

# a measure of survival

**CALCULATING  
WOMEN'S SEXUAL AND  
REPRODUCTIVE RISK  
PAI REPORT CARD 2007**



**POPULATION ACTION  
INTERNATIONAL**

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## Introduction

Pregnancy and childbirth are deadly to more than half a million women worldwide every year—a fact that is unacceptable, but not unavoidable. These women are typically poor, uneducated and living in rural areas or urban slums. Despite 20 years of campaigning to improve the reproductive health of women throughout the world, the risk of dying in pregnancy or childbirth shows the largest gap between the rich and poor of all development statistics. The uneven distribution of health services, the concentration of poverty among certain population groups and geographic areas, gender inequity and harmful social norms all contribute to the discrepancy in sexual and reproductive risk globally and locally within countries.

Continuing a Population Action International (PAI) effort begun in 1995, this study is the fourth,<sup>1,2,3</sup> in a series that assesses the sexual and reproductive health status of nations. The results have been disturbingly static, with low-income countries at highest reproductive risk and high-income ones at lowest risk. Women's sexual and reproductive health are riskiest in sub-Saharan Africa and South Asia, and the need for reproductive health services is greatest among the poorest women and men residing in the world's lowest-income countries. Yet, effective interventions have worked in certain countries and settings, reducing or nearly erasing reproductive risk. For example, Europe and North America reduced their maternal mortality starting 75 years ago by improving the availability of emergency services to treat obstetric complications. In Sri Lanka, maternal mortality was halved between 1930 and 1947 through government efforts to improve overall health and control malaria.<sup>4</sup> Until the 1990s, Sri Lanka continued to halve maternal deaths at least every 13 years by extending health services to rural areas, training midwives, introducing family planning and advancing obstetric care.<sup>5</sup> The case of Sri Lanka demonstrates that given the proper investments,

maternal health can improve dramatically and rapidly, even in a poor country. (See *Box on Sri Lanka*, page 28.)

Reducing women's sexual and reproductive risk requires the political will to reduce inequities in reproductive health status and in access to services. It also requires appropriate and sustained funding and programming to take services to those who need them. Harmful policies such as those imposed by the United States—the Global Gag Rule, abstinence-only sex education and the anti-prostitution pledge—undermine access to information and health care, and must be repealed. Weak infrastructure and limited distribution systems in low-income countries complicate access to health services, especially in rural areas, and these issues need long-term solutions.

This study provides a benchmark of where women in 130 countries stand on a range of indicators that were incorporated into the Programme of Action International Conference on Population and Development (ICPD) in 1994, or into the Millennium Development Goals (MDGs) in 2000. Indeed, the World Summit in 2005 affirmed the importance of reproductive health (RH) to achieving the MDGs and human development.<sup>6</sup>

## THE NEED FOR REPRODUCTIVE HEALTH SERVICES IS GREATEST AMONG THE POOREST WOMEN AND MEN RESIDING IN THE WORLD'S LOWEST-INCOME COUNTRIES

The comprehensive approach of sexual and reproductive health and rights makes it essential to and a component of the attainment of not only the health-related MDGs regarding maternal health and child survival, but all eight MDGs, from poverty reduction to gender equality and women's empowerment. These global commitments are the foundation for action at the country level that values and safeguards the lives of women and girls—from increasing spending on family planning to expanding and enforcing women's legal rights to ensuring quality education for all.

### LIFE-CYCLE APPROACH AND PAI'S REPRODUCTIVE RISK INDEX

The study utilizes a framework that takes a woman's **life-cycle approach** to sexual and reproductive health and emphasizes that every step of reproduction should be **healthy** (See *Methodology*). Of course, reproductive risks emerge well before pregnancy and childbirth, and survival certainly cannot be considered an endpoint to reproductive risk. The framework for measuring reproductive risk is constructed according to the basic elements of reproduction—**sex, pregnancy, childbirth and survival**—as these are among the more

direct causes of heightened vulnerability to death and injury for women around the world. Recognizing that reproductive health is influenced by broader issues of inequity in income distribution, in access to social services and in gender relations, this study discusses the linkages between reproductive risk and poverty and gender inequity.

For each country, the study renders a range of RH indicators into a manageable set by combining them into one single measure—the Reproductive Risk Index (RRI). The nine indicators composing the RRI are:

- HIV/AIDS prevalence among adults;
- adolescent fertility;
- percentage of girls married before age 18;
- antenatal care coverage;
- percent of family planning demand met;
- births attended by skilled health personnel;
- grounds on which abortion is permitted;
- maternal mortality ratio (MMR); and
- infant mortality rate (IMR).

- 1 Population Action International. 1995. *Reproductive Risk: A Worldwide Assessment of Women's Sexual and Maternal Health*. Washington, DC: Population Action International.
- 2 Population Action International. 2001. *A World of Difference: Sexual Reproductive Health and Risks*. Washington, DC: Population Action International.
- 3 Chaya, Nada and Jennifer Dusenberry. 2004. *ICPD at ten: Where are we now?* Washington DC: Population Action International.
- 4 Abeyesundere, A.N.A. 1976. *Recent Trends in Malaria Morbidity and Mortality in Sri Lanka: Population Problems of Sri Lanka*. Sri Lanka: Demographic Training and Research Unit, University of Colombo.
- 5 Pathmanathan, Indra, et al. 2003. *Investing in Maternal Health: Learning from Malaysia and Sri Lanka*. Washington DC: The World Bank.
- 6 Bernstein S and Hansen C.J. 2006. *Public Choices, Private Decisions: Sexual and Reproductive Health and the Millennium Development Goals*. New York: United Nations Millennium Project.

As a single measure of reproductive risk overall, the RRI is a guide for advocates engaged in the continued effort toward achieving safe, healthy and informed decisions about reproductive health, especially for the world's poorest women, and for decision-makers and planners in

setting their national policy and budgetary priorities. The interventions needed to reduce women's sexual and reproductive risk vary between and within countries and regions, however, and this tool should be used with this in mind.

	<b>+</b> Safe & Healthy	<b>W</b> Voluntary
<b>Sex</b>	<ul style="list-style-type: none"> <li>HIV prevalence among adults age 15+ (%)</li> <li>Adolescent fertility</li> </ul>	<ul style="list-style-type: none"> <li>Girls married before age 18 (%)</li> </ul>
<b>Pregnancy</b>	<ul style="list-style-type: none"> <li>Antenatal care coverage at least 4 visits (%)</li> </ul>	<ul style="list-style-type: none"> <li>FP demand met (%)</li> </ul>
<b>Birth</b>	<ul style="list-style-type: none"> <li>Births attended by skilled health personnel (%)</li> </ul>	<ul style="list-style-type: none"> <li>Abortion policies</li> </ul>
<b>Survival</b>	<ul style="list-style-type: none"> <li>MMR</li> <li>IMR</li> </ul>	

## Disease burden of SRH

According to the World Health Organization, sexual and reproductive ill health accounts for one-third of the global burden of disease among women of reproductive age (15-44 years old) and close to one-fifth of the overall burden of disease.<sup>1,2</sup>

- Maternal conditions (hemorrhage or sepsis resulting from childbirth, obstructed labor, pregnancy-related hypertensive disorders and unsafe abortion) account for 13 percent of the burden of disease among women of reproductive age and for 2 percent of the overall burden of disease.
- HIV/AIDS accounts for 14 percent of the burden of disease among women of reproductive age and for 6 percent of the overall burden of disease.
- Other sexual and reproductive health conditions (STIs other than HIV/AIDS, iron-deficiency anemia among women aged 15-44, breast cancer, ovarian cancer, cervical cancer, uterine cancer and genitourinary disease) account for 5 percent of the burden of disease among women of reproductive age and for 3 percent of the overall burden of disease.
- Perinatal conditions (low birth weight, birth asphyxia and birth trauma) account for 7 percent of the overall burden of disease.

1 Vlassof M, S Singh, JE Darroch, E Carbone, and S Bernstein. 2004. "Assessing Costs and Benefits of Sexual and Reproductive Health Interventions." *Occasional Report No. 11*. New York: Guttmacher Institute.

2 WHO. Estimates of DALYs by sex, cause and WHO mortality sub-region. Available at <http://www.who.int/whosis/en/>; accessed August 29, 2007.

FIGURE 1.1  
Reproductive Risk Levels

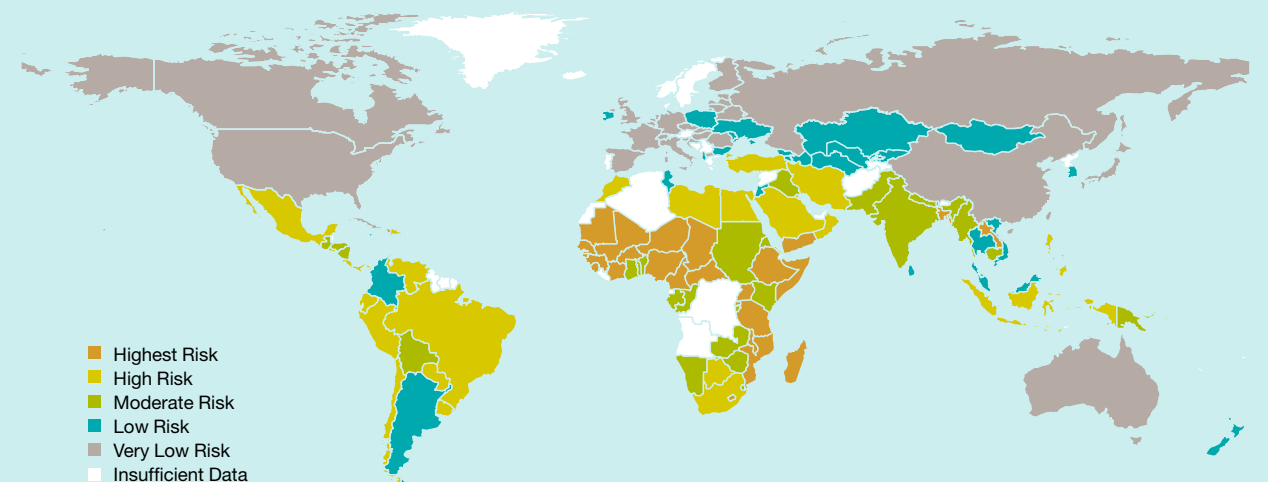
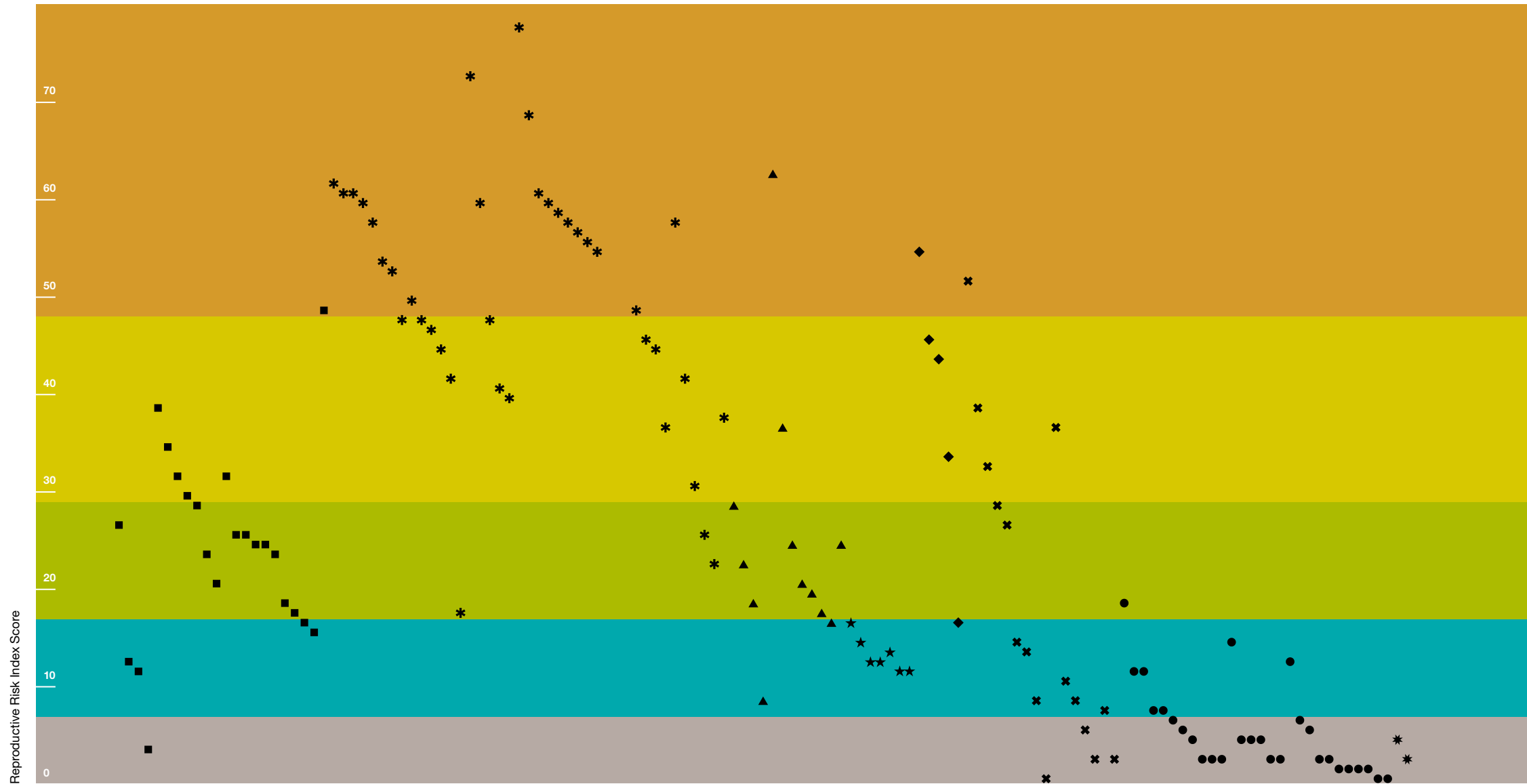


FIGURE 2.2

## Reproductive Risk by Region

Reproductive risk is highest in low-income countries, and lowest in the industrialized nations. Weak and uneven distribution of health services, the concentration of poverty among certain population groups and geographic areas, gender inequities and harmful social practices all contribute to discrepancies in sexual and reproductive risk globally and locally within countries.

- Latin America and the Caribbean
- \* Sub-Saharan Africa
- ▲ Middle East and North Africa
- ★ Central Asia
- ◆ South Asia
- ✕ East Asia and the Pacific
- Europe
- ✱ Northern America



### HIGHEST RISK CATEGORY

(26 COUNTRIES)

All countries in this category have low incomes; all are in sub-Saharan Africa except Haiti, Yemen, and Laos—the poorest countries in their respective regions—and Bangladesh. Skilled care during pregnancy and childbirth is limited, especially in Ethiopia. Infant and maternal mortality are high or very high. Contraceptive use is generally low and there is very high unmet need for contraception. At about 40 percent, Yemen, Rwanda, Laos and Haiti have the highest unmet need for contraception in the world. Very early marriage is common, adolescent fertility is high and abortion policies are mostly restrictive. Levels of HIV infection are moderate to high.

### HIGH RISK CATEGORY

(24 COUNTRIES)

Half of the countries in this category are in sub-Saharan Africa. Skilled care during pregnancy and childbirth is generally available, except in Nepal and Cambodia. Maternal and infant mortality is high and very high in three quarters of the countries. Unmet need for contraception is relatively significant and is highest in Western Africa. Proportion of family planning demand met is highest in Central America and lowest in West Africa and India and Zimbabwe. Very early marriage is common and adolescent fertility is generally high. Abortion is generally restricted to save a woman's life or health. All countries with low levels of HIV/AIDS are outside sub-Saharan Africa.

### MODERATE RISK CATEGORY

(26 COUNTRIES)

Nine developing regions (including most of South America and the three wealthiest nations in sub-Saharan Africa) are represented in this category. Antenatal care and skilled attendance at delivery are generally high. The countries are split between low and moderate levels of maternal mortality. Infant mortality is low. A significant proportion of family planning demand is met. Levels of contraceptive use, unmet need for family planning, very early marriage, and adolescent fertility vary across countries. Abortion is generally restricted to cases where they are necessary to save a woman's life or health. HIV prevalence and infant mortality are low except in South Africa and Botswana.

### LOW RISK CATEGORY

(26 COUNTRIES)

Six developing and four developed regions in the world are represented in this category. Antenatal care and skilled attendance at delivery are generally high. Three quarters of the countries in this category have low levels of deaths during pregnancy and childbirth. Infant mortality is low to moderate except in five Central Asian countries. A significant proportion of family planning demand is met. More than half the countries in this category allow abortion unrestricted. With a few exceptions, HIV prevalence is low.

### LOWEST RISK CATEGORY

(28 COUNTRIES)

Countries in this category have high incomes; Cuba, China and Singapore are the only countries in the developing world. Motherhood is safe; skilled care at childbirth is universal and the risk of death from pregnancy or delivery is extremely low. Infant mortality is rare. Contraceptive use is high. Early marriage is rare. Abortion is unrestricted. Adolescent fertility and HIV prevalence are low.



## Unsafe sex destroys lives and decimates societies.

Among common causes of disease and death of people in low-income countries, unsafe sex was found to be the second greatest risk factor for health loss and the fifth greatest risk factor for death. The burden of unsafe sex is highest in sub-Saharan Africa, followed by South Asia.<sup>7</sup> Consequences of unprotected sex include transmission of HIV and other sexually transmitted infections (STIs), complications from pregnancy, childbirth and abortion. In 2005, over 4 million people became newly infected with HIV, mostly through sexual transmission, and 340 million new cases of common, curable STIs occur annually (See box on STIs).<sup>8,9</sup> The majority of HIV/AIDS epidemics in the world are fueled by unprotected sex.

### Unprotected sex is the primary mode of HIV transmission for women.

Worldwide, almost half of the people living with HIV or AIDS are women, and in sub-Saharan Africa—where heterosexual transmission is highest—60 percent of those living with HIV or AIDS are women. Although marriage is often perceived as a protective factor, it is not. Even in countries that have seen declines in HIV prevalence, the majority of new infections are now among monogamous married women. In Cambodia, for example, husband-to-wife-transmission is the main route of HIV transmission, causing two-fifths of new infections.<sup>10</sup>

### Condom use remains uncommon among married couples and regular partners.

Non-commercial, non-marital, longer-term sexual relationships that involve a certain level of affection and trust are on the rise in many countries.<sup>11</sup> Condoms, which remain associated with infidelity and casual or commercial sex, are less likely to be used in these relationships. According to the 2000-01 Uganda Demographic and Health Survey (DHS), only 4 percent of men and 3 percent of women reported using condoms during their last sex act with their spouse or cohabitating partner.<sup>12</sup> Male and female condoms must be accessible to those who need them—as methods of contraception and HIV/STI prevention. The female condom expands the limited range of available barrier methods. As always, information about condoms should be age-appropriate, medically accurate and part of a comprehensive approach that empowers individuals to make informed decisions.

**People with concurrent sexual partners are significantly more likely to contract HIV than those who practice serial monogamy.** During the first weeks of HIV infection, HIV transmissibility is very high. Therefore, concurrent sexual partnerships accelerate the spread of HIV through sexual networks during this acute phase. On the other hand, partner reduction and serial monogamy reduce the chances of spreading the infection. Messages encouraging faithfulness are essential and should be part of a comprehensive, balanced and sustained HIV-prevention effort. The promotion and funding of abstinence and fidelity above and apart from other prevention strategies, such as U.S. policy currently does, dangerously ignores the reality of women's lives and increases their risk of contracting HIV.

**When only one partner adheres to monogamy, the result can be tragic, particularly for married women.** Preventing infections among monogamous women requires longer-term strategies to address the roots of gender inequity. Cultures are not static, and there are opportunities to challenge deep-rooted notions of masculinity among young boys. For example, exposure to formal learning in a school setting provides an opportunity to challenge traditional gender roles, for both girls and boys. Additionally, special interventions are needed to reach out-of-school youth.

7 Lopez AD, CD Mathers, M Ezzaati, DT Jamison, and CJL Murray. 2006. "Global and regional burden of disease and risk factors, 2001: Systematic analysis of population health data." *The Lancet* 367: 1747-57.

8 UNAIDS. 2006. *2006 Report on the Global AIDS Epidemic*. Geneva: UNAIDS.

9 WHO. 2001. *Global Prevalence and Incidence of Selected Curable Sexually Transmitted Infections Overview and Estimates*. Geneva: WHO.

10 Ek, V. 2004. *Gender and HIV/AIDS Policy in Cambodia*. Poster presented at the International AIDS Conference, Bangkok. Abstract No. ThPeC75674.

11 Population Services International (PSI). 2002. *Sweetheart relationships in Cambodia: Love, sex and condoms in time of HIV*. Washington, DC: PSI.

12 Measure DHS STATCompiler. Available from <http://www.statcompiler.com/statcompiler/index.cfm>; accessed on August 27, 2007.

ALTHOUGH MARRIAGE IS OFTEN PERCEIVED AS A PROTECTIVE FACTOR, IT IS NOT

## STIs

1 WHO. 2001. *Global Prevalence and Incidence of Selected Curable Sexually Transmitted Infections Overview and Estimates*. Geneva: WHO.

2 Ibid.

3 Ibid.

4 Ibid.

5 The World Bank. 1993. *World Development Report: Investing in Health*. Washington DC: The World Bank.

6 Rustein SO and Shah IH. 2004. "Infecundity, infertility, and childlessness in developing countries." *DHS Comparative Reports No.9*. Calverton, MD: ORC Macro and Geneva: WHO.

7 Gilson L., et. al. 1997. "Cost-effectiveness of improved treatment services for sexually transmitted diseases in preventing HIV-1 infection in Mwanza Region, Tanzania." *The Lancet* 350: 1805-09.

8 UNAIDS. 2005. *AIDS Epidemic Update 2005*. Geneva: UNAIDS.

9 Schmid G. 2004. "Economic and programmatic aspects of congenital syphilis prevention." *Bulletin of the World Health Organization* 82: 1-8.

10 Glasier, Anna, et. al. 2006. "Sexual and reproductive health: a matter of life and death." *The Lancet* 368: 1595-1607.

Data on the global prevalence of sexually transmitted infections (STIs) are limited because STI surveillance has been largely neglected and underfunded. However, the best available estimates indicate that more than 340 million new cases of the common bacterial and protozoal STIs (i.e. syphilis, gonorrhea, chlamydial genital infections and trichomoniasis) occur every year throughout the world in men and women aged 15 to 49.<sup>1</sup>

The largest number of new infections occurs in South and Southeast Asia. However, the highest rate of new infections occurs in sub-Saharan Africa, followed by Latin America and the Caribbean.<sup>2</sup> Prevalence and incidence of STIs varies within countries and between countries in the same region, as well as between rural and urban populations and even in similar population groups.<sup>3</sup> In general, STI prevalence tends to be higher among urban residents, unmarried individuals and young adults.<sup>4</sup> It is estimated that at least a third of the 340 million new annual STI cases are among people under age 25.

The most serious consequences of untreated STIs tend to affect women and newborns. In developing countries, STIs and their complications are among the top five disease categories for which adults seek health care. STIs (excluding HIV) are second only to maternal factors as causes of disease, death and healthy life lost among women of reproductive age.<sup>5</sup>

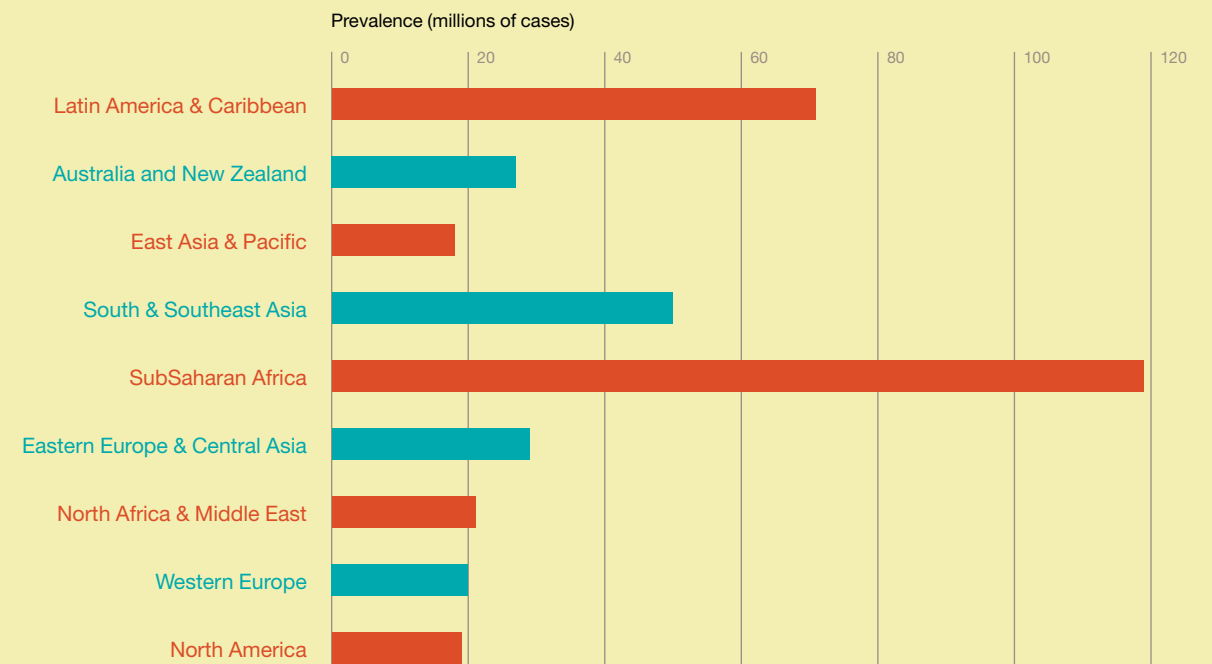
In adults, STIs can lead to pelvic inflammatory disease and potentially fatal ectopic pregnancy or chronic illness. STIs are also the leading preventable cause of infertility, which affects more than 180 million couples in developing countries.<sup>6</sup> While infertility affects both men and women, women typically suffer the greater social consequences from their partners and their communities. Untreated STIs can also increase the risk of both acquisition and transmission of HIV. Improvement in the management of STIs can reduce the incidence of HIV infection in the general population.<sup>7</sup> In unborn and newborn children, STIs can cause stillbirths, low birth weight and pneumonia.

Despite the widespread prevalence and serious consequences, STIs receive little political or financial support. For example, in sub-Saharan Africa, it is estimated that 1,640,000 pregnant women have undiagnosed syphilis every year.<sup>8</sup> Untreated syphilis results in a stillbirth rate of 25 percent and a perinatal mortality of about 20 percent. Although screening and treatment programs for syphilis have roughly the same potential to prevent fetal deaths as PMTCT programs (an estimated half a million fetal deaths averted per year) syphilis receives far less attention and funding.<sup>9,10</sup>

FIGURE 2.1

### STI prevalence by region per 1000 people

More than 340 million new cases of curable STIs occur every year worldwide. The highest rate of new infections occurs in sub-Saharan Africa, followed by Latin America and the Caribbean.



Source: WHO. 2001. *Global Prevalence and Incidence of Selected Curable Sexually Transmitted Infections Overview and Estimates*. Geneva: WHO.

# 3

## We must smooth young women's transition through adolescence.

For biological, cultural and economic reasons, sexual and reproductive risk are higher among adolescent women. Pregnancy is the leading cause of death for young women aged 15 to 19 worldwide with complications of childbirth and unsafe abortion being the major risk factors.<sup>13</sup> Teenage girls who are not physically mature are at greater risk of obstructed labor, pregnancy-induced hypertension and obstetric fistula (See Box on *Obstetric Fistula*). Girls aged 15 to 19 are twice as likely to die in childbirth as those in their 20s, and girls under 15 are five times as likely to die as those in their 20s.<sup>14</sup> In almost all countries in sub-Saharan Africa, HIV/AIDS prevalence is higher among girls aged 15 to 24 than among boys of the same age.

Many relationships between older men and younger women that involve financial or material exchange both reflect and sustain girls' vulnerabilities. Studies on informal transactional sex in sub-Saharan Africa found that between 7 and 38 percent of unmarried adolescent girls surveyed report receiving money, gifts or favors within the last year in exchange for sex.<sup>15</sup> Providing tuition scholarships to girls and heavily subsidizing all school-related expenses—including safe transportation where needed—would go a long way toward reducing girls' vulnerability and investing in their future, and that of society as a whole.

**Death and injury rates are higher among infants born to young mothers.** Young mothers are less likely to get prenatal care, and babies born to very young mothers are more likely to be premature or underweight. The risk of dying in the first year of life is typically greater by 30 percent or more among babies whose mothers are aged 15 to 19 than among those born to mothers aged 20 to 29.<sup>16</sup> In general, young mothers are less likely to have the means to safeguard the health of their infants.

**The proportion of unplanned or unwanted pregnancies among adolescents varies widely within and between regions.** The range of unplanned pregnancies among adolescent girls is highest in Latin America and the Caribbean, as well as in some sub-Saharan African countries where up to 50 percent of adolescent mothers reported that their pregnancies were unplanned.<sup>17</sup> Overall, adolescent fertility rates are highest in middle and western Africa. Notably, the United States has the highest adolescent fertility rate of all developed countries, and 73 percent of 15- to 19-year-olds giving birth report that their pregnancies were unplanned.<sup>18</sup>

**Adolescence is a period of physical, social and emotional transitions and developments, mostly positive ones.** However, lack of opportunities, knowledge and skills can complicate such transitions and have lifelong impacts. Sexual activity generally begins in late adolescence with, like other transitions, variations among regions and sexes. For girls in most developing countries, where one in seven girls marries before age 15 (excluding China),<sup>19</sup> such very early sexual initiation primarily occurs within marriage.<sup>20</sup> For boys, the relationship between age at marriage and sexual debut is not clear.

## Education

**Education is a potentially powerful tool for elevating women's status and improving their health.** Better educated women are more likely to use maternal health services, including antenatal care and skilled delivery care.<sup>1</sup> By way of factors such as consistent condom use, increased contraceptive use and a reduction in sexual partners, **higher education can contribute to lower reproductive risk.**<sup>2</sup> Educated women also tend to develop a better understanding of formal institutions, including those related to health care provision, which in turn encourages health-seeking behaviors.

It is not certain that education always has a protective effect on women's risk of HIV infection.<sup>3</sup> Still, a study in Zambia found that **out-of-school adolescents were more vulnerable to infection with HIV than those attending school**, and out-of-school girls had three to four times higher HIV prevalence than out-of-school boys in both rural and urban areas.<sup>4</sup>

Despite the many social and economic incentives for achieving education for all, **77 million children, 57 percent of whom were girls, did not attend school in 2004.** While nearly two-thirds of countries have achieved gender parity in primary education, only one-third of countries have achieved gender parity at the secondary level.<sup>5</sup> **Sub-Saharan Africa remains home to half the world's out-of-school children**, although the numbers have been falling.<sup>6</sup> The share of rural children who don't attend school is at least double that of urban children in 24 countries.

**Addressing the linkages between quality education and women's health and socio-economic development has synergistic effects.** These effects contribute to meaningful investments in girls and women, and are often intergenerational: A child whose mother has no education is, on average, twice as likely to be out of school as one with an educated mother.<sup>7</sup>

13 WHO. 2004. *Maternal Mortality Update 2004: Delivering Into Good Hands*. Geneva: WHO.

14 Ibid.

15 Luke, Nancy. 2005. "Investigating exchange in sexual relationships in sub-Saharan Africa using survey data." In *Sex without Consent: young people in developing countries*, edited by Shireen Jejeebhoy, Iqbal Shah and Shyam Thapa, 114. New York: Zed Books.

16 The Alan Guttmacher Institute (AGI). 1997. *Issues in Brief: Risks and Realities of Early Childbearing Worldwide*. Washington, DC: AGI.

17 WHO. 2007. *Adolescent pregnancy—Unmet needs and undone deeds: A review of the literature and programmes*. Geneva: WHO.

18 Ibid.

19 Population Council. 2007. *Transitions to Adulthood*. Available from <http://www.popcouncil.org/ta/mar.html>; accessed on August 23, 2007.

20 Dixon-Mueller, Ruth. 2007. *Sexual and Reproductive Transitions of Adolescents in Developing Countries*. Paris: IUSSP.

1 Pande, Rohini, Anju Malhotra and Caren Grown. 2005. *Impact of Investments in Female Education on Gender Equality*. Paper prepared for presentation at Session 3: Schooling, XXV IUSSP International Population Conference, Tours, France.

2 Michelo, Charles, IF Sandoy and K Fylkesnes. 2006. "Marked HIV prevalence declines in higher educated young people: Evidence from population-based surveys (1995-2003) in Zambia." *AIDS* 20(7).

3 Pande, Rohini, Anju Malhotra and Caren Grown. 2005. *Impact of Investments in Female Education on Gender Equality*. Paper prepared for presentation at Session 3: Schooling, XXV IUSSP International Population Conference, Tours, France.

4 Michelo, Charles, IF Sandoy and K Fylkesnes. 2006. "Marked HIV prevalence declines in higher educated young people: Evidence from population-based surveys (1995-2003) in Zambia." *AIDS* 20(7).

5 UNESCO. 2006. *Education For All Global Monitoring Report 2007*. Paris: UNESCO.

6 Ibid.

7 Ibid.

PREGNANCY IS THE LEADING CAUSE OF DEATH FOR YOUNG WOMEN AGED 15 TO 19 WORLDWIDE



## Obstetric Fistula

Young and poor women, due to physical immaturity and inadequate maternal health, are also disproportionately affected by obstetric fistula, one of the most devastating maternal disabilities. Obstetric fistula is a hole in the birth canal caused by obstructed labor without access to a Caesarean section when needed, and is also associated with the prevalence of births attended by untrained traditional practitioners.<sup>1</sup> The prolonged labor usually results in stillbirth, and, if the mother survives, she is most often left incontinent. Fistulas can often be repaired with a simple and relatively inexpensive medical procedure, but most women who suffer from fistula cannot afford the \$300 cost of the procedure and are thus condemned to a life of isolation and disability.<sup>2</sup> It is estimated that 50,000 to 100,000 women are affected by fistula each year, with the highest prevalence in Sudan, Ethiopia, Chad and Nigeria.<sup>3</sup>

- 1 United Nations High Commission for Human Rights. "Fact Sheet No.23, Harmful Traditional Practices Affecting the Health of Women and Children." Available at <http://www.unhcr.org/html/menu6/2/fs23.htm>; accessed on July 18, 2007.
- 2 United Nations Population Fund (UNFPA), Campaign to End Fistula. "Obstetric Fistula in Brief." Available at [http://www.endfistula.org/fistula\\_brief.htm](http://www.endfistula.org/fistula_brief.htm); accessed on July 18, 2007.
- 3 Hilton, P. 2003. "Vesico-vaginal fistulas in developing countries." *International Journal of Gynecology and Obstetrics* 82: 285-295.

IN DEVELOPING COUNTRIES,  
ONE IN SEVEN GIRLS  
MARRIES BEFORE AGE 15



21 Population Council. 2007. *Transitions to Adulthood*. Available from <http://www.popcouncil.org/ta/mar.html>; accessed on August 23, 2007.

22 International Planned Parenthood Foundation (IPPF) and the UNFPA. 2006. *Ending Child Marriage: A guide for Global Policy Action*. IPPF and UNFPA: London.

23 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 (ICRW): Washington, D.C.

24 Bott, Sarah and Shireen Jejeebhoy. 2005. "Non-consensual sexual experiences of young people in developing countries: an overview." In *Sex without Consent: young people in developing countries*, edited by Shireen Jejeebhoy, Iqbal Shah and Shyam Thapa, 3-45. New York: Zed Books.

25 Clark, Shelly. 2004. "Early marriage and HIV risks in sub-Saharan Africa." *Studies in Family Planning* 35(3): 149-160.

26 ICRW. 2007. *New Insights on Preventing Child Marriage: A Global Analysis of Factors and Programs*. Washington, DC: ICRW.

27 Jensen R. and R. Thornton. 2003. "Early female marriage in the developing world." *Gender and Development* 11(2): 9-19.

28 ICRW. 2007. *New Insights on Preventing Child Marriage: A Global Analysis of Factors and Programs*. Washington, DC: ICRW.

29 WHO. 2007. *Adolescent pregnancy—Unmet needs and undone deeds: A review of the literature and programmes*. Geneva: WHO.

30 Ronsmans, Carine, and Wendy J Graham. 2006. "Maternal mortality: Who, when, where and why." *The Lancet* 368: 1189-1199.

31 WHO. 2007. *Adolescent pregnancy—Unmet needs and undone deeds: A review of the literature and programmes*. Geneva: WHO.

32 Garcia-Moreno, Claudia, et al. 2005. *WHO Multi-country Study on Women's Health and Domestic Violence against Women: initial results on prevalence, health outcomes and women's responses*. Geneva: WHO.

33 Ibid.

**In the next 10 years, 100 million young women will marry before they turn 18.**<sup>21</sup> The rate of marriage among girls younger than age 18 is greater than 40 percent in South Asia and Africa, and it exceeds 60 percent in parts of East and West Africa.<sup>22</sup> There is a strong association between early marriage and early childbirth. Married young girls are often pressured to prove their fertility upon marriage and may suffer the health consequences of earlier, riskier births.<sup>23</sup> Very young and first-time mothers disproportionately suffer from prolonged and obstructed labor, which can result in obstetric fistula. They may also be at a higher risk of contracting HIV than their unmarried, sexually active counterparts.<sup>24</sup> Studies in Kenya and Zambia report that HIV infection rates among married girls are 48 to 65 percent higher than among sexually active unmarried girls.<sup>25</sup>

**Early marriage can mark the end of investments in the education and development of girls, contributing to persistent poverty among women,<sup>26</sup> and young married girls are more likely to experience domestic violence and sexual abuse.**<sup>27</sup> Among girls surveyed in India, those who married before age 18 reported twice the number of experiences of physical violence and three times as many sexually violent experiences as girls who married at later ages.<sup>28</sup> Unmarried young girls are also at high risk of coercive sex. A study in South Africa found that 30 percent of pregnant adolescent girls reported forced sexual initiation, in most cases by their boyfriends.<sup>29</sup>

**Intimate partner violence is the second leading cause of death in pregnancy (India).** In Matlab, Bangladesh, pregnant adolescent girls were at three times' higher risk of death from violence than non-pregnant girls.<sup>30</sup> A study on teenage pregnancy in North America found that more than a third of pregnant adolescents were coerced into sex or raped.<sup>31</sup>

**Much of the sexual violence around the world occurs in the context of intimate relationships.** In some countries, up to 52 percent of women report having been physically abused by an intimate partner at some point in their lives.<sup>32</sup> A recent study of 10 countries found that women in abusive relationships were much more likely to report that their partner refused to use a condom and that they knew their partner had multiple other sexual partners.<sup>33</sup>

# 4

## Having a safe pregnancy must be a right, not a privilege.

Pregnancy and childbirth and their consequences remain the leading causes of death and disability among women of reproductive age in developing countries today.<sup>34</sup> Millions of women around the world do not have the means to either prevent unwanted pregnancies, or to prevent complications and disease in pregnancy.

**The global increase in antenatal care<sup>35</sup> coverage saves newborns' lives.** Coverage is greater than or equal to 90 percent in 20 developing countries, although coverage rates alone do not indicate the quality of care women receive.<sup>36</sup> The majority of these countries are in the Caribbean or South America. Still, antenatal care coverage remains notably low in Africa and parts of Asia.

**Money and location determine babies' chances of survival.** Across regions, the use of antenatal care is significantly influenced by wealth, and there are vast disparities in access to antenatal care between rural and urban areas. Women in urban areas are, on average, twice as likely as those in rural areas to receive four antenatal visits, but in general, these disparities are greatest in areas where use of antenatal care is low overall.<sup>37</sup>

**Women's status is a strong determinant of access to services.** For example, a WHO survey found that in some settings women in abusive relationships were significantly less likely to have received antenatal care.<sup>38</sup>

**Antenatal care is a core component of maternal and child health care.** In many developing countries, these services receive the largest share of budgetary allocations among reproductive health services.<sup>39</sup> However, there are conflicting notions of what the content of

care should be and the degree to which antenatal care improves health outcomes for women. A trend analysis of antenatal care coverage found that in many countries, blood and urine testing need to be increased to diagnose conditions such as preeclampsia, severe anemia and sexually transmitted infections (STIs).<sup>40</sup>

**Antenatal care coverage can be used as a measure of women's exposure to the health system.** Women who receive at least four antenatal care visits are about 3.3 times more likely to deliver in a medical facility than other women.<sup>41</sup> Women who receive antenatal care are also most often associated with receiving postpartum care.<sup>42</sup> However the relationship between antenatal care and skilled attendance at delivery is weakest in sub-Saharan Africa, where maternal mortality is highest.<sup>43</sup>

Aside from serving as an entry point to the health system in general, antenatal care can be a key entry point for family planning, nutrition and TB services, and prevention and care for HIV and other sexually transmitted infections (STIs). **A study in Rakai, Uganda, found that pregnant women are twice as likely to become infected with HIV than non-pregnant or lactating women,** indicating a critical need for HIV-prevention services as well as testing, care and PMTCT services (*See PMTCT Box*).<sup>44</sup> Due to its generally wide coverage, antenatal care has an enormous potential

to expand access to a wide range of interventions.<sup>45</sup> For example, it is critically important for introducing preventative treatment and bednets for malaria. Every year, roughly 50 million women living in malaria-endemic countries become pregnant, and 10,000 of them and 200,000 of their infants die as a result.<sup>46</sup> Antenatal care and provision of the information about reproductive risk factors and how to deal with them can also play an important role in engaging men in reproductive health issues. When and where possible, encouraging joint decision-making among couples can improve health outcomes for both partners overall.

34 WHO. 2005. *World Health Report 2005*. Geneva: WHO.

35 Antenatal care is care for and during pregnancy, provided by skilled health personnel. The WHO recommends a minimum of four antenatal visits at specific times for all pregnant women.

36 WHO and UNICEF. 2003. *Antenatal Care in Developing Countries: Promises, achievements and missed opportunities*. Geneva: WHO.

37 Ibid.

38 Garcia-Moreno, Claudia, et al. 2005. *WHO Multi-country Study on Women's Health and Domestic Violence against Women: initial results on prevalence, health outcomes and women's responses*. Geneva: WHO.

39 Gay J, Hardee K, Judice N, et al. 2003. *What works: a policy and program guide to the evidence on family planning, safe motherhood, and STI/HIV/AIDS interventions: safe motherhood module 1*. Washington, DC: Policy Project.

40 WHO and UNICEF. 2003. *Antenatal Care in Developing Countries: Promises, achievements and missed opportunities*. Geneva: WHO.

41 Ibid.

42 Fort, Alfredo L., Monica T. Kothari, and Nouredine Abderrahim. 2006. *Postpartum Care: Levels and Determinants in Developing Countries*. Calverton, Maryland, USA: Macro International Inc.

43 WHO and UNICEF. 2003. *Antenatal Care in Developing Countries: Promises, achievements and missed opportunities*. Geneva: WHO.

44 Gray, Ron H, Li X, Kigozi G, et al. 2005. "Increased risk of incident HIV during pregnancy in Rakai, Uganda: A prospective study." *The Lancet* 366: 1182-1188.

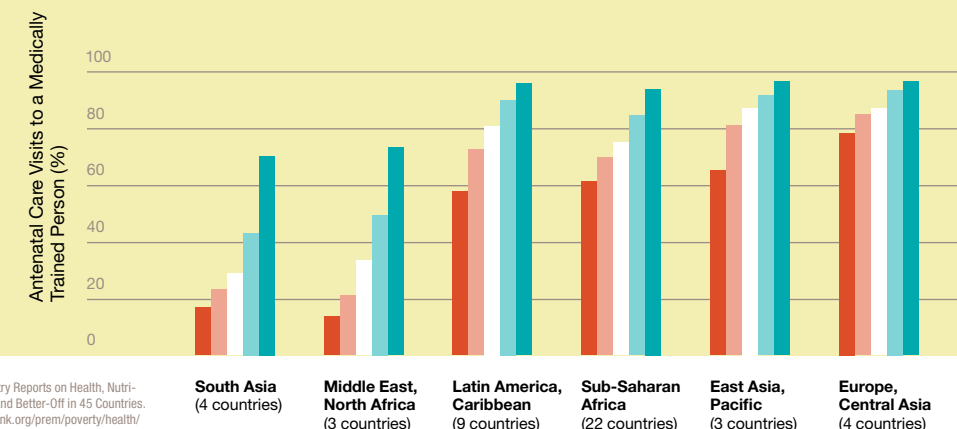
45 Ronsmans, Carine and Wendy J Graham. 2006. "Maternal mortality: Who, when, where and why." *The Lancet* 368: 1189-1199.

46 WHO. 2005. *World Health Report 2005*. Geneva: WHO.

FIGURE 4.1

### Antenatal Care Visits: Rates Among Poor and Rich

Antenatal care is a core component of maternal and child health care. However, across regions and countries, there are vast disparities in use of antenatal care between rich and poor.



Source: World Bank. 2000. Round 1 Country Reports on Health, Nutrition, Population Conditions among Poor and Better-Off in 45 Countries. Accessed online at <http://www1.worldbank.org/prem/poverty/health/data/statusind.htm> on August 28, 2007.

## Preventing Mother-to-Child Transmission of HIV

In 2006, an estimated 530,000 children were newly infected with HIV, contributing to an estimated 2.3 million children living with HIV worldwide.<sup>1</sup> The majority of these infections occurred in sub-Saharan Africa and were acquired from mothers during pregnancy, labor, delivery or breast-feeding.

To prevent HIV infection in infants, United Nations agencies recommend a four-pronged approach<sup>2</sup> that includes:

- 1 preventing primary HIV infection in women;
- 2 preventing unintended pregnancy among women with HIV infection;
- 3 preventing transmission of HIV from infected pregnant women to their infants; and
- 4 providing care, treatment and support to HIV-infected women.

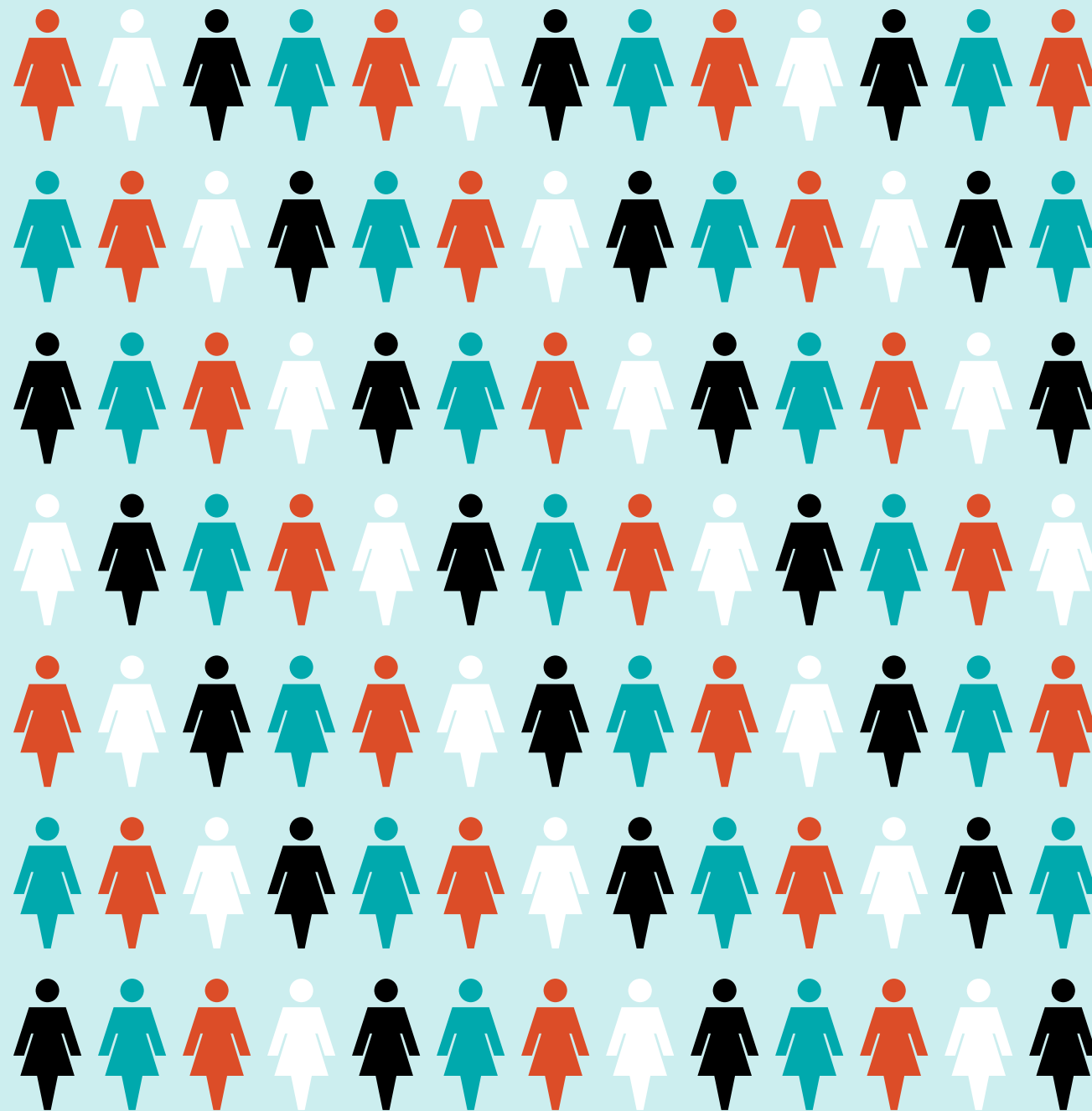
Prevention of primary HIV infection in the general population is the foremost strategy for preventing mother-to-child transmission. Recent research shows that lowering HIV infection rates among sexually active adults by 1 to 5 percent can, in fact, achieve the same reduction in infant HIV infections as interventions administering Nevirapine to infants.<sup>3</sup>

All women, including HIV-positive women, should be enabled to reach their desired fertility and avoid unintended pregnancy. Emerging research on the relationship between pregnancy and HIV suggests that pregnancy can pose risks to HIV-positive women. HIV infection in pregnancy increases the risk of obstetric complications,<sup>4,5</sup> and HIV-related illnesses such as anemia and tuberculosis might be aggravated by pregnancy.<sup>6</sup> Pregnancy may also place women at a higher risk of contracting HIV; a study in Uganda found that women's susceptibility to HIV acquisition doubled during pregnancy.<sup>7</sup>

In addition to preventing primary HIV infections and avoiding unintended pregnancies, reducing HIV infection in children depends upon secondary prevention. This includes identifying HIV-positive pregnant women and providing them with antiretroviral (ARV) prophylaxis and guidance on infant feeding. Worldwide, an estimated 2.2 million women living with HIV/AIDS give birth each year.<sup>8</sup> However, PMTCT programs only reach an estimated 5 percent of the HIV-positive population.<sup>9</sup>

Reducing HIV infection in children demands a range of PMTCT strategies, with antenatal care remaining a critical, yet underexploited entry point for a continuum of services for HIV-positive mothers.<sup>10</sup>

Given that most women are unaware of their HIV status, the range of strategies to address PMTCT should account for the known influences of viral load; such strategies include prevention and control of STIs and malaria, exclusive breast-feeding and strengthened family planning programs.<sup>11</sup> These services reduce the risk of PMTCT, as well as promote health among all pregnant women and their children, and should exist alongside scaled-up VCT and drug treatment.<sup>12</sup>



1 UNAIDS. December 2006. *AIDS Epidemic Update*. Geneva: UNAIDS.

2 The Gizon Call to Action on Family Planning and HIV/AIDS in Women and Children. Geneva: 3-5 May 2004.

3 Sweat M., et al. 2004. "Cost effectiveness of nevirapine to prevent mother-to-child HIV transmission in eight African countries." *AIDS* 18:1661-71.

4 Maiques-Montesinos V, et al. 1999. "Post-cesarean section morbidity in HIV-positive women." *Acta Obstet Gynecol Scand* 78: 789-92.

5 Bjorklund K, Mutyaba T, Nabunya E and Mirembe F. 2005. "Incidence of post-cesarean infections in relation to HIV status in a setting with limited resources." *Acta Obstet Gynecol Scand* 84: 927-28.

6 Ronsmans, Carine and Wendy J Graham. 2006. "Maternal mortality: Who, when, where and why." *The Lancet* 368: 1189-1199.

7 Gray, Ron H, Li X, Kigozi G, et al. 2005. "Increased risk of incident HIV during pregnancy in Rakai, Uganda: A prospective study." *The Lancet* 366: 1182-1188.

8 WHO. 2005. *World Health Report 2005*. Geneva: WHO.

9 USAID. 2004. *Coverage of selected services for HIV/AIDS prevention, care and support in low and middle income countries in 2003*. Washington DC: The Policy Project.

10 WHO and UNICEF. 2003. *Antenatal Care in Developing Countries: Promises, achievements and missed opportunities*. Geneva: WHO.

11 Iliff PJ, Piwoz EG, Tavengwa NV, et al. 2005. "Early exclusive breastfeeding reduces the risk of postnatal HIV-1 transmission and increases HIV-free survival." *AIDS* 19: 699-708.

12 Holmes, Wendy. 2005. "Seeking rational policy settings for PMTCT." *The Lancet* 366: 1835-36.



## Planned pregnancies lead to healthy mothers and families.

Family Planning is an urgent global priority. Women and men are entitled to determine the number, timing and spacing of their children, with access to the appropriate contraceptive methods and health information and services, as affirmed at the International Conference on Population and Development (ICPD). Still, more than 120 million women say they would prefer to avoid a pregnancy, but are not using any form of contraception.<sup>48</sup> In recognition of the widespread benefits of assuring that pregnancies are voluntary and intentional, unmet need for family planning is under consideration for inclusion in the MDG monitoring framework.<sup>49</sup>

A recent study found that outside of sub-Saharan Africa, rural, poor and uneducated women are at increased risk of unplanned pregnancies.<sup>50</sup> However, no single pattern of risk of unmet need could be ascribed to sub-Saharan Africa. For example, unmet need is highest among wealthier, educated urban women in the Central African Republic, and in Rwanda, the need is roughly equitable across differentials.<sup>51</sup> As such, programs need to identify and focus on populations with the greatest need in each particular country.

**An inadequate supply of methods and services is the most common barrier to contraceptive use by married women.**<sup>52</sup> If women are to be able to have the number of children they choose, shortfalls in services and supplies must be addressed. Ensuring that women and men can access the contraceptive method that best suits their particular circumstances and fertility preferences contributes to increased contraceptive use, continuation and safety for the user. For example, in sub-Saharan Africa, unmet need for spacing is close to twice the unmet need for limiting of births. Patterns of method preference (by region, gender, place of residence, etc.) need to inform programmatic and budgetary decisions, including those related to the range and mix of contraceptive supplies. The contraceptive method mix should thus be tailored to various settings.<sup>53</sup>

**Meeting the demands for family planning can prevent many, if not most, deaths from unsafe abortion.** It is estimated that up to 100,000 maternal deaths could be avoided each year if unintended pregnancies were prevented.<sup>54</sup> Although the relationship between birth intervals and maternal health outcomes is in dispute,<sup>55</sup> it is generally accepted that planned pregnancies improve child health.<sup>57</sup> When a pregnant woman has not fully recovered from a previous birth, the new baby is more likely to die in infancy or contract infectious diseases during childhood.<sup>58</sup>

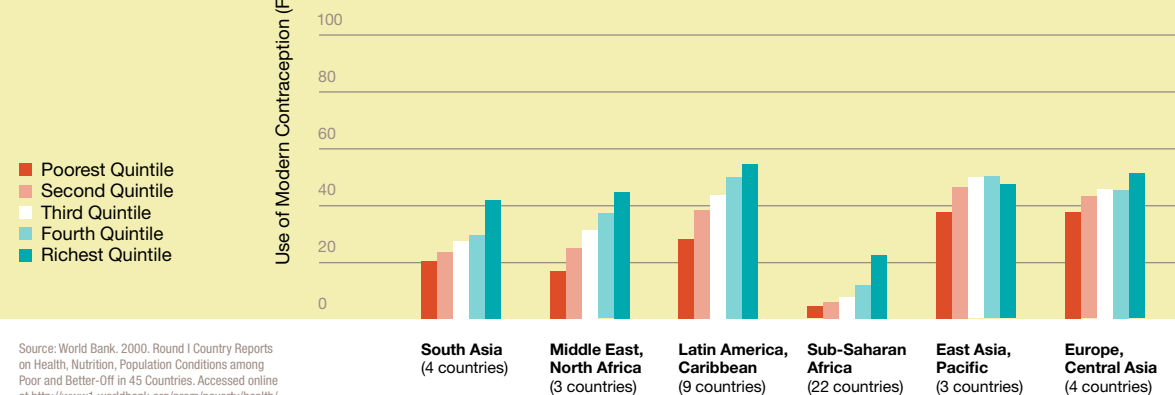
47 Ronsmans, Carine and Wendy J Graham. 2006. "Maternal mortality: Who, when, where and why." *The Lancet* 368: 1189-1199.  
48 Ross, John and William Winfrey. 2002. "Unmet Need for Contraception in the Developing World and the Former Soviet Union: An Updated Estimate." *International Family Planning Perspectives* 28(3): 138-143.  
49 UNESCAP. 2007. *Statistical Newsletter, 29 June 2007*. Available from [http://www.unescap.org/STAT/nl/nl\\_June2007.asp#New\\_targets\\_MDGs](http://www.unescap.org/STAT/nl/nl_June2007.asp#New_targets_MDGs); accessed on September 4, 2007.  
50 Sedgh G, et al. 2007. "Women with an Unmet Need for Contraception in Developing Countries and Their Reasons for Not Using a Method." *Occasional Report No. 37*. New York: Guttmacher Institute.  
51 Ibid.  
52 Ibid.  
53 Ross, John and William Winfrey. 2002. "Unmet Need for Contraception in the Developing World and the Former Soviet Union: An Updated Estimate." *International Family Planning Perspectives* 28(3): 138-143.  
54 WHO. 2005. *World Health Report 2005*. Geneva: WHO.  
55 Conde-Agudelo A and Belizan JM. 2000. "Maternal morbidity and mortality associated with interpregnancy interval: cross sectional study." *British Medical Journal* 321: 1255-59.  
56 Ronsmans C and Campbell O. 1998. "Short birth intervals don't kill women: evidence from Matlab, Bangladesh." *Studies in Family Planning* 29: 282-90.

57 Conde-Agudelo A, et al. 2006. "Birth spacing and risk of adverse perinatal outcomes: a meta-analysis." *Journal of the American Medical Association* 295: 1809-23.  
58 Rustein, Shea O. 2005. "Effects of Preceding Birth Intervals on Neonatal, Infant and Under-Five Years Mortality and Nutritional Status in Developing Countries: Evidence from the Demographic and Health Surveys." *International Journal of Gynecology and Obstetrics* 89, Suppl 1:s7-s24.

## UP TO 100,000 MATERNAL DEATHS COULD BE AVOIDED EACH YEAR IF UNINTENDED PREGNANCIES WERE PREVENTED

**FIGURE 5.1**  
**Use of Modern Contraception: Rates among Poor and Rich**

More than 120 million women say they would prefer to avoid a pregnancy, but are not using any form of contraception. Across regions and countries, use of modern contraceptives is lowest among the poor.



Source: World Bank. 2000. Round I Country Reports on Health, Nutrition, Population Conditions among Poor and Better-Off in 45 Countries. Accessed online at <http://www1.worldbank.org/prem/poverty/health/data/statusind.htm> on August 28, 2007.



## Skilled attendance at childbirth can make the difference between life and death.

For many women, giving birth entails risking their own lives. Between 11 and 17 percent of maternal deaths occur during childbirth itself, and between 50 and 71 percent in the postpartum period.<sup>59</sup> The safety of births is largely dependent upon the presence of skilled attendants. The determination of who is counted as a skilled attendant has changed over time. Reporting, while improving, is not always consistent.<sup>60</sup> According to the official WHO definition, the term refers to an accredited health professional (doctor, nurse or midwife) who has been educated and trained to proficiency in the skills needed to manage uncomplicated pregnancies, childbirth and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns.<sup>61 62</sup> Skilled attendants can provide emergency obstetric first aid and facilitate prompt referral to emergency obstetric care services.

**Skilled attendance at birth remains drastically low in sub-Saharan Africa and southern Asia.** Ethiopia has the lowest skilled birth attendance in the world, followed by Bangladesh and Afghanistan. Skilled attendance is also notably low in Haiti but generally high in the rest of the Caribbean.

**Overall progress in increasing skilled attendance has been inhibited by failure to make advancements in rural areas, namely in sub-Saharan Africa and South and Southeast Asia.** In the early 1990s, it was estimated that one in four women in developing countries gave birth alone or with only a relative or neighbor to assist; fifteen years later, this figure is still the same.<sup>63</sup> In cases where women do receive skilled care at birth, their health may still be jeopardized by having not received the quality of care that they need or the full range of care from pregnancy to the end of the postpartum period.

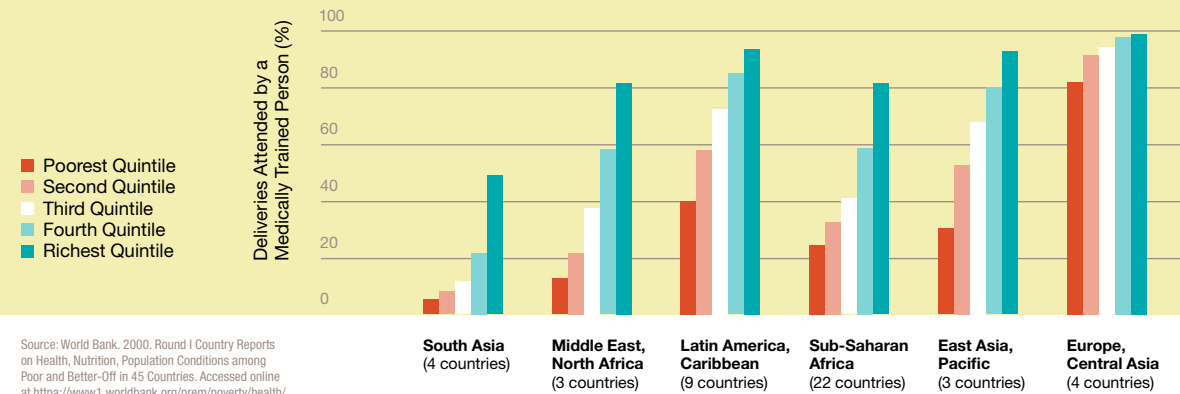
**As with most reproductive health indicators, country-level data masks disparities in access to care.**<sup>64</sup> In most countries and regions, delivery with the help of a skilled birth attendant is closely linked to wealth, with a few noteworthy countries, such as Sri Lanka, in which it is equitable across income groups.<sup>65</sup> Researchers have recently classified areas with low rates of skilled care into two categories: areas of “marginal exclusion” where only the poorest lack access, versus areas of “massive deprivation” where only the very rich receive care.<sup>66</sup> Where only the poorest lack access, use of services is inhibited by poor quality of care, cost, cultural barriers or lack of women’s autonomy to seek professional care.

Where only the very rich receive care, barriers to service are due to delivery and the sheer absence of staff, facilities and reproductive health supplies. Progress in these locations will depend upon advancements in the training, adequate distribution and retention of health workers. The WHO estimates that to extend coverage of maternal and newborn care in the next 10 years, 75 countries need at least 334,000 additional midwives

FIGURE 6.1

## Deliveries Attended by a Medically Trained Person: Rates Among Poor and Rich

Skilled attendance at childbirth remarkably reduces maternal mortality. Yet, across regions and countries, the poorest women have the least access to skilled care at birth.



Source: World Bank. 2000. Round 1 Country Reports on Health, Nutrition, Population Conditions among Poor and Better-Off in 45 Countries. Accessed online at <http://www1.worldbank.org/prem/poverty/health/data/statusind.htm> on August 28, 2007.

(or equivalent attendants), as well as additional training for 140,000 existing professionals providing first-level care and of 27,000 doctors who are not currently qualified to provide back-up care.<sup>67</sup> Countries that have successfully reduced maternal mortality (including Zimbabwe, Egypt, Honduras and Jamaica), have included a strong focus on training, recruiting and supporting skilled attendants.<sup>68</sup> Given the current resource shortages, strategic distribution of personnel is key to addressing skilled birth coverage in the short term.

**Skilled attendance provides a snapshot of delivery care by indicating whether childbirth is attended by a trained health professional, but it does not reveal whether or not women have access to emergency obstetric care.**<sup>69</sup> For example, cesarean rates among women in urban areas are roughly three times higher than among women in rural areas. More monitoring and research is needed to determine the unmet obstetric need, particularly in countries with high rates of maternal mortality and large disparities between rural and urban areas.<sup>70</sup> Moreover,

access to emergency obstetric care is of particular importance to women who have undergone female genital mutilation/cutting (FGM).

**The effects of female genital mutilation/cutting (FGM) are extreme during childbirth and often deadly for both the mother and child.**<sup>71</sup> FGM is the surgical removal of parts or all of the female genital organs and is traditionally practiced in 28 countries, mostly in Africa. It is estimated that more than 100 million girls and women are currently affected, with 3 million additional cases every year. Deliveries to women who have undergone FGM are significantly more likely to be complicated by caesarean section, postpartum hemorrhage and prolonged hospitalization. The severity of complications has been shown to increase according to the extent of the FGM. Furthermore, the infant death rate is 15 to 55 percent higher among those born to mothers who have FGM, depending upon its extent.<sup>72</sup>

59 WHO. 2005. World Health Report 2005. Geneva: WHO.

60 Abou Zahr C and Wardlaw T. 2001. “Maternal Mortality at the end of a decade: signs of progress?” *Bulletin of the World Health Organization* 79(6). WHO: Geneva.

61 Traditional birth attendants (TBAs) are excluded because the strict definition of TBA refers only to traditional, non-formally trained and community-based providers of care during pregnancy, childbirth and the postnatal period.

62 WHO. 2007. Skilled attendant at birth—2007 updates. Available at [http://www.who.int/reproductive-health/global\\_monitoring/skilled\\_attendant.html#definitions](http://www.who.int/reproductive-health/global_monitoring/skilled_attendant.html#definitions); accessed on August 27, 2007.

63 Koblinksky, Marge, et al. 2006. “Going to scale with professional skilled care.” *The Lancet* 368: 1377-1386.

64 Abou Zahr C and Wardlaw T. 2001. “Maternal Mortality at the end of a decade: signs of progress?” *Bulletin of the World Health Organization* 79(6). WHO: Geneva.

65 Koblinksky, Marge, et al. 2006. “Going to scale with professional skilled care.” *The Lancet* 368: 1377-1386.

66 Ibid.

67 WHO. 2005. *World Health Report 2005*. Geneva: WHO.

68 Koblinksky, Marjorie A., ed. 2003. *Reducing Maternal Mortality: Learning from Bolivia, China, Egypt, Honduras, Indonesia, Jamaica and Zimbabwe*. Washington DC: The World Bank.

69 Abou Zahr C and Wardlaw T. 2001. “Maternal Mortality at the end of a decade: signs of progress?” *Bulletin of the World Health Organization* 79(6). WHO: Geneva.

70 Guttmacher Institute. 2006. “Rates of Cesarean Delivery in Developing Countries Suggest Unequal Access.” *International Family Planning Perspectives* 32(2): 105.

71 WHO study group on female genital mutilation and obstetric outcome. “Female genital mutilation and obstetric outcome: WHO collaborative prospective study in six African countries.” *The Lancet* 367: 1835-41.

72 Ibid.



## The consequences of unsafe abortion echo for generations.

Make abortion safe, legal and accessible. Women's lives are saved when abortion is legal. Unsafe abortion is preventable. Yet, it is estimated that 68,000 women—seeking to terminate pregnancies—die from unsafe abortion every year, and millions more suffer complications. Of the estimated 210 million pregnancies that occur every year, about 46 million end in induced abortion; more than 18 million of these abortions are performed under unsafe circumstances every year.<sup>73</sup>

Causes of death from unsafe abortion include severe bleeding, internal infection, tearing of the uterus and blood poisoning. The WHO estimates that 2 percent of women of reproductive age are infertile as a result of unsafe abortion, and 5 percent have chronic infections. Unsafe abortion also increases the risk of ectopic pregnancy, premature delivery and spontaneous abortion in future pregnancies.<sup>74</sup>

**The risk of unsafe abortion is highest in sub-Saharan Africa and South-Central Asia.** The number of unsafe abortion-related deaths per 100,000 live births is highest in eastern, middle and western Africa (90-140 unsafe abortions per 100,000 live births), and is also high in south-central Asia (70 unsafe abortions per 100,000 live births).<sup>75</sup> In sub-Saharan Africa, one in 120 abortions leads to death, compared to one in 15,000 in developed countries.<sup>76</sup>

**The age pattern of unsafe abortions varies markedly between regions.** The proportion of women aged 15 to 19 who have an unsafe abortion is highest in Africa, and in some urban areas unmarried adolescents represent the majority of all abortion seekers. Understanding the age patterns of unsafe abortion is essential to identifying its causes and designing programmatic interventions to prevent it.<sup>77</sup>

**In many developing countries, the consequences of unsafe abortion impose an additional burden on already-scarce hospital resources.**<sup>78</sup> Unsafe abortion can also be reflective of the overall quality of health care systems. Even where the procedure is legal, often health system shortages, poverty and misconceptions about the laws keep abortion unsafe.<sup>79</sup> Where abortion is legal, it must be safe and accessible. Where abortion is heavily restricted, laws and policies should be eased or lifted on the grounds that doing so is necessary to bring down the high rate of maternal death. Women's health and lives are less at risk where abortion is legal. In Romania and South Africa, the legalization of abortion—in concert with strong family planning efforts—resulted in substantially fewer maternal deaths in a matter of a few years (Romania's maternal mortality rate fell by almost 73 percent between 1990 and 2002,<sup>80</sup> while deaths from abortion complications decreased by 91 percent in South Africa from 1994 to 2001<sup>81</sup>). Life-saving post-abortion care (PAC) should be accessible in all health facilities, regardless of the legal status of abortion. Emergency obstetric care reduces the risk of death from unsafe abortion, and voluntary family planning services have been shown to help prevent unintended pregnancies and reduce abortion rates.<sup>82,83</sup>

Culturally accepted norms and practices often limit a woman's ability to safeguard her own sexual and reproductive health and survival. In many countries, the law remains silent about harmful traditional practices such as FGM, child marriage and sex-selective abortion. In cases where protective legislation does exist,

statutory laws can be undermined by customary laws. Moreover, often there are limitations to the opportunities available to women—in terms of access to jobs, unequal pay scales, discriminatory inheritance laws, and unequal access to education and political participation.

CULTURALLY ACCEPTED NORMS AND PRACTICES OFTEN LIMIT A WOMAN'S ABILITY TO SAFEGUARD HER OWN SEXUAL AND REPRODUCTIVE HEALTH AND SURVIVAL

73 WHO. 2005. *World Health Report 2005*. Geneva: WHO.

74 WHO. 2004. *Unsafe abortion: global and regional estimates of the incidence of unsafe abortion and associated mortality in 2000*. 4th edition. Geneva: WHO.

75 Ibid.

76 Vlassof M, et al. 2004. *Assessing costs and benefits of sexual and reproductive health interventions*. New York: Guttmacher Institute.

77 WHO. 2004. *Unsafe abortion: global and regional estimates of the incidence of unsafe abortion and associated mortality in 2000*. 4th edition. Geneva: WHO.

78 Ibid.

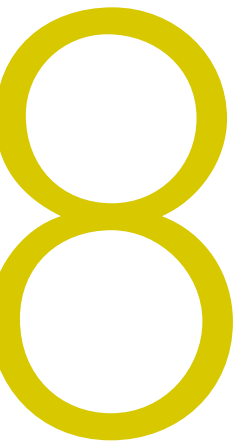
79 Grimes, David A., et al. 2006. "Unsafe abortion: the preventable pandemic." *The Lancet* 368: 1908-1919.

80 WHO, 2003. Available from [http://www.euro.who.int/eprise/main/WHO/Progs/CHHRM/sum/20060212\\_2](http://www.euro.who.int/eprise/main/WHO/Progs/CHHRM/sum/20060212_2); Accessed on September 14, 2007.

81 Grimes, David A., et al. 2006. "Unsafe abortion: the preventable pandemic." *The Lancet* 368: 1908-1919.

82 Bongaarts J and Westoff CF. 2000. "The potential role of contraception in reducing abortion." *Studies in Family Planning* 31(3): 193-202.

83 Marston C and Cleland J. 2003. "Relationships Between Contraception and Abortion: A Review of the Evidence." *International Family Planning Perspectives* 29: 6-13.



## The leading cause of death for women in developing countries is preventable.

Although 88 to 98 percent of maternal deaths are preventable,<sup>84</sup> pregnancy remains the leading killer of women in their reproductive years in developing countries.<sup>85</sup> More than half a million women—typically women who are poor, uneducated and living in rural areas or urban slums—continue to die every year during pregnancy and childbirth. Ninety-nine percent of these deaths take place in developing countries.<sup>86</sup> This is despite 20 years of global campaigning to reduce maternal mortality. Indeed, goal 5 of the MDGs “Improve maternal health” has as one of its targets the reduction of the maternal mortality ratio by three-quarters between 1990 and 2015. For every woman who dies, as many as 30 others suffer chronic illness or disability.<sup>87,88</sup> The burden of maternal mortality is greatest in sub-Saharan Africa and South Asia.

**Levels of maternal mortality are indicative of the social injustices between rich and poor people, urban and rural areas, and men and women,** and not only of the quality of a functioning health care system. Inadequate access to maternity care is only one of the causes of maternal mortality. Other indirect causes include poverty and gender inequity.

**Maternal mortality—especially the lifetime risk of dying in pregnancy or childbirth—shows the largest gap between the rich and poor of all public health/development statistics.** Many of the poorest women, or those with least access to safe delivery or family planning services, have high fertility and are at high obstetric risk of death from pregnancy or childbirth. **Rural populations and the poor are at highest risk in general, as they cannot afford or reach the services they need.** Men and women residing in rural and remote areas can neither be assured that a health outlet is reachable nor that when one is reached it will contain the needed health supplies and services. In Ethiopia, 90 to 95 percent of women deliver at home and are two hours or more away from a health facil-

ity. In Peru, maternal mortality among the poorest women is six times higher than among the richest.<sup>89</sup>

**The most common cause of maternal death is bleeding, which can kill even a healthy woman within two hours if unattended.** Sepsis and unsafe abortion are the second and third most frequent causes of death.<sup>90</sup> Access to timely and competent care is the key to saving the life of a hemorrhaging woman; approximately 45 percent of postpartum maternal deaths occur during the first 24 hours after birth, and more than two-thirds during the first week. Therefore, proper delivery care—where women deliver, who attends them and what emergency measures are available—is critical to the survival of mothers and babies.<sup>91</sup> Half of the deaths caused by hemorrhage occur in sub-Saharan Africa, and one-third of them occur in South Asia, where quality delivery care is largely unavailable in most rural areas.

**Because each pregnancy has an inherent obstetric risk, high fertility increases a woman’s cumulative lifetime risk of death from pregnancy and childbirth.** Lifetime risk of maternal death is over 250 times higher in the least

## Anemia

The WHO estimates that 2 billion people in the world are anemic. Anemia is a deficiency of red blood cells and/or hemoglobin, that reduces the ability of the blood to transfer oxygen to the tissues. Anemia is most prevalent among women, infants and children because growth and pregnancy increase the demand for iron. On average, 45 percent of pregnant women and 49 percent of children under age 5 in developing countries are anemic.<sup>1</sup> The greatest burden of death and disease due to anemia is in Africa and Asia.

Roughly half of all cases of anemia are due to dietary iron deficiency, caused by the inadequate intake and poor absorption of iron.<sup>2</sup> Anemia can also be caused by malaria (especially in pregnant women and young children), hookworms, infections, genetic disorders such as sickle-cell, and blood loss during labor and delivery, especially when successive births are closely spaced.

Iron-deficiency anemia is an underlying risk factor for maternal and perinatal mortality and morbidity. Anemia is estimated to be associated with 22 percent of worldwide annual maternal deaths<sup>3</sup> due to women’s reduced ability to survive bleeding during and after childbirth (postpartum hemorrhage). The condition can also cause preterm births and low birthweight, and it is associated with an estimated 24 percent of perinatal deaths.<sup>4</sup>

The impact of anemia among pregnant women and women of reproductive age can be drastically reduced through simple interventions, including iron supplementation for pregnant women and adolescent girls, malaria and hookworm control, and efforts to ensure optimal birth spacing.<sup>5</sup>

developed countries than in developed countries. The projected decrease in the number of births in India between 1990 and 2015 is estimated to yield a 9 percent decrease in maternal mortality. In sub-Saharan Africa, however, the projected increase in the number of births will burden already overextended maternity services and contribute to increased maternal mortality.<sup>92</sup>

**Voluntary family planning can reduce the number of maternal deaths by reducing unwanted pregnancies and preventing recourse to often-unsafe abortion.** In developing countries, 41

percent of all pregnancies are unintended, and 26 percent of all births are unintended.<sup>93</sup> In these countries, 35 percent of maternal deaths result from unintended pregnancies, and 13 percent of maternal deaths are attributed to induced abortion. One study found that if unwanted pregnancies were prevented, between a quarter and two-fifths of maternal deaths could be eliminated.<sup>94</sup>

**Children whose mothers die may have three to 10 times’ higher risk of dying than those with living parents.**<sup>95</sup> Nearly three-quarters of all infant deaths could be prevented if women were ade-

84 Campbell, OMR and WJ Graham. 2006. “Strategies for reducing maternal mortality: getting on with what works.” *The Lancet* 368: 2121-2122.

85 WHO. 2004. *Maternal Mortality Update 2004: Delivering Into Good Hands*. Geneva: WHO.

86 WHO. 2004. *Maternal Mortality in 2000: Estimates Developed by WHO, UNICEF and UNFPA*. Geneva: WHO.

87 Ashford, L. 2002. *Hidden Suffering: Disabilities from Pregnancy and Childbirth in Less Developed Countries*. Washington, DC: Population Reference Bureau.

88 Glasier, Anna, et. al. 2006. “Sexual and reproductive health: a matter of life and death.” *The Lancet* 368: 1595-1607.

89 Ronsmans, Carine and Wendy J Graham. 2006. “Maternal mortality: Who, when, where and why.” *The Lancet* 368: 1189-1199.

90 WHO. *Fact and figures from the World Health Report 2005*. Geneva: WHO.

91 Ronsmans, Carine and Wendy J Graham. 2006. “Maternal mortality: Who, when, where and why.” *The Lancet* 368: 1189-1199.

1 Mason, Rivers and Helwig. 2005. “Recent trends in malnutrition in developing regions: Vitamin A deficiencies, anemia, iodine deficiency, and child underweight.” *Food and Nutrition Bulletin* 26: 57-162.

2 USAID, AED and JHPIEGO. 2006. *Maternal Anemia: A Preventable Killer*. Washington DC: USAID A2Z Micronutrient and Child Blindness Project, ACCESS Program and Food and Nutrition Technical Assistance (FANTA) Project.

3 Calculated from “WHO Analysis of Causes of Maternal Deaths: A Systematic Review.” *The Lancet* 367: 1066-1074.

4 Stoltzfus RM, Mullany L and Black RE. 2005. “Iron deficiency anaemia.” In *Comparative Quantification of Health Risks: Global and Regional Burden of Disease Attributable to Selected Major Risk Factors*. Geneva: WHO.

5 Conde-Agudelo and Belizan. 2000. “Maternal morbidity and mortality associated with interpregnancy interval: Cross sectional study.” *British Medical Journal* 321: 1255-1259

92 Ibid.

93 Vlassof M, S Singh, JE Darroch, E Carbone, and S Bernstein. 2004. “Assessing Costs and Benefits of Sexual and Reproductive Health Interventions.” *Occasional Report No. 11*. New York: Guttmacher Institute.

94 Campbell, OMR and WJ Graham. 2006. “Strategies for reducing maternal mortality: getting on with what works.” *The Lancet* 368: 2121-2122.

95 WHO. 2005. *Make every mother and child count*. Geneva: WHO.

## Sri Lanka

1 Center for Global Development. *Case 6: Saving Mothers Lives in Sri Lanka*. Available from [http://www.cgdev.org/section/initiatives/\\_active/millionssaved/studies/case\\_6](http://www.cgdev.org/section/initiatives/_active/millionssaved/studies/case_6); accessed on September 7, 2007.

2 Pathmanathan, Indra, et al. 2003. *Investing in Maternal Health: Learning from Malaysia and Sri Lanka*. Washington DC: The World Bank.

3 Ibid.

4 Ibid.

5 Ibid.

6 Ibid.

7 Hsiao, W. 2000. *A Preliminary Assessment of Sri Lanka's Health Sector and Steps Forward*. Cambridge, MA: Harvard University and Institute of Policy Studies.

Sri Lanka demonstrates that given the proper investments, maternal health can improve dramatically and rapidly, even in a poor country. With minimal financial inputs, Sri Lanka was able to reduce its maternal mortality ratio from over 2,000 deaths per 100,000 live births in 1930, to roughly 60 per 100,000 births today.<sup>1</sup>

Reductions in maternal mortality can be attributed to strong commitment on the part of the government toward improving the health and welfare of its citizens overall. Early advances in female education and involvement of women in the electoral process aided in the creation of an environment that valued maternal health.<sup>2</sup> Close monitoring and evaluation, together with a good data collection system, enabled the government to tailor the development of the health system to meet local health needs.

From the onset, the diffusion of health services was aimed at universal coverage that was inclusive of rural populations; by 1948 the government-funded health care delivery system had reached the entire island.<sup>3</sup> During this period, malaria and hookworm control, together with modern medical advances, contributed to declines in maternal mortality. Meanwhile the training of government midwives was scaled-up so that by 1950, 58 percent of births had skilled attendants.<sup>4</sup> Midwives, supported by a country-wide tiered institutional network, became the principal maternal care providers at the community level.

During the 1960's and 70's, government strategy turned towards improving quality of care, advancing obstetric care and introducing family planning programs. In the late 1970's and early 80's fertility among older women decreased, resulting in fewer high-risk pregnancies.<sup>5</sup> Meanwhile, skilled attendance continued to increase along with women's demand for institutional births. By 1999, 66 percent of births occurred in high-level institutions with an available obstetrician.<sup>6</sup> While public health expenditures remained significant, the role of the private sector was expanded so that by 1996 national health expenditures were split evenly between the sectors.<sup>7</sup> Sri Lanka's successes demonstrate what can be achieved when the public priority is to provide broad access and spur utilization of health services.

96 WHO. 2005. *Facts and figures from the World Health Report 2005*. Geneva: WHO.

97 UNESCO. 2006. *EFA Global Monitoring Report 2007*. Paris: UNESCO.

98 Ronsmans, Carine and Wendy J Graham. 2006. "Maternal mortality: Who, when, where and why." *The Lancet* 368: 1189-1199.

quately nourished and received appropriate care during pregnancy, childbirth and the postnatal period.<sup>96</sup> Each year, nearly 3.3 million babies are stillborn, and more than 4 million others die within 28 days of being born. The largest numbers of babies die in South-East Asia; 1.4 million newborn deaths and an additional 1.3 million stillbirths occur each year. While the actual number of deaths is highest in Asia, the rates for both neonatal deaths and stillbirths are greatest in sub-Saharan Africa. One in five African women loses a baby during her lifetime, compared with one in 25 in rich countries.

**Every day, 1,800 children, most of them newborn, become infected with HIV.** HIV makes these children more vulnerable to other childhood diseases, less responsive to drugs that treat these diseases, and more likely to die from these diseases than HIV-negative children. Without antiretroviral therapy, 45 percent of HIV-infected children die before the age of 2.<sup>97</sup> While the prevention of mother-to-child transmis-

sion (PMTCT) of HIV has gained more attention recently, in high-prevalence countries most pregnant women do not have access to HIV testing.

**Some countries, including low-income countries, have successfully reduced maternal mortality.** Some of these countries are Romania, Thailand, Malaysia, Sri Lanka, Egypt and Honduras. Their successes stem from a number of factors, including increasing access to hospital and midwifery care, improving quality of care and referrals through training, and controlling infectious diseases.<sup>98</sup> They also invested in making health care available to most of their people by building on and improving already existing service delivery models, networks of health centers and outposts, health care infrastructure, and health care personnel (*See Box on Sri Lanka*). All this leads to more timely access to quality services, to better knowledge on how to use these services and, consequently, to reduction in maternal mortality.





# TAKE STEPS NOW TO ENSURE THE SURVIVAL OF MILLIONS OF WOMEN AND CHILDREN

## **What's your number and how do you improve it?**

*A Measure of Survival* is an invaluable tool for advocates, decision-makers, donors and the media to assess the state of women's lives and health in low- and middle-income countries. That so little progress has been made in helping the world's poorest women survive pregnancy and childbirth should serve as a wake-up call to all of us. Thirteen years after the International Conference on Population and Development, women are still dying from largely preventable causes.

The Reproductive Risk Index is designed to assist advocates in changing hearts and minds and reviving political leadership. Use it to make the case for increased funding and strong policies for sexual and reproductive health and rights. Use it to gird and strengthen health care systems. Most importantly, use it to advance women's equality, for, without steady progress in securing the rights of girls and women, none of the recommendations below are achievable.

### **Reach youth.**

Comprehensive, age-appropriate sexual and reproductive health education for both in- and out-of-school youth is imperative, in every society. So, too, are youth-friendly services that are confidential, easy to get to, and accessible in places and times that are convenient to youth. Policymakers should redouble efforts to invest in quality education for girls and all young people. The transition from adolescence to adulthood should be supported and enriched through public policy that values girls' and boys' rights, cherishes their potential and espouses gender equity.

### **Scale-up sexually transmitted infection (STI) interventions.**

Preventing, screening and treating STIs must re-emerge as a public health priority. Integration of STI screening and treatment within a broader range of sexual and reproductive health services has the potential to increase coverage, and must be made more available in resource-poor settings. Action requires improved research on the effectiveness of different STI interventions. Male and female condoms must be accessible to those who need them—as methods of contraception and HIV/STI prevention. The female condom expands the limited range of available barrier methods.

**End harmful practices.**

Very early marriage and childbearing, intimate partner violence, female genital mutilation/cutting and other harmful traditional practices violate women's rights and are detrimental to their health and lives. To effect lasting change, laws and policies to ban harmful practices must accompany locally-driven educational efforts to end such practices and honor the rights of girls and women. But it will take time, steadfast leadership, and consistent activism and education at the local and national levels.

**Recommit to voluntary family planning.**

Family planning efforts have languished due to decreased funding, diminished political support, restrictive policies such as the U.S. Global Gag Rule, and—in recent years—the migration of seasoned family planning staff to other well-funded health initiatives. Efforts to satisfy the unmet need for family planning are an urgent global priority and should always be rights-based and non-coercive. They should be fully funded to ensure a broad mix of contraceptives—including emergency contraception (EC), as well as male and female condoms—and provide high-quality care that empowers women, men and young people to make informed decisions.

**Make childbirth safer.**

Increasing women's access to life-saving reproductive health care is a smart investment; maternal health interventions are among the most cost-effective interventions for women of reproductive age. Scaling up emergency obstetric care, combined with recruiting and training health professionals, is paramount. These efforts will fundamentally save the lives of women and their babies.

**Make abortion safe, legal and accessible.**

Health professionals need a supportive policy and regulatory environment that provides training, furnishes necessary resources and ensures that abortion is accessible in a range of health care settings—not just hospitals. Post-abortion care (PAC) is a core component of reproductive health care and should be fully funded and accessible.

**Focus on the distribution of services.**

Poor reproductive health and inadequate access to services are concentrated among poor people. In the short-term, the focus should be on reducing inequities in service delivery. In the long-term, the goal should be to improve infrastructure, including roads, transportation and communication systems and health care systems altogether.

**Involve communities.**

The mix of factors that contribute to poor reproductive health varies from one community to another. Therefore, efforts to reach women, men and youth with comprehensive sexual and reproductive health information and services must be locally led and implemented. Community-based reproductive health workers were once the backbone of primary health care in many rural areas, but declining funding for family planning, combined with onerous policy restrictions, have taken their toll. It's imperative to rebuild and sustain networks of community health workers to provide health information and supplies.

**Coordinate sexual and reproductive health with HIV/AIDS efforts.**

Voluntary family planning is a key HIV-prevention strategy and must be closely coordinated with HIV/AIDS efforts. Funding, policies and programs must work together to achieve maximum impact. For instance, family planning services must be offered within PMTCT programs, and HIV-positive women, men and youth must have access to sexual and reproductive health information and care.

**Finance reproductive health supplies.**

Government and donor support for reproductive health supplies must increase significantly. Inconsistent financing and weak distribution systems hinder supplies from getting to where they are needed, resulting in frequent shortages and stock-outs of key health supplies. Improving the health of women and young people depends upon a sufficient and reliable supply of contraceptives (including female and male condoms), safe delivery kits, immunizations, drugs to treat STIs and malaria, and other basic supplies, reaching their communities on a regular basis.

**Make country ownership a reality.**

Decision-making on health priorities, policies and strategies at the country level must include government officials, parliamentarians, civil society (NGOs and community-based organizations) the private sector and donors. This will strengthen voluntary family planning services, comprehensive maternal and child health care, and prevention of HIV/AIDS and STIs. A country-led approach to development assistance can and must be a reality.

**Improve research of sexual and reproductive health.**

Better information and measurement of sexual and reproductive health is crucial for evidenced-based programming at the local level, as well as better monitoring of progress, evaluation of programs and policy-setting at the national level. Improved research and data-collection will highlight where changes in programming and strategy are needed.

## highest risk category

All countries in this category have low incomes; all are in sub-Saharan Africa except Haiti, Yemen, and Laos—the poorest countries in their respective regions—and Bangladesh. Skilled care during pregnancy and childbirth is limited, especially in Ethiopia. Infant and maternal mortality are high or very high. Contraceptive use is generally low and there is very high unmet need for contraception. At about 40 percent, Yemen, Rwanda, Laos and Haiti have the highest unmet need for contraception in the world. Very early marriage is common, adolescent fertility is high and abortion policies are mostly restrictive. Levels of HIV infection are moderate to high.

	HIV Prevalence Among Adults 15-49 (%) 2005	Adolescent Fertility (births per 1000 women aged 15-19) 2000-2005	Women married before age 18 (%)	Antenatal Care Coverage— at least 4 visits (%) Most recent year available	Family planning demand met (%)	Births Attended by Skilled Health Personnel (%) Most recent year available	Grounds on which abortion is permitted*	Maternal Deaths per 100,000 Live Births (MMR) 2005	Infant Mortality Rate (IMR) (infant deaths per thousand live births) 2005	Reproductive Risk Index (RRI)
1 Niger	1.1	220	77	11	46	16	I	Extremely high	150	78
2 Chad	3.5	190	72	13	12	15	II	Extremely high	124	75
3 Mali	1.7	199	65	30	22	41	I	Extremely high	120	68
4 Yemen	No Data	80	48	11	37	20	I	High	76	62
5 Ethiopia	1.4	110	49	10	30	6	II	Very high	109	61
6 Guinea-Bissau	3.8	197	No Data	62	No Data	35	I	Extremely high	124	61
7 Sierra Leone	1.6	192	No Data	68	No Data	42	III	Extremely high	165	60
8 Somalia	0.9	71	No Data	32	No Data	25	I	Extremely high	133	60
9 Central African Republic	10.7	133	57	39	63	44	I	Extremely high	115	59
10 Uganda	6.7	173	54	40	36	39	I	Very high	79	59
11 Guinea	1.5	169	63	48	30	38	II	Extremely high	98	58
12 Nigeria	3.9	153	43	47	43	35	I	Extremely high	100	58
13 Mozambique	16.1	176	56	41	47	48	II	Very high	100	58
14 Burkina Faso	2.0	143	52	18	32	38	II	Very high	96	57
15 Malawi	14.1	159	49	55	54	56	I	Extremely high	79	57
16 Bangladesh	<0.1	149	69	11	84	13	I	Very high	54	56
17 Côte d'Ivoire	7.1	133	33	35	35	63	I	Extremely high	118	56
18 Mauritania	0.7	100	37	16	20	57	I	Extremely high	78	55
19 Rwanda	3.1	45	13	10	31	39	II	Extremely high	118	53
20 Lao People's Democratic Republic	0.1	88	No Data	29	45	19	I	Very high	62	52
21 Senegal	0.9	104	39	64	27	52	I	Extremely high	77	50
22 United Republic of Tanzania	6.5	132	41	69	55	46	I	Extremely high	76	50
23 Lesotho	23.2	90	23	88	55	55	I	Extremely high	102	50
24 Madagascar	0.5	149	39	38	53	51	I	Very high	74	49
25 Cameroon	5.4	136	47	52	56	62	II	Extremely high	87	49
26 Haiti	3.8	53	24	42	45	25	I	Very high	84	49

\* Grounds on which abortion is permitted, ranging from the most to the least restrictive: I To save the woman's life or prohibited altogether; II To preserve physical health (also to save the woman's life); III To preserve mental health (also to save the woman's life and physical health); IV Socioeconomic grounds (also to save the woman's life, physical health and mental health); V Without restriction as to reason

## high risk category

Half of the countries in this category are in sub-Saharan Africa. Skilled care during pregnancy and childbirth is generally available, except in Nepal and Cambodia. Maternal and infant mortality is high and very high in three quarters of the countries. Unmet need for contraception is relatively significant and is highest in Western Africa. Proportion of family planning demand met is highest in Central America and lowest in West Africa and India and Zimbabwe. Very early marriage is common and adolescent fertility is generally high. Abortion is generally restricted to save a woman's life or health. All countries with low levels of HIV/AIDS are outside sub-Saharan Africa.

	HIV Prevalence Among Adults 15-49 (%) 2005	Adolescent Fertility (births per 1000 women aged 15-19) 2000-2005	Women married before age 18 (%)	Antenatal Care Coverage— at least 4 visits (%) Most recent year available	Family planning demand met (%)	Births Attended by Skilled Health Personnel (%) Most recent year available	Grounds on which abortion is permitted*	Maternal Deaths per 100,000 Live Births (MMR) 2005	Infant Mortality Rate (IMR) (infant deaths per thousand live births) 2005	Reproductive Risk Index (RRI)
27 Eritrea	2.4	86	47	49	23	28	II	High	50	48
28 Zambia	17.0	148	42	71	56	43	IV	Extremely high	102	47
29 Nepal	0.5	122	56	15	58	19	V	Extremely high	56	46
30 Benin	1.8	136	37	61	41	66	II	Extremely high	89	46
31 Burundi	3.3	55	No Data	79	No Data	25	II	Extremely high	114	46
32 Kenya	6.1	104	25	52	62	42	I	Very high	79	46
33 Togo	3.2	104	31	46	44	49	II	Very high	78	45
34 Pakistan	0.1	22	24	16	46	31	II	High	79	43
35 Congo	5.3	129	31	No Data	73	83	I	Very high	81	42
36 Swaziland	33.4	38	15	No Data	No Data	70	III	High	110	42
37 Gabon	7.9	96	34	63	54	86	I	Very high	60	41
38 Zimbabwe	20.1	72	29	64	81	80	II	Extremely high	81	41
39 Cambodia	1.6	49	25	9	44	44	V	Very high	98	40
40 Guatemala	0.9	115	34	68	65	41	I	High	32	39
41 Papua New Guinea	1.8	70	No Data	78	No Data	42	I	High	55	38
42 Iraq	No Data	42	20	78	No Data	72	I	High	102	38
43 Ghana	2.3	70	28	69	43	47	III	Very high	68	37
44 Sudan	1.6	69	No Data	75	No Data	57	I	High	62	37
45 India	0.4	69	50	30	78	48	IV	High	56	34
46 Nicaragua	0.2	119	43	72	82	67	I	Moderate	30	34
47 Honduras	1.5	103	39	84	79	67	I	High	31	33
48 Myanmar	1.3	19	No Data	76	68	68	I	High	75	32
49 Bolivia	0.1	84	26	69	72	61	II	High	52	32
50 Namibia	19.6	70	10	69	66	76	III	High	46	30

\* Grounds on which abortion is permitted, ranging from the most to the least restrictive: I To save the woman's life or prohibited altogether; II To preserve physical health (also to save the woman's life); III To preserve mental health (also to save the woman's life and physical health); IV Socioeconomic grounds (also to save the woman's life, physical health and mental health); V Without restriction as to reason

## moderate risk category

Nine developing regions (including most of South America and the three wealthiest nations in sub-Saharan Africa) are represented in this category. Antenatal care and skilled attendance at delivery are generally high. The countries are split between low and moderate levels of maternal mortality. Infant mortality is low. A significant proportion of family planning demand is met. Levels of contraceptive use, unmet need for family planning, very early marriage, and adolescent fertility vary across countries. Abortion is generally restricted to cases where they are necessary to save a woman's life or health. HIV prevalence and infant mortality are low except in South Africa and Botswana.

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	HIV Prevalence Among Adults 15-49 (%) 2005	Adolescent Fertility (births per 1000 women aged 15-19) 2000-2005	Women married before age 18 (%)	Antenatal Care Coverage— at least 4 visits (%) Most recent year available	Family planning demand met (%)	Births Attended by Skilled Health Personnel (%) Most recent year available	Grounds on which abortion is permitted*	Maternal Deaths per 100,000 Live Births (MMR) 2005	Infant Mortality Rate (IMR) (infant deaths per thousand live births) 2005	Reproductive Risk Index (RRI)
51 Panama	0.9	89	37	72	No Data	91	I	Moderate	19	29
52 Egypt	<0.1	49	17	41	85	74	I	Moderate	28	29
53 Philippines	<0.1	52	14	70	74	60	I	High	25	29
54 El Salvador	0.9	87	27	76	88	69	I	Moderate	23	29
55 Botswana	24.1	61	7	97	No Data	99	III	High	87	28
56 Indonesia	0.1	47	24	81	88	66	I	High	28	28
57 Dominican Republic	1.1	114	41	93	86	98	I	Moderate	26	27
58 Ecuador	0.3	85	37	No Data	94	74	II	Moderate	22	26
59 Iran (Islamic Republic of)	0.2	24	30	77	No Data	90	I	Moderate	31	25
60 Venezuela	0.7	92	29	90	79	94	I	Moderate	18	25
61 Brazil	0.5	90	24	76	91	97	I	Moderate	31	25
62 Oman	No Data	13	26	71	No Data	98	I	Moderate	10	25
63 Peru	0.6	64	19	69	89	71	II	High	23	24
64 Paraguay	0.4	82	20	89	92	77	I	Moderate	20	24
65 Mexico	0.3	70	29	86	86	93	I	Moderate	22	24
66 South Africa	18.8	71	8	72	79	92	V	High	55	23
67 Morocco	0.1	20	16	No Data	86	63	II	High	36	23
68 Costa Rica	0.3	78	19	70	No Data	98	II	Low	11	21
69 Lebanon	0.1	27	No Data	87	No Data	98	I	Moderate	27	21
70 Saudi Arabia	No Data	32	10	73	No Data	96	II	Moderate	21	20
71 Turkey	No Data	46	23	42	92	83	V	Low	26	19
72 Libyan Arab Jamahiriya	No Data	4	2	81	No Data	99	I	Moderate	18	19
73 Chile	0.3	62	No Data	95	No Data	100	I	Very low	8	19
74 Kuwait	No Data	14	22	81	No Data	100	II	Very low	9	18
75 Mauritius	0.6	38	17	No Data	96	99	I	Very low	13	18
76 Uruguay	0.5	64	22	94	No Data	99	II	Low	14	18

\* Grounds on which abortion is permitted, ranging from the most to the least restrictive: I To save the woman's life or prohibited altogether; II To preserve physical health (also to save the woman's life); III To preserve mental health (also to save the woman's life and physical health); IV Socioeconomic grounds (also to save the woman's life, physical health and mental health); V Without restriction as to reason

## low risk category

Six developing and four developed regions in the world are represented in this category. Antenatal care and skilled attendance at delivery are generally high. Three quarters of the countries in this category have low levels of deaths during pregnancy and childbirth. Infant mortality is low to moderate except in five Central Asian countries. A significant proportion of family planning demand is met. More than half the countries in this category allow abortion unrestricted. With a few exceptions, HIV prevalence is low.

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	HIV Prevalence Among Adults 15-49 (%) 2005	Adolescent Fertility (births per 1000 women aged 15-19) 2000-2005	Women married before age 18 (%)	Antenatal Care Coverage— at least 4 visits (%) Most recent year available	Family planning demand met (%)	Births Attended by Skilled Health Personnel (%) Most recent year available	Grounds on which abortion is permitted*	Maternal Deaths per 100,000 Live Births (MMR) 2005	Infant Mortality Rate (IMR) (infant deaths per thousand live births) 2005	Reproductive Risk Index (RRI)
77	Colombia	0.6	75	23	79	93	91	III	Moderate	17
78	Azerbaijan	0.1	29	22	No Data	83	74	V	Moderate	74
79	Jordan	No Data	27	11	91	84	100	II	Moderate	22
80	Argentina	0.6	61	No Data	95	No Data	99	II	Moderate	15
81	Sri Lanka	<0.1	28	No Data	98	90	97	I	Low	12
82	Ireland	0.2	19	1	No Data	No Data	100	I	Very low	5
83	Viet Nam	0.5	21	11	29	94	85	V	Moderate	16
84	Thailand	1.4	45	19	86	No Data	99	III	Moderate	18
85	Georgia	0.2	35	27	No Data	74	92	V	Moderate	41
86	Kyrgyzstan	0.1	32	21	81	84	98	V	Moderate	58
87	Albania	No Data	16	16	42	98	94	V	Moderate	16
88	Kazakhstan	0.1	28	14	71	88	99	V	Moderate	63
89	Armenia	0.1	31	19	65	80	98	V	Low	26
90	Jamaica	1.5	88	1	99	82	97	III	Low	17
91	Turkmenistan	<0.1	17	9	83	86	97	V	Moderate	81
92	Uzbekistan	0.2	37	15	No Data	83	96	V	Low	57
93	Poland	0.1	15	3	No Data	No Data	100	II	Very low	6
94	Bulgaria	<0.1	44	17	No Data	65	99	V	Very low	12
95	Trinidad and Tobago	2.6	35	No Data	98	No Data	97	III	Low	17
96	Republic of Korea	<0.1	3	1	No Data	No Data	100	II	Very low	5
97	Malaysia	0.5	15	8	No Data	No Data	100	III	Moderate	10
98	Mongolia	<0.1	50	9	97	87	100	V	Low	39
99	Tunisia	0.1	8	5	79	84	90	V	Moderate	20
100	New Zealand	0.1	27	1	No Data	No Data	97	III	Very low	5
101	Republic of Moldova	1.1	37	19	No Data	91	100	V	Low	14
102	Ukraine	1.4	30	13	No Data	82	100	V	Very low	13

\* Grounds on which abortion is permitted, ranging from the most to the least restrictive: I To save the woman's life or prohibited altogether; II To preserve physical health (also to save the woman's life); III To preserve mental health (also to save the woman's life and physical health); IV Socioeconomic grounds (also to save the woman's life, physical health and mental health); V Without restriction as to reason

# lowest risk category

Countries in this category have high incomes; Cuba, China and Singapore are the only countries in the developing world. Motherhood is safe; skilled care at childbirth is universal and the risk of death from pregnancy or delivery is extremely low. Infant mortality is rare. Contraceptive use is high. Early marriage is rare. Abortion is unrestricted. Adolescent fertility and HIV prevalence are low.

		HIV Prevalence Among Adults 15-49 (%) 2005	Adolescent Fertility (births per 1000 women aged 15-19) 2000-2005	Women married before age 18 (%)	Antenatal Care Coverage— at least 4 visits (%) Most recent year available	Family planning demand met (%)	Births Attended by Skilled Health Personnel (%) Most recent year available	Grounds on which abortion is permitted*	Maternal Deaths per 100,000 Live Births (MMR) 2005	Infant Mortality Rate (IMR) (infant deaths per thousand live births) 2005	Reproductive Risk Index (RRI)
103	Spain	0.6	10	2	No Data	96	No Data	III	Very low	4	7
104	Russian Federation	1.1	30	13	No Data	No Data	99	V	Low	14	7
105	TFYR Macedonia	<0.1	25	15	No Data	No Data	99	V	Very low	15	6
106	Romania	<0.1	36	7	No Data	93	98	V	Low	16	6
107	China	0.1	2	2	No Data	No Data	83	V	Low	23	6
108	Lithuania	0.2	21	3	No Data	79	100	V	Very low	7	5
109	United States of America	0.6	44	5	No Data	No Data	99	V	Very low	6	5
110	Belarus	0.3	24	11	No Data	No Data	100	V	Very low	10	5
111	Latvia	0.8	17	2	No Data	82	100	V	Very low	9	5
112	United Kingdom	0.2	27	2	No Data	No Data	99	IV	Very low	5	5
113	Cuba	0.1	50	No Data	100	No Data	100	V	Low	6	4
114	Australia	0.1	17	1	No Data	No Data	100	IV	Very low	5	3
115	Estonia	1.3	23	2	No Data	No Data	100	V	Low	6	3
116	Italy	0.5	7	1	No Data	89	No Data	V	Very low	4	3
117	Finland	0.1	11	1	No Data	No Data	100	IV	Very low	3	3
118	Slovakia	<0.1	21	3	No Data	No Data	100	V	Very low	7	3
119	Hungary	0.1	21	2	No Data	No Data	100	V	Very low	7	3
120	Canada	0.3	13	5	No Data	No Data	100	V	Very low	5	3
121	Japan	<0.1	4	2	No Data	No Data	100	IV	Very low	3	3
122	Croatia	<0.1	15	4	No Data	No Data	100	V	Very low	6	3
123	Czech Republic	0.1	12	1	No Data	90	100	V	Very low	3	3
124	France	0.4	8	1	No Data	93	No Data	V	Very low	4	2
125	Slovenia	<0.1	6	0	No Data	92	100	V	Very low	3	2
126	Belgium	0.3	8	0	No Data	No Data	99	V	Very low	4	2
127	Germany	0.1	11	1	No Data	No Data	100	V	Very low	4	2
128	Singapore	0.3	6	2	No Data	No Data	100	V	Very low	3	1
129	Switzerland	0.4	5	1	No Data	No Data	100	V	Very low	4	1
130	Netherlands	0.2	5	1	No Data	No Data	100	V	Very low	4	1

\* Grounds on which abortion is permitted, ranging from the most to the least restrictive: I To save the woman's life or prohibited altogether; II To preserve physical health (also to save the woman's life); III To preserve mental health (also to save the woman's life and physical health); IV Socioeconomic grounds (also to save the woman's life, physical health and mental health); V Without restriction as to reason

## Methodology and Data Sources

<sup>1</sup> PAI thanks Stan Bernstein and John Bongaarts for their invaluable insights and suggestions in the development of the framework.

### GEOGRAPHIC COVERAGE

The study ranks 130 developing and developed countries, representing 96 percent of the world population, with a population size of 1 million or more into five categories from highest to lowest reproductive risk based on a Reproductive Risk Index (RRI). The RRI is constructed of nine indicators of access to reproductive health services and health outcomes for which comparable national data are available. Twenty-three countries with a population size of 1 million or more are not included in the study due to lack of data for three or more indicators. These countries are: Afghanistan, Algeria, Angola, Austria, Bosnia and Herzegovina, Democratic Republic of Congo, Denmark, East Timor, Gambia, Greece, Hong Kong, Israel, Liberia, North Korea, Norway, Occupied Palestinian Territory, Puerto Rico, Portugal, Serbia, Sweden, Syria, Tajikistan and United Arab Emirates.

### DATA SOURCES

The primary sources for the report are a series of databases compiled by the United Nations (UN) agencies. Key sources are:

- United Nations Population Division Database on marriage data, unmet need and contraceptive prevalence; and *World Population Prospects: The 2006 Revision*.
- UNFPA, Database on unmet need and contraceptive prevalence.

- UNICEF, *State of the World's Children 2007*.
- UNAIDS, *2006 Report on the Global AIDS Epidemic*.
- WHO, *World Health Statistics 2007*.
- Center for Reproductive Rights.
- Demographic and Health Surveys (DHS) conducted by Macro International.

### DATA QUALITY

The study encountered a number of data problems. National statistics on women's health are often of poor quality, lacking or outdated, especially where statistical systems are not well developed. Definitions can vary from one country to another. The national level statistics used in this analysis, while they elucidate the differentials between poor and rich countries, mask differentials in reproductive health within countries. Also, statistics on coverage of health services do not reflect the quality of available care.

### CONCEPTUAL FRAMEWORK

The study follows a conceptual framework developed in consultation with experts in the field of population and reproductive health.<sup>1</sup> It takes a life cycle approach to reproductive health and emphasizes that every step of reproduction should be both healthy and voluntary. The reproductive process is thus divided into four stages: Sex, Pregnancy, Birth and Survival. Each stage is then assessed on how Safe/Healthy and Voluntary it is.

### METHODOLOGY

The indicators are selected based on their applicability to the model and on the availability of comparable national data from international data sets. The choice of indicators was partly determined by the availability of comparative data for most countries in the world on ICPD+5 goals and Millennium Development Goals (MDGs).

The nine indicators composing the RRI are: *HIV/AIDS prevalence among adults, adolescent fertility, percent girls married before age 18, antenatal care coverage, percent of family planning demand met (based on contraceptive prevalence and unmet need for family planning), births attended by skilled health personnel, grounds on which abortion is permitted, maternal mortality ratio (MMR) and infant mortality rate (IMR)*.

The indicator *family planning demand met* was computed as follows:  $100 \times \text{Contraceptive prevalence} / (\text{Contraceptive prevalence} + \text{Unmet need for FP})$ .

The study uses the most recent, reliable and consistent data available at the time of publication. For MMR, new but not yet published estimates are used in calculating the Reproductive Risk Index; we therefore listed MMR as categorical data because of the embargo on the new numbers. PAI thanks the Interagency Group (UNFPA, UNICEF, WHO, The World Bank) for sharing an advance copy of the new estimates.

*Percent girls married before age 18* had data missing for many countries, so we developed an adjustment ratio based on two indicators from known countries: *Percent of women aged 20-24 married before age 18 (A)* and *Percent women aged 15-19 ever married (B)*. We calculated the ratio of A to B for those countries with data for both indicators, averaged these ratios (1.7) and applied that ratio to the unknown countries, adjusting upward their data on *Percent women aged 15-19 ever married* by a factor of 1.7.

Eight quantitative indicators are scored on a 100-point scale of 0 to 100. The observed range for six of these eight indicators is transformed into a range that goes from 0 to 100. For each of these six indicators, each country is located in the new range. The remaining two quantitative indicators kept their actual ranges because they went approximately from 0 to 100. The country at the top of the range (non-desirable outcome) has a score of 100, while the country at the bottom of the range (desirable outcome) has a score of zero.

For the ninth indicator, *Grounds on which abortion is permitted*, is an ordinal indicator, and scores are assigned as follows: To save the woman's life or prohibited altogether—95; To preserve physical health (also to save the woman's life)—70; To preserve mental health (also to save the woman's life and physical health)—40; Socioeconomic grounds (also to save the woman's life, physical health and mental health)—15; Without restriction as to reason—5.

Finally, we merged the nine indicators for each country into a single composite index we called the Reproductive Risk Index (RRI) by computing a simple average for all nine scores. Equal weight is given to all nine indicators. RRI, which is the overall country score, is derived by dividing the sum of the six scaled scores, two actual scores and the assigned score by number of indicators for which data are available. The RRI has a minimum value of 1 and a maximum of 78. The maximum value of the RRI that a country can have is 97, because data ranges and assigned scores of three indicators are more than 0 or less than 100.

Countries are then ranked from highest to lowest reproductive risk based on each country's RRI, and then grouped into five quintiles as follows: Highest Risk, Elevated Risk, Moderate Risk, Reduced Risk and Lowest Risk.

	✚ Safe & Healthy	👤 Voluntary
<b>Sex</b>	<ul style="list-style-type: none"> <li>• HIV prevalence among adults age 15+ (%)</li> <li>• Adolescent fertility</li> </ul>	<ul style="list-style-type: none"> <li>• Girls married before age 18 (%)</li> </ul>
<b>Pregnancy</b>	<ul style="list-style-type: none"> <li>• Antenatal care coverage at least 4 visits (%)</li> </ul>	<ul style="list-style-type: none"> <li>• FP demand met (%)</li> </ul>
<b>Birth</b>	<ul style="list-style-type: none"> <li>• Births attended by skilled health personnel (%)</li> </ul>	<ul style="list-style-type: none"> <li>• Abortion policies</li> </ul>
<b>Survival</b>	<ul style="list-style-type: none"> <li>• MMR</li> <li>• IMR</li> </ul>	



Population Action International (PAI) works to improve individual well-being and preserve global resources by mobilizing political and financial support for population, family planning and reproductive health policies and programs.



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