M., P. Hubbard, J. Ruiz-Calderon, M.R. Araneta, G. Lopez, E. Chacón-Cruz, S.A. Spector. 2007. "Performance of rapid HIV testing using Determine HIV-1/2 for the diagnosis of HIV infection during pregnancy in Tijuana, Baja California, Mexico." *International Journal of STD & AIDS* 18 (2): 101–4.
- Vidanapathirana, J., M. Abramson, A. Forbes and C. Fairley. 2005. "Mass Media Interventions for Promoting HIV Testing." *Cochrane Database Systematic Reviews* Issue 3. CD004775. Republished on line with edits January 21, 2009.
- Vidal, F., R. Concha, I. Palma, J. Barrientos, P. Santana, M. Carrasco, A. Gonzalez and V. Luisi. 2008. "Opinions, Attitudes and Knowledge about HIV/AIDS, Gender, Sexuality and Sexual Orientation in Pedagogical Students and Professors." Abstract WEPE1035. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Vijayakumar, G., Z. Mabude, J. Smit, M. Beksinka, and M. Lurie. 2006. "A Review of Female-condom Effectiveness: Patterns of Use and Impact on Protected Sex Acts and STI incidence." *International Journal of STD & AIDS* 17: 652–659.
- Vijayakumari, J., S. Anandhi, S. Jacob, S. Pameshwari, N. Samuel and M. Sivakumar. 2008. "Seroconversion among Discordant Couples in Namakkal PMTCT Program, Tamilnadu, India." Abstract WEPE0317. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Villa, L., R. Costa, C. Petta, R. Andrade, J. Paavonen, O. Iversen, S. Olsson, J. Hoye, M. Steinwall, G. Riis-Johannessen, A. Andersson-Ellstrom, K. Elfgren, G. von Krogh, M. Lehtinen, C. Malm, G. Tamms, K. Giacoletti, L. Lupinacci, R. Railkar, F. Taddeo, J. Bryan, M. Esser, H. Sings, A. Saah and E. Barr. 2006. "High Sustained Efficacy of a Prophylactic Quadrivalent Human Papillomavirus Types 6/11/16/18 L1 Virus-Like Particle Vaccine through 5 Years of Follow-Up." *British Journal of Cancer* 95: 1459–1466.
- Villabla-Diebold, P., A. Saidu, M. Charurat, E. Martins, S. Gurumdi, A. Gumel, A. Nasidi, J. Farley and W. Blattner. 2008. "Linking Community Information with Prevalence Data to Identify Underserved Most-at-risk Populations in Need of Access to Services." Abstract TUPE0444. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Villar, J., H. Ba'aqueel, G. Piaggio, P. Lumbiganon, J. Belizan, U. Farnot, Y. Al-Mazrou, G. Carroli, A. Pinol, A. Donner, A. Langer, G. Nigenda, M. Mugford, J. Fox-Rushby, G. Hutton, P. Bergsjö, L. Bakketeig, and H. Berendes. 2001. "WHO Antenatal Care Randomized Trial for the Evaluation of a New Model of Routine Antenatal Care." *The Lancet* 357: 1551–1564.

- Visser, M., J. Mundell, A. de Villiers, K. Sikkema and B. Jeffrey. 2005. "Development of Structured Support Groups for HIV-positive Women in South Africa." *Journal des Aspects Sociaux du VIH/SIDA* 2 (3): 333–343.
- Vlassof, C. and C. Garcia Moreno. 2002. "Placing Gender at the Center of Health Programming: Challenges and Limitations." *Social Science and Medicine* 54: 1713–1723.
- Volmink, J., N. Siegfried, L. van der Merwe and P. Brocklehurst. 2007. "Antiretrovirals for Reducing the Risk of Mother-to-Child Transmission of HIV Infection (Review)." *Cochrane Database of Systematic Reviews* 1. Art No.: CD003510. Website: <http://www.thecochranelibrary.com>.
- Voluntary HIV-1 Counseling and Testing Efficacy Study Group. 2000. "Efficacy of Voluntary HIV-1 Counseling and Testing in Individuals and Couples in Kenya, Tanzania and Trinidad: A Randomized Trial." *Lancet* 356: 103–112.
- Vuttanont, U., T. Greenhalgh, M. Griffin and P. Boynton. 2006. "Smart Boys" and "Sweet Girls"—Sex Education Needs in Thai Teenagers: A Mixed-Method Study." *The Lancet* 368 (9552): 2068–2080.
- Wagman, J., J. Baumgartner, C. Geary, N. Makyanjo, W. Ddaaki, D. Serwadda, R. Gray, F. Nulugoda and M. Wawer. 2008. "Experiences of Sexual Coercion among Adolescent Women: Qualitative Findings from Rakai District, Uganda." *Journal of Interpersonal Violence*.
- Wake, R., K. Rebe and V. Burch. 2009. "Patient Perception of Cervical Screening among Women with Human Immuno-deficiency Virus Infection Attending an Antiretroviral Therapy Clinic in Urban South Africa." *Journal of Obstetrics and Gynaecology* 29 (1): 44–48.
- Walson, J., E. Brown, P. Otieno, D. Mbori-Ngacha, G. Wariua, E. Obimbo, R. Bosire, C. Farquhar, D. Wamalwa and G. John-Stewart. 2007. "Morbidity Among HIV-1-Infected Mothers in Kenya: Prevalence and Correlates of Illness during 2-year Postpartum Follow-up." *Journal of Acquired Immune Deficiency Syndromes* 46: 208–215.
- Walsh, J. 2005. "Women's Property Rights Violations and HIV/AIDS in Africa." *Peace Review* 17 (2): 189–195.
- Walsh, T.L., R.G. Frezieres, K. Peacock, A.L. Nelson, V.A. Clark, L. Bernstein. 2003. "Evaluation of the Efficacy of a Nonlatex Condom: Results from a Randomized, Controlled Clinical Trial." *Perspectives on Sexual and Reproductive Health* 35(2): 79–86.
- Walter, J., L. Kuhn, C. Kankasa, K. Semrau, M. Sinkala, D. Thea and G. Aldrovandi. 2008. "Reuse of Single-dose Nevirapine in Subsequent Pregnancies for the Prevention of Mother-to-Child HIV Transmission in Lusaka, Zambia: A Cohort Study." *BMC Infectious Diseases* 8: 172.
- Wambete, M. and M. Ptoch. 2008. "Experiences of People Living with HIV/AIDS in Internally Displaced Camps (IDPS) in Rift Valley Province, Kenya." Abstract THAX0103. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- WambuiWaweru, F. 2004. "Ending HIV/AIDS Gender Related Abuses." Abstract MoPeE4045. XV International AIDS Conference. Bangkok, Thailand.
- Wandera, N., G. Kiracho, A. Nkwake, S. Kironde, E. Ekochu and J. Kasaija. 2008. "Do Gender Based Violence Prevention Programs in HCT Service Impact Couples' Knowledge their HIV Sero Status?" Abstract TUPE0335. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Wang, B., X. Li, B. Stanton, X. Fang, G. Liang, H. Liu, D. Lin and H. Yang. 2007a. "Gender Differences in HIV-related Perceptions, Sexual Risk Behaviors, and History of Sexually Transmitted Diseases among Chinese Migrants Visiting Public Sexually Transmitted Disease Clinics." *AIDS Patient Care STDS* 21 (1): 57–68.
- Wang, B., X. Li, B. Stanton, V. Kamali, S. Naar-King, I. Shah and R. Thomas. 2007b. "Sexual Attitudes, Pattern of Communication and Sexual Behavior among Unmarried Out-of-School Youth in China." *BMC Public Health* 7: 189.

- Wang, X. and Z. Wu. 2007. "Factors Associated with Adherence to Antiretroviral Therapy among HIV/AIDS Patients in Rural China." *AIDS* 21: S149–S155.
- Ward, S., E. Sevene, I. Hastings, F. Nosten and R. McGready. 2008. "Antimalarial Drugs and Pregnancy: Safety, Pharmacokinetics, and Pharmacovigilance." *The Lancet* 7: 136–144.
- Wardlow, H. 2007. "Men's Extramarital Sexuality in Rural Papua New Guinea." *American Journal of Public Health* 97 (6): 1006–1014.
- Warenius, L., K. Patterson, E. Nissen, B. Hojer, P. Chishimba and E. Faxelid. 2007. "Vulnerability and Sexual and Reproductive Health among Zambian Secondary School Students." *Culture, Health & Sexuality* 9(5): 533–544.
- Warren, C., R. Shogwe, A. Waligo, M. Mahdi, G. Mazia and I. Narayanan. 2008. "Repositioning Postnatal Care in a High HIV Environment: Swaziland." Washington, DC: Horizons, Population Council. [www.popcouncil.org/horizons](http://www.popcouncil.org/horizons).
- Watson-Jones, D., H. Weiss, M. Rusizoka, J. Changalucha, K. Baisley, K. Mugeye, D. Ross, D. Everett, T. Clayton, R. Balira, L. Knight, I. Hambleton, J. Le Goff, L. Belec, and R. Hayes. 2008. "Effect of Herpes Simplex Suppression on Incidence of HIV among Women in Tanzania." *New England Journal of Medicine*. 358: 1560–1571
- Watson-Jones, D., M. Oliff, F. Terris-Prestholt, J. Changalucha, B. Gumodoka, P. Mayaud, A. Semakafu, L. Kumaranayake, A. Gavyole, D. Mabey and R. Hayes. 2005. "Antenatal Syphilis Screening in Sub-Saharan Africa: Lessons from Tanzania." *Tropical Medicine and International Health* 10 (9): 934–943.
- Watts, H., J. Park, S. Cohn, S. Yu, J. Hitti, A. Stek, P. Clax, L. Muderspach and J. Ltoro. 2008. "Safety and Tolerability of Depot Medroxyprogesterone Acetate among HIV-infected Women on Antiretroviral Therapy: ACTG A5093." *Contraception* 77 (2): 84–94.
- Watts, H. and L. Mofenson. 2006. "Cotrimoxazole Prophylaxis in HIV-infected Pregnant Women: Only a First Step." *Journal of Infectious Diseases* 194: 1478–1480.
- Watts, H., G. Grpinger, H. Minkoff, S. Hillier, L. Jacobson, M. Moxley, J. Justman, H. Cejtin, C. O'Connell and R. Greenblatt. 2006. "The Occurrence of Vaginal Infections among HIV-infected and High-risk HIV-uninfected Women: Longitudinal Findings of the Women's Interagency HIV Study." *J Acquir Immune Defic Syndr* 43 (2): 161–168.
- Watts, C. and C. Zimmerman. 2002. "Violence against Women: Global Scope and Magnitude." *The Lancet* 359: 1232–1237.
- Wawer, M., F. Makumbi, G. Kigozi, D. Serwadda, S. Watya, F. Nalugonda, D. Buwendo, V. Ssempijja, N. Kiwanuka, L. Moulton, N. Swewankambo, S. Reynolds, T. Quinn, P. Opendi, B. Iga, R. Ridzon, O. Laeyendecker and R. Gray. 2009. "Circumcision in HIV-infected Men and its Effect on HIV Transmission to Female Partners in Rakai, Uganda: A Randomised Controlled Trial." *The Lancet* 374: 229–237.
- Wawer, M., R. Gray, N. Sewankambo, D. Serwadda, X. Li, O. Laeyendecker, N. Kiwanuka, G. Kigozi, M. Diddugavu, T. Lutalo, F. Nlugoda, F. Wabwire-Mangen, M. Meehan and T. Quinn. 2005. "Rates of HIV-1 Transmission per Coital Act, by Stage of HIV-1 Infection, in Rakai, Uganda." *The Journal of Infectious Diseases* 191: 1403–1409.
- Wechsberg, W., W. Luseno, W. Lam, C. Parry and N. Morojele. 2006. "Substance Use, Sexual Risk, and Violence: HIV Prevention Intervention with Sex Workers in Pretoria." *AIDS and Behavior* 10 (2): 131–137.
- Weigel, R., M. Hossinipour, H. Tweya, M. Boxshall, A. Jahn, I. Mofolo, E. Kamanga, M. Kalulu, J. Chiwoko, S. Phiri and M. Chipimo. 2008. "Referral of Eligible Pregnant Women from pMTCT to ART: Experiences from Lilongwe, Malawi." Abstract MOPE0094. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Weiser, S., D. Tuller, N. Ware, J. Senkungu, E. Frongillo, and D. Bangsberg. 2008. "Food Insecurity as a Barrier to Sustained Antiretroviral Therapy in Uganda." Abstract MOPE0744. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Weiser, S., M. Heisler, K. Leiter, F. Percy-de Korte, S. Tlou, S. DeMonner, N. Phladze, D. Bangsberg and V. Iacopino. 2006a. "Routine HIV Testing in Botswana: A Population-based Study on Attitudes, Practices, and Human Rights Concerns." *PLoS Medicine* 3 (7): e261.
- Weiser, S., K. Leiter, M. Heisler, W. McFarland, F. Percy-de-Korte, S. DeMonner, S. Tlou, N. Phladze, V. Iacopino and D. Bangsberg. 2006b. "A Population-based Study on Alcohol and High-risk Sexual Behaviors in Botswana." *PLoS Medicine* 3 (10): e392.
- Weiss, H., C. Hankins and K. Dickson. 2009. "Male Circumcision and Risk of HIV Infection in Women: A Systematic Review and Meta-Analysis." *The Lancet* 9: 669–677.
- Weiss, M., D. Somma, F. Karim, A. Abouihia, C. Auer, J. Kemp, and M. Jawahar. 2008. "Cultural Epidemiology of TB with Reference to Gender in Bangladesh, India and Malawi." *The International Journal of Tuberculosis and Lung Disease* 12 (7): 837–847.
- Weiss, E. and G. Gupta. 1998. *Bridging the Gap: Addressing Gender and Sexuality in HIV Prevention*. Washington, DC: ICRW.
- Weiss, E., D. Whelan, and G. Gupta. 1996. "Bridging the Gap: Addressing Gender and Sexuality in HIV Prevention." Washington, DC: International Center for Research on Women.
- Welbourn, A. 2006. "Sex, Life and the Female Condom: Some Views of HIV-positive Women." *Reproductive Health Matters* 14 (28): 32–40.
- Weller SC and K Davis-Beaty. 2007. "Condom Effectiveness in Reducing Heterosexual HIV Transmission." *Cochrane Database of Systematic Reviews* Issue 4. Art. No.: CD003255. DOI: 10.1002/14651858.CD003255.
- Wellings, K., M. Collumbien, E. Slaymaker, S. Singh, Z. Hodges, D. Patel and N. Bajos. 2006. "Sexual Behavior in Context: A Global Perspective." *The Lancet* October, pp. 24–46.
- Wells, H., T. Kruger, and M. Judge. N.D. "Experiences and Dimensions of Power: Discussions with Lesbian Women." South Africa. OUT. www.out.org.za.
- Welty, T., M. Bulterys, E. Welty, P. Tih, G. Ndikintum, G. Nkuoh, J. Nkusai, J. Kayita, J. Nkengasong and C. Wilfert. 2005. "Integrating Prevention of Mother-to-child HIV Transmission into Routine Antenatal Care: The Key to Program Expansion in Cameroon." *Journal of Acquired Immune Deficiency Syndromes* 40 (4): 486–93.
- Westerhaus, M.J., A.C. Finnegan, Y. Zabulon, J.S. Mukherjee. 2007. "Framing HIV Prevention Discourse to Encompass the Complexities of War in Northern Uganda." *American Journal of Public Health* 97 (7): 1184–6.
- Whetten, K., J. Ostermann, R. Whetten, B. Pence, K. O'Donnell, L. Messer, N. Thielman, et al. 2009. "A Comparison of the Wellbeing of Orphans and Abandoned Children Ages 6–12 in Institutional and Community-Based Care Settings in 5 Less Wealthy Nations." *PLoS ONE* 4 (12): e8169.
- White, R. and R. Carr. 2005. "Homosexuality and HIV/AIDS Stigma in Jamaica." *Culture, Health and Society* 7 (4): 347–359.
- Wiersma, S. 2009. "Scaling Up Global Access to Hepatitis B Vaccination." Powerpoint presented at IAS July 22, 2009. Cape Town, South Africa.
- Wilcher, R. and W. Cates. 2009. "Reproductive Choices for Women with HIV." *Bulletin of World Health Organization* 87: 833–839.

- Wilcher, R., T. Petruney, H. Reynolds and W. Cates. 2008. "From Effectiveness to Impact: Contraception as an HIV Prevention Intervention." *Sex Trans Infect* 84 (Suppl II): ii54–ii60.
- Wilfert, C. and M. Fowler. 2007. "Balancing Maternal and Infant Benefits and the Consequences of Breast-feeding in the Developing World during the Era of HIV Infection." *The Journal of Infectious Diseases* 195: 165–167.
- Williams, G., E. Alarcon, S. Jittimane, M. Walusimbi, M. Sebek, E. Berga and T. Villa. 2008. "HIV Testing and Care of the Patient Co-infected with Tuberculosis and HIV." *The International Journal of Tuberculosis and Lung Disease* 12 (8): 889–894.
- Williams, T, S Mullen, A Karim, J Posner. 2007. Evaluation of the Africa Youth Alliance Program in Ghana, Tanzania and Uganda: Impact on Sexual and Reproductive Health Behavior Among Young People. Arlington, VA: JSI Research and Training Institute.
- Williamson, N.E., J. Liku, K. McLoughlin, I.K. Nyamongo, F. Nakayima. 2006. "A Qualitative Study of Condom Use among Married Couples in Kampala, Uganda." *Reproductive Health Matters* 14 (28): 89–98.
- Wilson DP. 2009a. "Universal Voluntary HIV Testing and Immediate Antiretroviral Therapy. Letter Response to Granich et al." *The Lancet*. 2009 373(9669): 1077–78. [http://www.projectinform.org/testandtre/granich\\_letters.pdf](http://www.projectinform.org/testandtre/granich_letters.pdf).
- Wilson, D. 2009b. "Data Are Lacking for Quantifying HIV Transmission Risk in the Presence of Effective Antiretroviral Therapy." *AIDS* 23: 1431–1433.
- Wilson, D., M. Law, A. Grulich, D. Cooper and J. Kaldor. 2008. "Relation between HIV Viral Load and Infectiousness: A Model-based Analysis." *Lancet* 372: 314–320.
- Wilson, T., A. Sharma, K. Zilmer, N. Kalikova and A. Uuskula. 2007. "The HIV Prevention Needs of Injection Drug Users in Estonia." *International Journal of STD & AIDS* 18: 389–391.
- Wilson-Clark, G. 2008. "Opportunities for Integrating HIV Prevention for Rural Adolescent Girls to the National Health Extension Programme in Ethiopia." Abstract THPE0574. International AIDS Conference. Mexico City, Mexico. August 3–8.
- Win, K. and H. Rahman. 2008. "The Top Program Myanmar: A Model for Sex Worker Led HIV Prevention." Abstract THPE0309. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Wingood, G., R. DiClemente, K. Harrington, D. Lang, S. Davies, E. Hook III, M. Oh and J. Hardin. 2006. "Efficacy of an HIV Prevention Program among Female Adolescents Experiencing Gender-Based Violence." *American Journal of Public Health* 96 (6): 1085–90.
- Wingood, G., R. DiClemente, I. Mikhail, D. Lang, D. McCree, S. Davies, J. Hardin, E. Hook III and M. Saag. 2004. "A Randomized Controlled Trial to Reduce HIV Transmission Risk Behaviors and Sexually Transmitted Diseases among Women Living with HIV: The WILLOW Program." *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology* 37 (Supplement 2): S58–S67.
- Wobst, P. and C. Arndt. 2004. "HIV/AIDS and Labor Force Upgrading in Tanzania." *World Development* 32 (11): 1831–1847.
- Wojcicki, J. and J. Malala. 2001. "Condom Use, Power and HIV/AIDS Risk: Sex-Workers Bargain for Survival in Hillbrow/Joubert Park/Berea, Johannesburg." *Social Science and Medicine* 53: 99–121.
- Wodak, A. and L. McLeod. 2008. "The Role of Harm Reduction in Controlling HIV among Injecting Drug Users." *AIDS* 22 (Supplement 2): S81–S92.
- Wodak, A. and A. Cooney. 2006. "Do Needle Syringe Programs Reduce HIV Infection among Injecting Drug Users: A Comprehensive Review of the International Evidence." *Substance Use & Misuse* 41 (6): 777–813.

- Wolf, C., P. Guest and M. Viradvaitya. 2008. "An Assessment of the Positive Partnership Project (PPP) in Thailand: Key Considerations for Scaling-up Micro-credit Loans for HIV-positive and Negative Paris in Other Settings. Abstract. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Wolf, R. and J. Pulerwitz. 2003. "The Influence of Peer versus Adult Communication on AIDS-protective Behaviors among Ghanaian Youth." *Journal of Health Communication* 8: 463–474.
- Wolff, B., J. Busza, L. Bufumbo and J. Whitworth. 2006. "Women Who Fall by the Roadside: Gender, Sexual Risk and Alcohol in Rural Uganda." *Addiction* 101: 1277–1284.
- Wolff, B., B. Nyanzi, G. Katongole, D. Sseanaga, A. Ruberantwari and J. Whitworth. 2005. "Evaluation of a Home-based Voluntary Counselling and Testing Intervention in Rural Uganda." *Health Policy and Planning* 20 (2): 109–116.
- Wong, L., H. Van Rooyen, P. Modiba, L. Richter, G. Gray, J. McIntyre, C. Schetter and T. Coates. 2009. "Test and Tell: Correlates and Consequences of Testing and Disclosure of HIV Status in South Africa." *Journal of Acquired Immune Deficiency Syndromes* 50 (2): 215–222.
- Wood, R. 2009. "Impact of ART on TB prevention." Presentation at Catalysing HIV/TB Research: innovation, funding and networking" workshop. Cape Town, South Africa. July 18, 2009.
- Wood, R. 2007. "The Case for Integrating Tuberculosis and HIV Treatment Service in South Africa." *The Journal of Infectious Diseases* 196: S497–S499.
- Wood, K., F. Maforah and R. Jewkes. 1998. "'He Forced Me to Love Him': Putting Violence on Adolescent Sexual Health Agendas." *Social Science and Medicine* 47(2): 233–242.
- Woolf, S. and S. Maisto. 2008. "Alcohol Use and High-risk Sexual Behavior in Sub-Saharan Africa: A Narrative Review." Abstract TUPE0859. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Women's Commission for Refugee Women and Children. 2002. *Refugees and AIDS: What Should the Humanitarian Community Do?* Women's Commission for Refugee Women and Children: New York, NY.
- Wools-Kaloustian, K., S. Kimaiyo, L. Diero, A. Siika, J. Sidle, C.T. Yiannoutsos, B. Musick, R. Einterz, K.H. Fife, W.M. Tierney. 2006. "Viability and Effectiveness of Large-scale HIV Treatment Initiatives in Sub-Saharan Africa: Experience from Western Kenya." *AIDS* 20(1): 41–8.
- World Bank and UNICEF. 2009. *Abolishing school fees in Africa: lessons from Ethiopia, Ghana, Kenya, Malawi, and Mozambique*. Washington, DC: World Bank.
- World Bank. 2007. *HIV/AIDS, Nutrition and Food Security: What Can We Do, A Synthesis of International Guidance*. Washington, DC. [www.worldbank.org](http://www.worldbank.org).
- The World Bank. 2002. *Education and HIV/AIDS: A Window of Hope*. The World Bank: Washington, DC.
- World Health Organization (WHO). 2010a. *Working with Individuals, Families and Communities to Improve Maternal Health*. Geneva, Switzerland: WHO.
- World Health Organization (WHO). 2010b. *Treatment of tuberculosis: Guidelines For national programmes (4th ed.)*. Geneva: WHO.
- World Health Organization (WHO). 2010c. [www.who.int/topics/hepatitis/en](http://www.who.int/topics/hepatitis/en).
- World Health Organization (WHO). 2009a. "HIV and Infant Feeding: Revised Principles and Recommendations. Rapid Advice." November.
- World Health Organization (WHO). 2009b. "Rapid Advice: Use of Antiretroviral Drugs for Treating Pregnant Women and Preventing HIV Infection in Infants." November.

- World Health Organization (WHO). 2009c. “Women and Health: Today’s Evidence Tomorrow’s Agenda.” Geneva, Switzerland: World Health Organization.
- World Health Organization (WHO). 2009d. *Violence Prevention: The Evidence Overview*. Geneva, Switzerland: WHO.
- World Health Organization (WHO). 2009e. *Global Tuberculosis Control—epidemiology, strategy, financing*. Geneva, Switzerland: WHO. [http://www.who.int/tb/publications/global\\_report/2009/en/index.html](http://www.who.int/tb/publications/global_report/2009/en/index.html).
- World Health Organization (WHO). April 2009f. “Priority Interventions: HIV/AIDS Prevention, Treatment and Care in the Health Sector”. Available at: [http://www.who.int/hiv/pub/priority\\_interventions\\_web.pdf](http://www.who.int/hiv/pub/priority_interventions_web.pdf). [3/17/2010].
- World Health Organization (WHO). 2009g. *Monitoring Emergency Obstetric Care: A Handbook*. Geneva, Switzerland.
- World Health Organization (WHO). 2009h. “Antiretroviral Therapy for HIV Prevention: Consultation, November 2–4, 2009.” Geneva, Switzerland.
- World Health Organization (WHO). 2009i. *Global Tuberculosis Control: A Short Update to the 2009 Report*. WHO/HTM/TB/2009.426. Geneva: WHO. [http://whqlibdoc.who.int/publications/2009/9789241598866\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241598866_eng.pdf).
- World Health Organization (WHO). 2009j. *Rapid Advice. Antiretroviral Therapy for HIV Infection in Adults and Adolescents*. Geneva: WHO. <http://www.who.int/hiv/pub/arv/advice/en/index.html>.
- World Health Organization (WHO). 2008a. “Medical Eligibility Criteria for Contraceptive Use: 2008 Update.” Geneva WHO. <http://www.who.int/reproductive-health/publications/mec/mec.pdf>.
- World Health Organization (WHO). 2008b. *World Malaria Report*. Geneva, Switzerland: World Health Organization.
- World Health Organization (WHO), 2008c. ‘Technical Expert Group Meeting on Intermittent Preventive Treatment in pregnancy (IPTp).’ Geneva: WHO.
- World Health Organization (WHO). 2007a. Engaging men and boys in changing gender-based inequity in health: Evidence from programme interventions. By: Gary Barker, Christine Ricardo and Marcos Nascimento. Geneva: WHO.
- World Health Organization (WHO). 2007b. “Prevention of Mother-to-Child Transmission of HIV. HIV Technical Reports.” Geneva, Switzerland: World Health Organization.
- World Health Organization (WHO). 2007c. “Scaling Up Priority HIV/AIDS Interventions In The Health Sector: Progress Report.” Geneva, Switzerland: WHO.
- World Health Organization (WHO) and UNAIDS. 2007. “Guidance on Provider-Initiated HIV Testing and Counselling in Health Facilities.” Geneva, Switzerland: World Health Organization.
- WHO/RHR and CCP, INFO Project. 2007. *Family Planning: A Global Handbook for Providers*. Baltimore and Geneva: CCP and WHO.
- World Health Organization (WHO). 2006a. “Antiretroviral Drugs for Treating Pregnant Women and Preventing HIV Infection in Infants: Towards Universal Access: Recommendations for a Public Health Approach.” Geneva, Switzerland: World Health Organization.
- World Health Organization (WHO). 2006b. “Global Strategy for the Prevention and Control of Sexually Transmitted Infections: 2006–2015.” Geneva, Switzerland: World Health Organization.

- World Health Organization (WHO). 2006c. Guidelines on co-trimoxazole prophylaxis for HIV-related infections among children, adolescents and adults. Geneva: WHO. <http://www.who.int/hiv/pub/guidelines/ctx/en/index.html>.
- World Health Organization (WHO). 2005. "Malaria and HIV Interactions and their Implications for Public Health Policy." Geneva: WHO.
- World Health Organization (WHO). 2004a. *Changing History: The World Health Report 2004*. Geneva, Switzerland.
- World Health Organization (WHO). 2004b. *Interim Policy on Collaborative TB/HIV Activities*. Geneva, Switzerland.
- World Health Organization (WHO). 2003a. *Entry points to antiretroviral treatment*. Geneva: WHO.
- World Health Organization (WHO). 2003b. *Safe Abortion: Technical and Policy Guidance for Health Systems*. Geneva: WHO.
- World Health Organization (WHO). 1999. "Violence and Injury Prevention: Violence and Health." *Emergency and Humanitarian Action* (March). Website: [www.int/eha/pvi/infokit/gender](http://www.int/eha/pvi/infokit/gender).
- World Health Organization (WHO). 1991. "Management of Patients with Sexually Transmitted Disease." Technical Report Series 810. Geneva, Switzerland: WHO.
- Wringe, A., R. Insingo, M. Urassa, G. Maiselli, R. Manyalla, J. Changalucha, J. Mngara, S. Kalluvya and B. Zaba. 2008. "Uptake of HIV Voluntary Counselling and Testing Services in Rural Tanzania: Implications for Effective HIV Prevention and Equitable Access to Treatment." *Tropical Medicine and International Health* 13(3): 319–327.
- Wu, Z., W. Luo, S. Sulliban, K. Rou, P. Lin, W. Liu and Z. Ming. 2007a. "Evaluation of a Needle Social Marketing Strategy to Control HIV among Injecting Drug Users in China." 21 (Supplement 8): S115–S122.
- Wu, Z., K. Rou, M. Jia, S. Duan, S.G. Sullivan. 2007b. "The First Community-based Sexually Transmitted Disease/HIV Intervention Trial for Female Sex Workers in China." *AIDS* 21 Suppl 8: S89–94.
- Wu, Z., S. Sullivan, Y. Wang, M. Rotheram-Borus and R. Detels. 2007c. "Evolution of China's Response to HIV/AIDS." *The Lancet* 369: 679–689.
- Xiaoqi, W., W. Zunyou. 2007. "Factors Associated with Adherence to Antiretroviral Therapy Among HIV/AIDS Patients in Rural China." *AIDS* 21: S149–S155.
- Xu, J., S. Sullivan, C. Xu, L. Pang, K. Rou, Z. Wu and CIPRA Project 2 Team. 2008. "A Community Randomised Intervention Trial to Reduce HIV Stigma in Rural China." Abstract THPE0730. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Yamada, R., T. Sasagawa, L. Kirumbi, A. Kingoro, D. Karanja, M. Kiptoo, G. Nakitare, H. Ichimura and M. Inoue. 2008. "Human Papillomavirus Infection and Cervical Abnormalities in Nairobi, Kenya, an Area with a High Prevalence of Human Immunodeficiency Virus Infection." *Journal of Medical Virology* 80: 847–855.
- Yamano, T. and T. Jayne. 2004. "Measuring the Impact of Working-age Adult Mortality on Small-scale Farm Households in Kenya." *World Development* 32(1): 91–119.
- Yang, X. and G. Xia. 2008. "Temporary Migration and STD/HIV Risky Sexual Behavior: A Population-based Analysis of Gender Differences in China." *Social Problems* 55 (3): 322–346.
- Yang, J., J. Du, L. Mueller and S. Wood. 2008. "The Impact of Life-Planning Skills Training on Disadvantaged Rural Girls' Gender Awareness and Knowledge of HIV/AIDS Prevention: The Spring Bud Healthy Development Project in China." Abstract WEPE0482. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Yankah, E., J. Ayres, S. Arruda and D. Ross. 2006. "Addressing Sexuality, Gender and Vulnerability to Sexually Transmitted Infections in Detention Centres in Brazil: Using Research to Influence Policy and Practice." Abstract MOPE0850. XVI International AIDS Conference. Toronto, Canada.
- Yaremenko, O., O. Balakireva, O. Levstun, A. Scherbinska, Y. Kruglov, N. Zhylka, N. Leonchuck, A. Eckman, O. Semerik, L. Flury, M. Medrek, K. Hardee. 2004. "Analytical Report: Access of HIV-positive Women to Quality Reproductive Health and Maternity Services." Final Draft. USAID/POLICYProject: Kyiv City, Ukraine.
- Yartey, J. 2006. "Malaria in Pregnancy: Access to Effective Interventions in Africa." *International Journal of Gynecology and Obstetrics* 94: 364–373.
- Yasaghi, A., M. Farnia, B. Ebrahim and A. Sedaghat. 2008. "Decrease in HIV Prevalence in Prisoners with Drug-Use Related Crimes following Scale-up of a Comprehensive HIV Prevention Package in Iran." Abstract TUPE0488. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Yassin, R., C. Mackenzie, A. Otieno, G. Khisa and VCT Clients. 2008. "Effect of Regular Partner's Alcohol Consumption on Individuals' HIV Risk." Abstract WEPE0449. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Yesudas, D., J. Sreedharan and J. Muttappillymyalil. 2008. "Need for Sex Education in Schools—An Opinion Survey among College Students." Abstract WEPE0925. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Yoddumnern-Attig, B., U. Kanaungsukkasem, S. Pluemcharoen, E. Thongkrajai and J. Suwanjandee. 2004. "HIV-positive Voices in Thailand: Their Voices and Choices." International Community of Women Living with HIV/AIDS. London, United Kingdom: The International Community of Women Living with HIV/AIDS. [http://icw.org/files/Voices\\_and\\_Choices\\_Thailand.pdf](http://icw.org/files/Voices_and_Choices_Thailand.pdf).
- Zabina, H., D. Kissin, E. Pervysheva, A. Mytil, O. Dudchenko, and S. Hillis. 2009. "Abandonment of Infants by HIV-positive Women in Russia and Prevention Measures." *Reproductive Health Matters* 17 (3): 162–170.
- Zablotska, I., R. Gray, D. Serwadda, F. Nalugoda, G. Kigozi, N. Weankambo, T. Lutalo, F. Mangen and M. Wawer. 2006. "Alcohol Use Before Sex and HIV Acquisition: A Longitudinal Study in Rakai, Uganda." *AIDS* 20: 1191–1196.
- Zachariah, R. and M. Massaquoi. 2006. "Cotrimoxazole prophylaxis for HIV-positive TB Patients in Developing Countries." *Tropical Doctor* 36: 79–82.
- Zachariah R., A. Harries, M. Manzi, P. Gomani, R. Teck, M. Phillips and P. Firmenich. 2006a. "Acceptance of Anti-Retroviral Therapy among Patients Infected with HIV and Tuberculosis in Rural Malawi is Low and Associated with Cost of Transport." *PLoS ONE* 1: e121.
- Zachariah, R., R. Teck, L. Buhendwa, S. Labanda, C. Chinji, P. Humblet and A. Harries. 2006b. "How Can the Community Contribute in the Fight against HIV/AIDS and Tuberculosis? An example from a Rural District in Malawi." *Royal Society of Tropical Medicine and Hygiene* 100: 167–175.
- Zamanillo, I., A. Baran, M. Galan, E. Moruo, M. Malimbwi, M. Yagaza, J. Coll, P. Rivas, J. Engel, and F. Ibanez. 2008. "Mobile VCT vs Site Based VCT—Which Is the Target Population?" Abstract THPE0285. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.
- Zelaya, C., D. Celentano, S. Sivaram, C. Latkin, S. Johnson, A. Srikrishnan and S. Solomon. 2008. "Gender Differences and Predictors of HIV/AIDS Stigma Expressed and Perceived by Men and Women at High Risk of HIV Infection in Chennai, India." Abstract MOPE0459. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.

- Zellner, J., A. Martinez-Donate, M. Hovell, C. Sipan, E. Blumberg, C. Carrizosa and L. Rovniak. 2006. "Feasibility and Use of School-based Condom Availability Programs in Tijuana, Mexico." *AIDS Behavior* 10: 649–657.
- Zelnick, J. and M. O'Donnell. 2005. "The Impact of the HIV/AIDS Epidemic on Hospital Nurses in KwaZulu Natal, South Africa: Nurses' Perspectives and Implications for Health Policy." *Journal of Public Health Policy* 1–23.
- Zhang, F., Z. Dou, Y. Ma, Y. Zhao, Z. Liu, M. Bulterys and R. Chen. 2009. "Five-year Outcomes of the China National Free Antiretroviral Treatment Program." *Ann Intern Med* 151: 241–251.
- Zhao, Q., X. Li, X. Fang, L. Zhang, B. Stanton. 2008. "Perceived living situations by care arrangements among AIDS orphans in China: Policy Implications." *Abstract WEP0587. XVII International AIDS Conference. Mexico City, Mexico. August 3–8.*
- Zhou, R. 2008. "Endangered Womanhood: Women's Experiences with HIV/AIDS in China." *Qualitative Health Research* 18: 1115–1126.
- Zhao, R. 2006. "Homosexuality, Seropositivity, and Family Obligations: Perspectives of HIV-infected Men Who Have Sex with Men in China." *Culture, Health and Sexuality* 8 (6): 487–500.
- Zivin J., H. Thirumurthy, and M. Goldstein. 2007. *AIDS Treatment and Intra-household Resource Allocations: Children's Nutrition and Schooling in Kenya*. Centre for Global Development Working paper No. 105.
- Zolopa, A., J. Anderson, L. Komarow, I. Sanne, A. Sanchez, E. Hogg, C. Suckow and W. Powderly for the ACTG A5164 Study Team. 2009. "Early Antiretroviral Therapy Reduces AIDS Progression/Death in Individuals with Acute Opportunistic Infections: A Multicenter Randomized Strategy Trial." *Plos One* 4 (5): e5575.
- Zulu, E. and G. Chepngeno. 2003. "Spousal Communication about the Risk of Contracting HIV/AIDS in Rural Malawi." *Demographic Research Special Collection* 1(8): 247–278.
- Zvandasara, P., J. Hargrove, R. Ntozini, H. Chidawanyika, K. Mutasa, P. Iliff, L. Moulton, F. Mzengeza, L. Malaba, B. Ward, K. Nathoo, L. Zijenah, M. Mbizvo, C. Zunguza, J. Humphrey and the ZVITAMBO Study Group. 2006. "Mortality and Morbidity among Postpartum HIV-positive and HIV-negative Women in Zimbabwe: Risk Factors, Causes, and Impact of Single-dose Postpartum vitamin A Supplementation." *The International Journal of Tuberculosis and Lung Disease* 43: 107–116.
- Zwang, J., M. Garenne, K. Khan, M. Collinson and S. Tollman. 2007. "Trends in mortality from pulmonary tuberculosis and HIV/AIDS co-infection in rural South Africa (Agincourt)." *Transactions of the Royal Society of Tropical Medicine and Hygiene* 101: 893–898.



**“*What Works* compiles a wealth of evidence.”**

—Willard Cates, Jr., MD, MPH, President of Research, Family Health International

**“The contents of *What Works* have been well researched and speak to current challenges and needs in this field.”**

—Lindiwe Farlane, Monitoring and Evaluation Officer, EngenderHealth, South Africa

AIDS has taken a devastating toll. Women now make up half of those living with HIV worldwide and in sub-Saharan Africa women account for nearly 60 percent of those living with HIV. There is increasing interest among governments and donors in developing strategies to address the needs of women and girls in the global AIDS pandemic and to support women as agents of change. Implementation of these strategies requires evidence of successful interventions.

That evidence is now in one place: [whatworksforwomen.org](http://whatworksforwomen.org).



**ARTEMIS GLOBAL**  
CONSULTING



**OPEN SOCIETY FOUNDATIONS**

**Population Action**  
INTERNATIONAL  
HEALTHY FAMILIES HEALTHY PLANET