

COUNCIL *on*  
FOREIGN  
RELATIONS

WORKING PAPER

# Family Planning and Reproductive Health

Why the United States Should Care

Koki Agarwal

April 2011

*This publication is part of CFR's Women and Foreign Policy program and has been made possible by the generous support of the United Nations Foundation.*

The Council on Foreign Relations (CFR) is an independent, nonpartisan membership organization, think tank, and publisher dedicated to being a resource for its members, government officials, business executives, journalists, educators and students, civic and religious leaders, and other interested citizens in order to help them better understand the world and the foreign policy choices facing the United States and other countries. Founded in 1921, CFR carries out its mission by maintaining a diverse membership, with special programs to promote interest and develop expertise in the next generation of foreign policy leaders; convening meetings at its headquarters in New York and in Washington, DC, and other cities where senior government officials, members of Congress, global leaders, and prominent thinkers come together with CFR members to discuss and debate major international issues; supporting a Studies Program that fosters independent research, enabling CFR scholars to produce articles, reports, and books and hold roundtables that analyze foreign policy issues and make concrete policy recommendations; publishing *Foreign Affairs*, the preeminent journal on international affairs and U.S. foreign policy; sponsoring Independent Task Forces that produce reports with both findings and policy prescriptions on the most important foreign policy topics; and providing up-to-date information and analysis about world events and American foreign policy on its website, CFR.org.

The Council on Foreign Relations takes no institutional positions on policy issues and has no affiliation with the U.S. government. All views expressed in its publications and on its website are the sole responsibility of the author or authors.

For further information about CFR or this paper, please write to the Council on Foreign Relations, 58 East 68th Street, New York, NY 10065, or call Communications at 212.434.9888. Visit CFR's website, [www.cfr.org](http://www.cfr.org).

Copyright © 2011 by the Council on Foreign Relations®, Inc.

All rights reserved.

Printed in the United States of America.

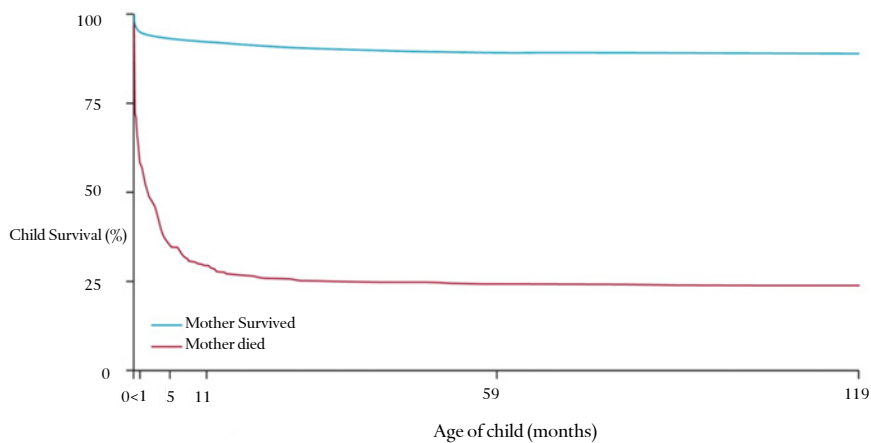
This paper may not be reproduced in whole or in part, in any form beyond the reproduction permitted by Sections 107 and 108 of the U.S. Copyright Law Act (17 U.S.C. Sections 107 and 108) and excerpts by reviewers for the public press, without express written permission from the Council on Foreign Relations. For information, write to the Publications Office, Council on Foreign Relations, 58 East 68th Street, New York, NY 10065.

## Background

Investments in reproductive health are necessary for the success of U.S. foreign policy goals in high population growth countries, such as Egypt, Pakistan, Afghanistan, and the Democratic Republic of the Congo. Family planning and reproductive health programs improve public health, foster stability, and enhance efforts to maximize economic growth. Millions of women in developing countries still have more children than they want. And with every pregnancy, a woman faces the risk of death. Family planning is a cost-effective intervention that can reduce both maternal and childhood mortality and excessive population growth.

Worldwide maternal mortality rates have been stagnant for many years but have recently declined. Current estimates put the number of maternal deaths at 350,000 in comparison to 535,900 in 2005.<sup>1</sup> However, the lifetime risk of dying from pregnancy, which is the probability that a fifteen-year-old will die of maternal causes during her lifetime, varies widely between more- and less-developed regions. While 1 in 4,300 women in developed countries may die as a consequence of pregnancy, 1 in 31 women in sub-Saharan Africa and 1 in 11 women in Afghanistan may suffer the same fate.<sup>2</sup> Overall, developing countries experience 90 percent of the world's maternal deaths.<sup>3</sup> As a result, developing countries are far from reaching Millennium Development Goal 5 of reducing the maternal mortality ratio by three-quarters, from roughly 466 maternal deaths per 100,000 live births per year to 116 by 2015.

**Figure 1. Meier Survival Curve from Birth According to Survival Status of Mother<sup>4</sup>**



Maternal mortality is closely associated with high rates of childhood mortality; therefore, countries with the highest maternal mortality ratios also experience the highest neonatal and childhood mortality. Deaths of children under the age of five declined worldwide from 11.9 million in 1990 to 7.7 million in 2010. Of these, 3.1 million (40 percent) were newborn deaths.<sup>5</sup> When a mother dies, her newborn's risk of dying is several times greater—the likelihood of child mortality increases to 70 percent.<sup>6</sup> The risk of death remains elevated for children aged one to eleven months, and is dispro-

portionately higher for girls.<sup>7</sup> However, there is no such effect if a father dies.<sup>8</sup> A 2010 study from Bangladesh reveals that a mother's death has a devastating effect on the probable survival of her child.<sup>9</sup> The cumulative probability of survival (see Figure 1) from birth to ten years of age was 24 percent in children whose mothers died before the child's tenth birthday, versus 89 percent in those whose mothers remained alive. The authors hypothesized that the effect on child survival is due not only to the abrupt disruption of breastfeeding, but also to a lack of ongoing maternal-provided care.

Several studies have linked the young age of a mother and high parity births, which is the number of children borne by one woman, with increased risk of childhood mortality. In Burkina Faso, the risk of death faced by children of mothers younger than eighteen years old was 40 percent higher than the risk faced by children with mothers over eighteen years old.<sup>10</sup> Adolescent girls who were fifteen years old or younger had higher risks for maternal death, early neonatal death, and anemia than women aged twenty to twenty-four years.<sup>11</sup> Moreover, younger mothers had higher risks for postpartum hemorrhage, puerperal endometritis, operative vaginal delivery, episiotomy, low birth weight, pre-term delivery, and small-for-gestational-age infants.<sup>12</sup> In addition, girls fifteen to twenty years old who become mothers are twice as likely to die from childbirth complications as women in their twenties.<sup>13</sup>

When mothers are malnourished or receive inadequate prenatal and delivery care, their babies also face a higher risk of disease and premature death. Therefore, interventions that holistically approach maternal-infant health are likely to have the greatest effect. Increased potential for disease compounds the rate of stillbirths born in developing countries.<sup>14</sup> Worldwide, an estimated three million stillbirths occur each year, yet this tragedy receives little attention even though most of the issues relating to stillbirths pertain to maternal health and the management of complications during pregnancy.<sup>15</sup>

**Table 1. Ten Countries That Account for Two-thirds of Neonatal Deaths and Most of Maternal Deaths<sup>16</sup>**

Country	Neonatal Deaths (in 1000s)	Maternal Deaths (in 1000s)
India	1098	63
China	416	data unavailable
Pakistan	298	14
Nigeria	247	50
Bangladesh	153	12
Ethiopia	147	14
Democratic Republic of the Congo	116	19
Indonesia	82	10
Afghanistan	63	18
United Republic of Tanzania	62	14
Sudan	data unavailable	9.7
Total number	2862	223.7

Although the use of contraceptives has risen globally over the past twenty-five years, growth has been minimal in sub-Saharan Africa. The median contraceptive prevalence for the region is 29 percent, with the lowest use at 3 percent in Chad.<sup>17</sup> While global contraceptive access has risen, only 17

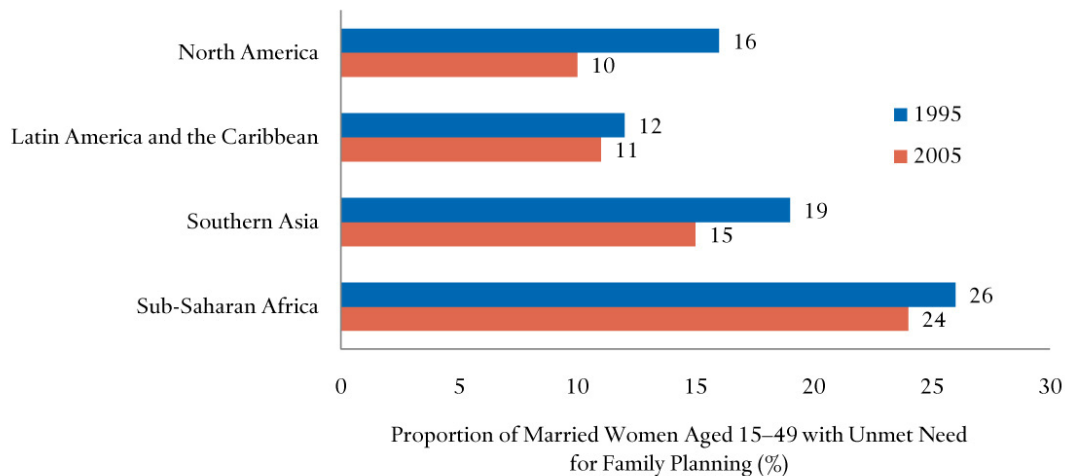
percent of women in sub-Saharan Africa are using effective contraceptive methods.<sup>18</sup> Most sub-Saharan African countries fall into the high population growth (2 percent or more per year) and the medium population growth (1 to 1.9 percent per year) quadrants, with high unmet need for family planning services—especially for birth spacing, which is the interval between the date of a live birth and the start of the next pregnancy.<sup>19</sup> In sub-Saharan Africa, total unmet need, which is the condition of wanting to avoid or postpone childbearing but not using any method of contraception, exceeds 30 percent among all married women.<sup>20</sup> In most African countries, unlike in other regions, unmet need for birth spacing exceeds economic family-size limitations, sometimes by a wide margin.<sup>21</sup>

Complications of unsafe abortions also take a huge toll on maternal survival. In total, twenty million unsafe abortions take place globally each year, endangering the lives of women who undergo these procedures in unhealthy surroundings with untrained providers. Abortion-related maternal deaths total almost seventy thousand annually, and most of these procedures could be avoided if family planning services were easily accessible to women.<sup>22</sup>

## Family Planning Trends

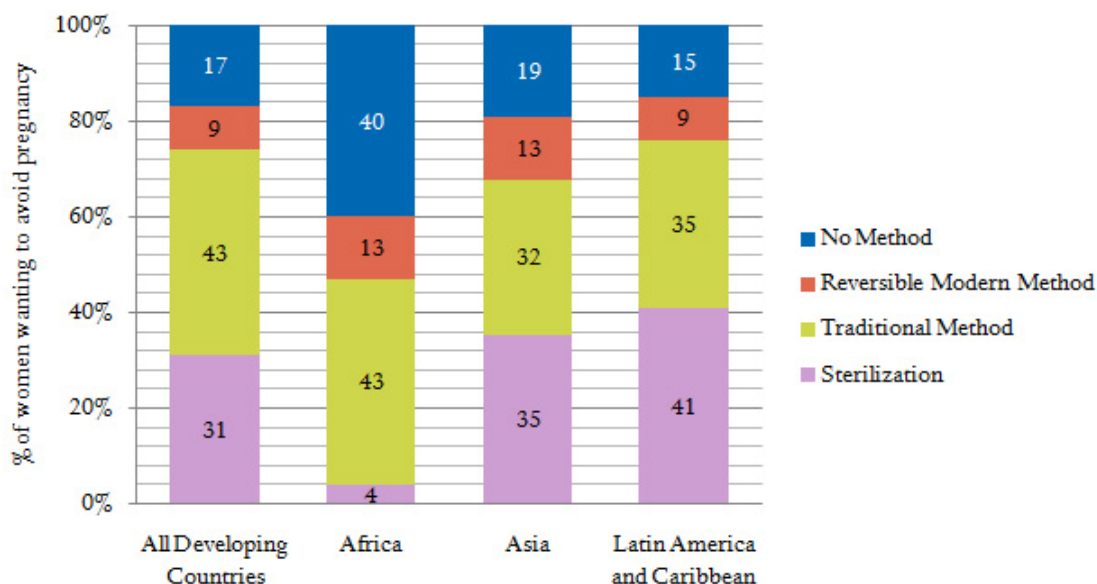
Unmet need is an indicator of the number of women who lack access to family planning techniques, which can be used to space or limit their births. While contraceptive rates have increased around the world, the unmet need for contraception still remains high. Figure 2 shows the unmet need for family planning among married women, demonstrating that one in four women in sub-Saharan Africa does not use contraception despite their desire to avoid pregnancy for at least two years.

**Figure 2. Unmet Need for Family Planning Among Married Women Aged 15–49 by Region, 1995 and 2005<sup>23</sup>**



While the need for family planning has grown substantially, global support for such programs has steadily dropped. The decline in total fertility rates in some countries has made developed donor countries feel that family planning investments are unnecessary, or will be sustained by host-country governments. A prime example is in Indonesia, where the United States Agency for International Development (USAID) withdrew its support from family planning programs, despite the unmet need for such services in the country remaining constant at 9 percent since 1997. The arrival of HIV/AIDS created new priorities for the international community. As a result, between 1995 and 2003, international funding for family planning commodities and service delivery fell from \$560 million to \$460 million.<sup>24</sup>

As of 2008, an estimated 818 million women in developing countries—or almost half of the women of reproductive age—want to avoid pregnancy.<sup>25</sup> However, 17 percent of these women (about 140 million) are not using any contraceptive method, and 9 percent (75 million) are using less effective traditional methods (see Figure 3).

Figure 3. Patterns of Contraceptive Use<sup>26</sup>

Of the 818 million women who want to avoid pregnancy, 43 percent rely on a reversible method (such as IUDs, pills, injectables, implants, condoms, or vaginal methods), and 31 percent have had a tubal ligation or have a partner who has had a vasectomy. Female sterilizations outnumber male sterilizations by ten to one. In Africa, only 4 percent of women rely on sterilization and 40 percent are not using any method of birth control.<sup>27</sup>

Every year, an estimated 215 million women who want to space pregnancies or avoid pregnancy entirely lack access to contraception. On average, of the 186 million pregnancies in the developing world, 40 percent are unintended.<sup>28</sup> If the unmet need for family planning was addressed, the cost of maternal and newborn health services would decrease by “\$5.1 billion, because roughly 50 million fewer women would become pregnant unintentionally. Thus, it would result in net total savings of \$1.5 billion.”<sup>29</sup>

### IMPORTANCE OF HEALTHY TIMING AND SPACING OF PREGNANCIES

According to the World Health Organization (WHO) short birth-to-pregnancy intervals greatly affect maternal, neonatal, and child health and mortality outcomes.<sup>30</sup> The likelihood of miscarriages, induced abortions, and stillbirths are much higher for extremely short birth-to-pregnancy intervals of less than six months. Family planning can help women and girls ensure that pregnancy occurs at the healthiest times of their lives and avoid pregnancy during unhealthy periods. Research shows that positive health outcomes for both mothers and newborns occur when pregnancy happens

- twenty-four months after a live birth (an almost three-year birth-to-birth interval)
- six months after an induced abortion or miscarriage
- to women who have had fewer than four live births
- to women between the ages of eighteen and thirty-four<sup>31</sup>

## *FAMILY PLANNING AND ABORTION-RELATED MORTALITY*

Complications from induced abortions account for 13 percent of maternal deaths and 20 percent of productive years lost among women due to pregnancy-related conditions. Girls aged fifteen to nineteen account for one in four unsafe abortions—an estimated 5 million each year.<sup>32</sup> In total, 20 million unsafe abortions occur worldwide every year. And of the women who undergo these procedures, 8.5 million will require treatment to manage complications, but only 3 million will access these services.<sup>33</sup> The magnitude of the abortion-related contribution to maternal mortality demonstrates the inability of countries to address prevention of unintended pregnancies. If women's contraceptive needs were fully met, the reduction in unintended pregnancies could result in large declines in abortions and related health complications. According to the International Center for Research on Women, if unmet need was addressed, the number of induced abortions in the developing world could decline by 70 percent (from 35 million to 11 million), the number of unsafe abortions could decline by 73 percent (from 20 million to 5.5 million), and the number of women needing medical care for complications from unsafe abortions could decline by 73 percent (from 8.5 million to 2.3 million).<sup>34</sup> Reducing the number of abortions, particularly those that are unsafe, would also create savings in the demand for current health care services. Currently, \$370 million is spent providing postabortion care for approximately 5.5 million women. However, if all women at risk for unintended pregnancy are provided with access to modern contraceptive methods, the resulting declines in unintended pregnancy and unsafe abortion could reduce the cost of post-abortion care to about \$230 million a year.<sup>35</sup>

## *FAMILY PLANNING AND MATERNAL MORTALITY*

The global total fertility rate has dropped from 3.7 percent in 1980 to 3.26 in 1990 and 2.56 in 2008.<sup>36</sup> Concomitant with the falling global total fertility rate, there has been an increase in the contraceptive prevalence rate globally. If a woman does not become pregnant, then she does not face the risk of dying from a pregnancy-related complication. Therefore, family planning helps reduce maternal mortality by reducing the number of births and, thus, the number of times a woman is exposed to the risk of mortality. In addition, family planning also lowers the maternal mortality risk per birth—the maternal mortality ratio—by preventing high-risk, high-parity births.<sup>37</sup> According to a global study on the benefits of contraception use, “Over 1 million maternal deaths were averted between 1990 and 2005 because the fertility rate in developing countries declined.”<sup>38</sup> In societies where fertility has declined, there has also been a decline in the maternal mortality ratio.

It remains unclear whether this relationship is causal or mediated through social change, including women's education and empowerment. Professor John Cleland from the University of Hull projects that in the year 2000 alone, if women who wished to postpone or avoid childbearing altogether had been able to use contraception (meeting the unmet need), about 90 percent of global abortion-related and 20 percent of obstetric-related mortality and morbidity could have been averted by the use of effective contraception.<sup>39</sup> In this way, family planning could have prevented 150,000 maternal deaths, representing about one-third of the total maternal deaths. The countries that would have benefited the most would be those in sub-Saharan Africa and South Asia, where the unmet need for contraception remains high. The economic benefits of doubling resources in family planning and pregnancy-related care range from \$11.8 billion to \$24.6 billion:

in sub-Saharan Africa, maternal deaths would drop by 69 percent, from 204,000 to 63,000; newborn deaths by 57 percent, from 1.08 million to 460,000; and unintended pregnancies by 77 percent, from 17 million to 4 million; in South Central and Southeast Asia, maternal deaths would drop by 75 percent, from 128,000 to 31,000; newborn deaths by 52 percent,

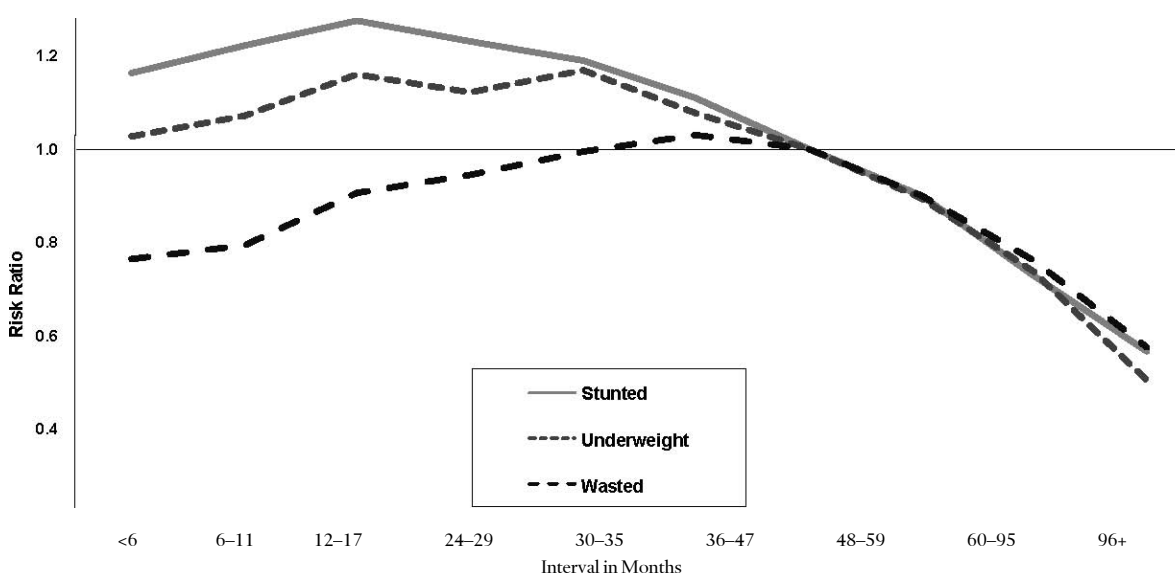


from 1,630,000 to 780,000; and unintended pregnancies by 74 percent, from 32.2 million to 8.5 million; in Latin America and the Caribbean, maternal deaths would drop by 62 percent, from 9,000 to 4,000; newborn deaths by 55 percent, from 110,000 to 50,000; and unintended pregnancies by 67 percent, from 10 million to 3.3 million; in Arab countries, maternal deaths would drop by 66 percent, from 21,000 to 7,000; newborn deaths by 51 percent, from 169,000 to 82,000; and unintended pregnancies by 67 percent, from 5.4 million to 1.57 million.<sup>40</sup>

#### FAMILY PLANNING AND CHILDHOOD MORTALITY

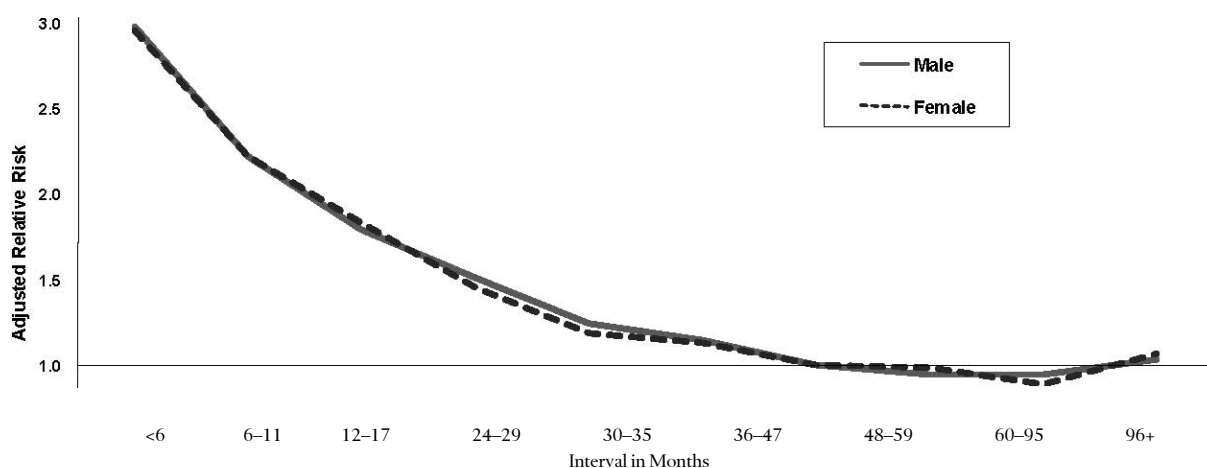
Short pregnancy intervals (six months to twenty-four months) and pregnancy intervals greater than seventy-five months are associated with an increased risk of death for fetuses. The risk is the greatest when the interpregnancy interval is less than six months.<sup>41</sup> Researchers in Bangladesh found that if “all women would wait at least twenty-four months to conceive again, [the number of] under-five deaths would fall by 13 percent. The effect of waiting thirty-six months to conceive again would avoid 25 percent of under-five deaths.”<sup>42</sup> Furthermore, children who are likely to survive short birth intervals still suffer nutritional effects, including stunting. The highest risk of stunting, under-nutrition, and wasting occurs if the mother conceives when her older child is twelve to seventeen months old.<sup>43</sup>

Figure 4. Meier Survival Curve from Birth According to Survival Status of Mother<sup>44</sup>



There is an important effect of the length of the preceding birth interval on the survival of the child, especially through the first twenty-eight days and up to its first five years of life. For neonates, the risk of dying increases if the preceding birth-to-conception interval is less than thirty-six months and the risk rises again for intervals that are longer than four years.<sup>45</sup> For under-five mortality, the risk for a child conceived six months after the preceding child is the highest—three times the risk as compared to a child born after thirty-six months. For children under five, the risk does not rise if birth intervals are increased beyond forty-eight months (see Figure 5).

Figure 5. Relative Risk of Under-five Mortality for Male and Female Children by Preceding Birth Conception Interval<sup>46</sup>



#### *FAMILY PLANNING AND HIV/AIDS*

HIV/AIDS and other sexually transmitted infections are the leading cause of death for women aged fifteen to forty-nine (followed by death by maternal complications). If the HIV/AIDS epidemic is to be combated, there is a critical need for programs that detect HIV pre-pregnancy and effectively prevent mother-to-child transmission (PMTCT) of the virus. In this case, women's limited access to health services is compounded by a biological vulnerability to acquire HIV. Younger women face an even higher risk of becoming infected with HIV/AIDS. Adolescent girls are also at a higher risk of unintended pregnancy and, subsequently, face increased risks of experiencing pregnancy-related complications that can lead to death. Becoming HIV positive at a young age and being a teenage mother can substantially reduce a woman's productivity and compromise her ability to contribute meaningfully to a country's development efforts.

PMTCT efforts were slow to take off. In 2008, 45 percent of pregnant women living with HIV received antiretrovirals to prevent transmission of the virus to their unborn babies, up from 10 percent in 2004. Providing contraception to HIV-positive women who do not want to become pregnant is a cornerstone of primary prevention within PMTCT programs; however, it is one of the least emphasized components of PMTCT programs worldwide.<sup>47</sup> Table 2 shows dramatic increases for PMTCT coverage in some of the high-burden HIV countries.

Table 2. Share of HIV-infected Women Aged 15–49 Who Received Antiretroviral Regimens for PMTCT (high-HIV-burden *Countdown* countries, 2006 and 2008)<sup>48</sup>

Country	Point Estimate	Point Estimate
	2006	2008
Botswana	95	>95
Cameroon	22	28
Central African Republic	18	23
Gabon	4	35
Kenya	48	56
Lesotho	17	57
Malawi	14	-
Mozambique	13	42
South Africa	50	73
Swaziland	62	>95
Tanzania	15	-
Uganda	25	50
Zambia	35	59
Zimbabwe	17	36

## Costs and Benefits of Investing in Family Planning

Family planning has been recognized as one of the most cost-effective global health interventions. At the cost of \$1.55 per user annually, family planning alone can avert one of three maternal deaths and one in five child deaths.<sup>49</sup> Beyond the immediate health benefits, family planning is also associated with other positive externalities. With a smaller, better-spaced family, there are more opportunities for members to grow, remain healthy, and be better educated. A recent study from Matlab, Indonesia, demonstrates that investments in family planning promote increased economic well-being for families.<sup>50</sup> Moreover, family planning is a crucial investment at the macro-level. The figures in Table 3 show a range of costs that would need to be incurred to meet the need for family planning and calculations of the savings derived because less investment would be required in different social sector and health programs as a result of fewer births and fewer high-risk births. Taking the ratio of total savings to costs shows the savings derived for every dollar that is invested in family planning. In Bolivia, for instance, every dollar directed toward family planning provides the government with a savings of nine dollars that it will not have to allocate for social programs.<sup>51</sup>

**Table 3. Cost to Meet Family Planning (FP) Needs and Resulting Savings<sup>52</sup>**

	Costs to meet need for FP (in U.S. millions)	Savings incurred by category (in U.S. millions)					Total	Savings per \$ invested in family planning
		Educa-tion	Immuni-zation	Water and sani-tation	Maternal Health	Malaria		
Bolivia	5	21	0.1	10	14	-	45	9.0
Guatemala	19	73	1	25	29	-	128	6.7
Madagascar	26	20	13	11	29	3	76	2.9
Zambia	27	37	17	17	37	4	112	4.1
Bangladesh	50	153	4	68	102	-	327	6.5
Indonesia	67	338	5	78	125	9	555	8.3
Ethiopia	103	23	44	26	105	10	208	2.0

### *EGYPT: A SUCCESS STORY*

Substantial USAID investments have been made in Egypt's health sector over the past two decades. These investments were targeted to address high maternal and child mortality and to meet the demand for healthy timing and spacing of births within families. In 1988, Egypt had health statistics

similar to many other developing countries, including a high under-five mortality rate of 102 per 1,000 live births. From 1992 to 1993, the maternal mortality ratio was 174 per 100,000 live births.<sup>53</sup> With sustained programmatic inputs, the under-five mortality rate was reduced to one-fourth of the 1988 level and the maternal mortality ratio now stands at 82 per 100,000 live births.<sup>54</sup> Moreover, as Table 4 demonstrates, the factors outlined in this paper as major risks were reduced substantially during this period, contributing to the significant decline in mortality. For instance, the percentage of births that had risks associated with close spacing, multiparity, and a young/old age of the mother declined from 64 percent of all births in 1988 to only 35 percent, and skilled attendance at birth rose from 35 percent of births to almost 80 percent.<sup>55</sup>

**Table 4. Trends in Risk Factors and Mortality in Egypt (1998–2008)**

Year	Any high-risk births (%)	Contraceptive Prevalence rate (%)	Under-five mortality rate per 1,000	Skilled attendance at birth (%)
1988	64.3	35.4	102	34.6
2000	47.9	53.9	54	60.9
2005	40	56.5	41	74.2
2008	35	57.6	28	78.9

*Source:* World Health Organization, “Trends in Maternal Mortality: 1990–2008.”

## Conclusions and Policy Recommendations: Why Should the United States Care?

Based on analysis of recent estimates of disability-adjusted life years, poor sexual and reproductive health accounts for a substantial share—nearly one-fifth—of the global burden of disease.<sup>56</sup> This large contribution to worldwide illness and premature death is a strong argument in favor of making interventions to reduce these problems a high priority.

Countries facing this high burden of disease are unable to achieve their full growth potential. Maternal ill health and related newborn mortality have a substantial impact on economic productivity, with estimated global costs of over \$15 billion per year.<sup>57</sup> Preventing unwanted births through family planning reduces the risk of maternal mortality; however, developing countries have demonstrably high levels of unmet need for family planning, ranging from 15 percent in South Asia to 24 percent in sub-Saharan Africa.<sup>58</sup> In other words, one in four women in sub-Saharan Africa is unable to space or limit her childbearing as desired.

No woman should die while bringing life into the world. And all women should have access to contraceptives, maternal care, and pregnancy-related services. Investing in women's reproductive health and autonomy improves not only the health of the individual, but also the welfare of the whole family and, ultimately, the larger society. The investment is modest in relation to the dramatic returns it yields.

While AIDS may be the leading cause of death for women in developing countries, the annual number of AIDS deaths (two million) is equivalent to just ten days' population growth in developing countries. Therefore, despite the impact of this epidemic, the population of sub-Saharan Africa is expected to grow by one billion between 2005 and 2050 (from 0.77 to 1.76 billion), thus increasing the need for family planning services.<sup>59</sup>

The World Bank's disease control priorities project estimates the cost of family planning at \$100 per life-year saved.<sup>60</sup> Increasing access to family planning services is as equally important as other health interventions, such as basic sanitation for diarrheal disease and condom distribution for HIV intervention. Notably, all of these interventions are about ten times as cost-effective as antiretroviral treatment of AIDS, which currently receives a large proportion of health-related development aid.<sup>61</sup>

In addition to being cost-effective, family planning offers several benefits beyond immediate health outcomes. At the individual level, women with control over their reproductive health are more empowered and have better employment opportunities and higher self-esteem. Their families are also wealthier and their children are more likely to receive better educations and nutrition. Households and communities are more productive, as well, allowing countries to realize more growth from their enhanced savings and investments. At the community and societal level, there are also higher savings in expenditures on health, education, and other social welfare programs.

Although there is ample evidence of the value of providing family planning services, the attention of the donor community has moved away from meeting the growing need for such services. In Kenya, for example, decline in fertility has stagnated since 1998. Nevertheless, USAID, one of the largest donors for family planning, shifted priorities in the wake of the AIDS epidemic—HIV/AIDS

resources increased from \$2 million in 1995 to \$108 million in 2006, while family planning funding declined from \$12 million to \$8.9 million during the same period.<sup>62</sup>

Women and children continue to suffer lifelong consequences and face increased risks of death due to unintended pregnancies. Continued high fertility is also linked to global concerns about poverty, food security, climate change, conflict, and war. The United States should care more about family planning because it is one of the most cost-effective ways to build stronger families, households, economies, and societies, as well as a safer world. It is the surest way of preventing abortion and reducing childhood and maternal mortality. In the era of declining attention to family planning, the United States must assume a greater leadership role in rebuilding political commitment for such services, thereby leveraging resources to extend family planning's life-saving intervention to the millions of women and families who want it.

## Endnotes

1. M. C. Hogan et al., “Maternal Mortality for 181 Countries, 1980–2008: A Systematic Analysis of Progress towards Millennium Development Goal 5,” *Lancet*, vol. 375, no. 9726 (2010), pp. 1609–1623; World Health Organization, “Trends in Maternal Mortality: 1990–2008” (2010), <http://www.who.int/reproductivehealth/publications/monitoring/9789241500265/en/index.html>.
2. World Health Organization, “Trends in Maternal Mortality.”
3. Ibid.
4. C. Ronsmans et al., “Effect of Parent’s Death on Child Survival in Rural Bangladesh: A Cohort Study,” *Lancet*, vol. 375, no. 973 (2010), pp. 2024–31.
5. J. K. Rajaratnam et al., “Neonatal, Postneonatal, Childhood, and Under-5 Mortality for 187 Countries, 1970–2010: A Systematic Analysis of Progress towards Millennium Development Goal 4,” *Lancet*, vol. 375, no. 9730 (2010), pp. 1988–2008.
6. H.B. Becher et al., “Infant and Child Mortality in Rural Burkina Faso,” *Bulletin of the World Health Organization*, vol. 82, no. 4 (2004).
7. M. Strong, “The Health of Adults in the Developing World: The View from Bangladesh,” *Health Transition Review*, vol. 2, no. 2 (1992).
8. Ibid.
9. C. Ronsmans et al., “Effect of Parent’s Death on Child Survival in Rural Bangladesh: A Cohort Study.”
10. H. B. Becher et al., “Infant and Child Mortality in Rural Burkina Faso.”
11. A. Conde-Agudelo, J. Martinez, and C. Lammers, “Maternal-perinatal Morbidity and Mortality Associated with Adolescent Pregnancy in Latin America: Cross-sectional Study,” *American Journal of Obstetrics and Gynecology* no. 192 (2005), pp. 342–9.
12. Ibid.
13. UNFPA, “No Woman Should Die Giving Birth” (2007).
14. J. E. Lawn et al., “Global Report on Preterm Birth and Stillbirth (1 of 7),” *BMC Pregnancy and Childbirth*, vol. 10, no. 1 (2010).
15. J. E. Lawn et al., “Global Report on Preterm Birth and Stillbirth (1 of 7).”
16. J. Cleland et al., “Family Planning: the Unfinished Agenda,” *Lancet Special Series* no. 368 (2006), pp. 1810–27; World Health Organization, “Trends in Maternal Mortality.”
17. Jennifer Bryce and Jennifer Harris#Requejo, “Tracking Progress in Maternal Newborn and Child Survival: The 2008 Report,” (New York: UNICEF and the World Health Organization, 2008), [http://www.countdown2015mnch.org/documents/2008report/2008Countdown2015FullReport\\_2ndEdition\\_1x1.pdf](http://www.countdown2015mnch.org/documents/2008report/2008Countdown2015FullReport_2ndEdition_1x1.pdf).
18. Guttmacher Institute and UNFPA, “Facts on Investing in Maternal Newborns and Newborn Health: An Update on Sub-Saharan Africa” (2010).
19. J. Cleland et al., “Family Planning: the Unfinished Agenda.”
20. John Casterline and Steven Sinding, “Unmet Need for Family Planning in Developing Countries and Implications for Population Policy,” *Population and Development Review*, vol. 26, no. 4 (2000), pp. 691–723.
21. Ibid.
22. S. Singh et al., *Adding It Up: The Costs and Benefits of Investing in Family Planning and Maternal Newborn Health*, Guttmacher Institute and UNFPA (2010), <http://www.guttmacher.org/pubs/AddingItUp2009.pdf>.
23. World Health Organization, *Women and Health: Today’s Evidence, Tomorrow’s Agenda* (Geneva: World Health Organization, 2009), [http://whqlibdoc.who.int/publications/2009/9789241563857\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241563857_eng.pdf).
24. J. Cleland et al., “Family Planning: the Unfinished Agenda.”
25. S. Singh et al., *Adding It Up: The Costs and Benefits of Investing in Family Planning and Maternal Newborn Health*.
26. Ibid.
27. Ibid.
28. Ibid.
29. Ibid.
30. World Health Organization, *Report of a WHO Technical Consultation on Birth Spacing* (Geneva, Switzerland: 2005).
31. Ibid.
32. UNFPA, “No Woman Should Die Giving Birth.”
33. S. Singh et al., *Adding It Up: The Costs and Benefits of Investing in Family Planning and Maternal Newborn Health*.



- 
34. K. Gill et al., *Women Deliver for Development* (Washington, DC: International Center for Research on Women, 2007), pp. 37–41.
  35. S. Singh et al., *Adding It Up: The Costs and Benefits of Investing in Family Planning and Maternal Newborn Health*.
  36. M. C. Hogan et al., “Maternal Mortality for 181 Countries, 1980–2008: a Systematic Analysis of Progress towards Millennium Development Goal 5.”
  37. J. Stover and J. Ross, “How Increased Contraceptive Use Has Reduced Maternal Mortality,” *Maternal Child Health Journal*, vol. 14, no. 9 (2009), pp. 687–95.
  38. Ibid.
  39. J. Cleland et al., “Family Planning: the Unfinished Agenda.”
  40. Guttmacher Institute and UNFPA, “Facts on Investing in Maternal Newborns and Newborn Health: An Update on Sub-Saharan Africa.”
  41. J. L. DaVanzo et al., “Effects of Interpregnancy Interval and Outcome of the Preceding Pregnancy on Pregnancy Outcomes in Matlab, Bangladesh,” *International Journal of Obstetrics and Gynecology*, vol. 114, no.9 (2007), pp. 1079–1089; A. Conde-Agudelo et al., “Birth Spacing and Risk of Adverse Perinatal Outcomes: A Meta-Analysis,” *Journal of the American Medical Association*, vol. 295, no. 15 (2006), pp. 1809–23; S. Rutstein, “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*, vol. 89, no. 1 (2005), pp. 7–24.
  42. S. Rutstein, “Further Evidence of the 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,” DHS Working Paper 41, Macro International Inc., 2008.
  43. Ibid.
  44. Ibid.
  45. Ibid.
  46. Ibid.
  47. J. Stover et al., “Adding Family Planning to PMTCT Sites Increases the Benefits of PMTCT,” USAID Issue Brief (2003).
  48. Jennifer Bryce and Jennifer Harris-Requejo, “Tracking Progress in Maternal Newborn and Child Survival: The 2008 Report.”
  49. R. Smith et al., *Family Planning Saves Lives*, 4th ed. (Washington, DC: Population Reference Bureau, 2009).
  50. J. Gribble and M. Voss, “Family Planning and Economic Well-Being: New Evidence from Bangladesh,” Population Reference Bureau, 2009.
  51. R. Smith et al., *Family Planning Saves Lives*.
  52. Ibid.
  53. O. Campbell et al., “National Maternal Mortality in Egypt Halved between 1992–3 and 2000,” *Bulletin of the World Health Organization*, vol. 83, no. 6 (2005).
  54. World Health Organization, “Trends in Maternal Mortality: 1990–2008.”
  55. Ibid.
  56. S. Singh et al., *Adding It Up: The Costs and Benefits of Investing in Family Planning and Maternal Newborn Health*.
  57. K. Gill et al., *Women Deliver for Development*.
  58. Unmet need is defined as the percentage of women who wish to delay or stop childbearing but are not using any family planning method.
  59. J. Bongaarts and S. Sinding, “A Response to Critics of Family Planning Programs,” *International Perspectives on Sexual and Reproductive Health*, vol. 35, no. 1 (2009).
  60. D.T. Jamison et al., *Disease Priorities in Developing Countries* (Oxford: Oxford University Press, 2006).
  61. Ibid.
  62. J. Cleland et al., “Family Planning: the Unfinished Agenda.”

## About the Author

**Koki Agarwal** is an expert on reproductive health, family planning, safe motherhood, and public health policies and programs. Since October 2008, Dr. Agarwal has worked for Jhpiego as the director of the maternal and child health integrated program, a USAID-funded flagship program focused on reducing maternal and child mortality in over thirty-five countries. Agarwal has also served as a board member and secretary-elect for the White Ribbon Alliance, a global movement for raising awareness and advocating for safe motherhood. She is an MD and holds a doctorate and an MA in public health from the School of Public Health at Johns Hopkins. She has written several papers on policy and programmatic issues relating to maternal newborn health and family planning, and is a peer reviewer for the online *Maternal and Child Health Journal*.