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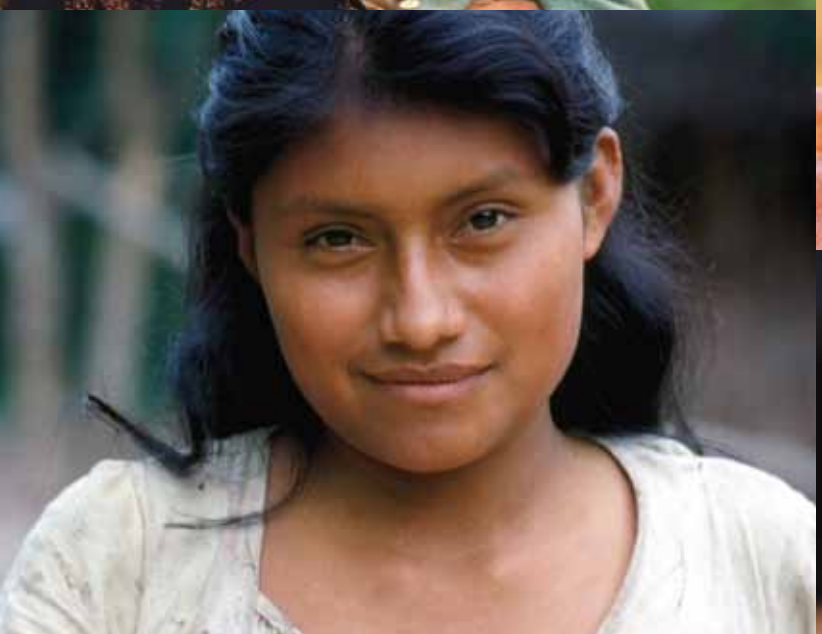
A few of the findings in this report have changed as a result of new maternal and neonatal mortality estimates released in 2010. For details see Guttmacher's new fact sheet.

Adding It Up

THE COSTS AND BENEFITS OF INVESTING IN FAMILY PLANNING AND MATERNAL AND NEWBORN HEALTH



Adding It Up:
The Costs and Benefits of Investing in Family Planning and Maternal and Newborn Health

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With assistance from
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Executive Summary

In the developing world, deaths and poor health among women and newborns have remained too high for too long, despite decades of international agreements declaring the need for urgent action to improve well-being among these groups. More effective action is needed now, especially given the strong evidence of the benefits of investing in the health of women and their newborns: fewer unintended pregnancies; fewer maternal and newborn deaths; healthier mothers and children; greater family savings and productivity; and better prospects for educating children, strengthening economies and reducing the pressure on natural resources in developing countries.

Because of these far-reaching benefits, increased investment in family planning and maternal and newborn health services could accelerate progress toward achieving the Millennium Development Goals (MDGs), which were set in 2000 with targets for 2015. These services for women and infants are highly cost-effective, and they are complementary because the health of mothers and of their babies is intertwined. A continuum of care is needed to help individuals and couples plan their pregnancies and to provide timely antenatal, delivery and postpartum services, including urgent care for complications that arise among women and newborns.

Caring for the health of women and their babies is essential, yet family planning and maternal and newborn services fall well short of needs in developing countries. Using new estimates for 2008, this report shows that

- an estimated 215 million women who want to avoid a pregnancy are not using an effective method of contraception, despite increases in use in recent years;
- only about one-half of the 123 million women who give birth each year receive antenatal, delivery and newborn care (including routine care and care for complications), and many who get care do not receive all the components of care they need; and
- about 20 million women have unsafe abortions each year, and three million of the estimated 8.5 million who need care for subsequent health complications do not receive it.

New analyses also show that the direct health benefits of meeting the need for both family planning and maternal and newborn health services would be dramatic.

- Unintended pregnancies would drop by more than two-thirds, from 75 million in 2008 to 22 million per year.
- Seventy percent of maternal deaths would be averted—a decline from 550,000 to 160,000.
- Forty-four percent of newborn deaths would be averted—a decline from 3.5 million to 1.9 million.
- Unsafe abortions would decline by 73%, from 20 million to 5.5 million (assuming no change in abortion laws), and the number of women needing medical care for complications of unsafe procedures would decline from 8.5 million to two million.
- The healthy years of life lost due to disability and premature death among women and their newborns would be reduced by more than 60%. (This is measured in disability-adjusted life years, or DALYs, an internationally used standard for comparing the cost-effectiveness of health services.) More women would survive hemorrhage and infection, and fewer would endure needless suffering from fistula, infertility and other health problems related to pregnancy or childbirth. Newborns

would have improved chances of surviving asphyxia, low birth weight and infection.

Other benefits for the health sector and for societies as a whole, though less quantifiable, are also profound. The following are just a few.

- The improvements in health systems that would provide lifesaving care to women and their newborns would strengthen health systems' responses to other urgent medical needs.
- Greater use of condoms for contraception would reduce the transmission of HIV and other sexually transmitted infections, thereby helping to curb the AIDS pandemic.
- Reducing unplanned births and family size would save on public-sector spending for health, water, sanitation and social services and reduce pressure on scarce natural resources, making social and economic development goals easier to achieve.
- Reducing unintended pregnancies, particularly among adolescents, would improve educational and employment opportunities for women, which would in turn contribute to improving the status of women, increasing family savings, reducing poverty and spurring economic growth.

How much will it cost to meet the needs for family planning and maternal and newborn services in developing countries?

- Fulfilling unmet need for modern family planning methods would cost $3.6 billion (in 2008 U.S. dollars), in addition to the $3.1 billion spent serving current users of modern methods—for a total of $6.7 billion annually.
- Providing all pregnant women and their newborns with the recommended standards of maternal and newborn care would increase current spending from $8.7 billion to $17.9 billion, assuming that unmet need for effective contraceptives is met. Reducing unintended pregnancies by meeting the need for family planning would save $5.1 billion that would otherwise be required in order to provide the recommended care to pregnant women and newborns.
- The total cost of investing simultaneously in modern family planning and maternal and newborn health services to meet existing needs would be $24.6 billion, an increase of $12.8 billion annually. While this is a little more than double current spending on these services in the developing world, the total represents only $4.50 per capita.

As with current spending for health care, the additional funds needed for these services would come from a combination of domestic and international resources. Decision makers must keep in mind that the people most in need of services are among those least able to pay. Although governments worldwide have committed to making these services available to all, funding from governments and donor agencies has fallen far short of the amounts pledged for reproductive health. In fact, donor assistance dedicated specifically to family planning has dropped dramatically in absolute dollar amounts since the mid-1990s.

As it stands now, the health-related MDGs will not be met by 2015. Progress on reducing maternal and newborn deaths has been extremely slow, particularly in the two poorest regions, South Asia and Sub-Saharan Africa. These regions—and the poorest people in other regions—stand to gain the most from additional investments because they suffer disproportionately from poor health related to pregnancy and childbirth.

Many implementation challenges must be overcome as policymakers and program planners work to strengthen health systems and make services accessible to everyone. Still, funding shortfalls remain a major constraint to meeting health-related goals. Thus, in full partnership, governments and the international community need to increase funding immediately and target those resources toward the poorest populations to end preventable suffering, as well as the drag that poor health places on economies.

Is it too much for developing countries and the international community to contribute $12.8 billion more to improving the health of women and newborns? Hardly. Saving one DALY through family planning and maternal and newborn care costs less than $100, which compares favorably with other cost-effective health investments, such as antiretroviral therapy, childhood vaccination for tuberculosis and oral rehydration therapy.

Given the millions of lives that would be affected and multiple generations that would benefit, the better question to ask is: What has taken so long?

Chapter 1

Introduction

How much would it cost to ensure that women have healthy, planned pregnancies, to prevent needless deaths among women and newborns, and to increase their chances of leading healthier, more productive lives? And how would these benefits compare with those of other investments? Around the world, governments face these questions as they strive to improve health systems to provide essential services.[1] In developing countries,* enormous efforts are needed—and are under way in many places—to make quality health services available and accessible to all, especially the poorest and most vulnerable people.[2,3]

While working to strengthen health systems as part of development plans and poverty reduction strategies, governments and donor agencies need information about how best to allocate scarce resources. There is international consensus that the guaranteed health package for all citizens should include sexual and reproductive health services for all who need them.[4,5] These services span a broad range, from helping couples plan pregnancies and ensuring that pregnancies are healthy, to preventing and treating HIV, other sexually transmitted infections (STIs), and breast and cervical cancers, and addressing gender-based violence.

The goal of this report is to guide decision makers, at the global, regional and country levels, in making investments that would reap the greatest returns for individuals and societies. The report presents new analyses on the costs and benefits of investing in two key components of sexual and reproductive health care: family planning and maternal and newborn health services. Family planning services provide women and men with the means to prevent unintended pregnancies and time the formation of their families. Maternal and newborn health services protect the health of women and babies by providing routine antenatal, delivery and postpartum care, as well as emergency care for complications, postabortion care and newborn care.[5] Together, they have been the focus of major international donor initiatives, particularly as progress has fallen short of national and international goals of reducing maternal and newborn death rates and guaranteeing universal access to sexual and reproductive health services.

In most developing regions, the use of modern family planning methods and maternal and infant health care has increased in the last several decades, and as a result, fertility rates and maternal and infant death rates have declined. Still, levels of unintended pregnancy (Box 1.1) and maternal and infant death and ill health remain unacceptably high. In 2003, an estimated 200 million women in developing countries had an unmet need for modern contraceptives. Seventy-five million had unintended pregnancies,[6] and 20 million of these women had unsafe abortions.[7] Every year, more than a half million women die from pregnancy-related causes,[8] and nearly four million newborns die from mostly preventable conditions.[9]

The International Conference on Population and Development (ICPD), held in Cairo in 1994, defined reproductive rights as human rights, recognized sexual health as a component of reproductive health and called for universal access to reproductive health care by 2015. The ICPD vision includes equality between women and men in reproductive decision making, voluntary choice in determining the number and timing of one's children, and freedom from sexual violence, coercion and other harmful practices.[4] A 20-year program of action, adopted by 179

*In this report, we use the United Nations Population Division definition of developing countries, which designates all countries except Australia, Canada, Japan, New Zealand, the United States and all European nations as developing.

countries, placed women's empowerment and reproductive rights at the center of population and development concerns. The conference was also the first to set down estimates of the resources required from developing countries and donors to provide specific components of sexual and reproductive health services.

Fifteen years later, in 2009, the international community is assessing progress toward the goals set at ICPD. The assessment is taking place in the context of governments' ongoing efforts to make progress toward the Millennium Development Goals, or MDGs (Box 1.2, page 8), adopted by world leaders following the United Nations Millennium Summit in 2000. The eight goals are consistent with the ICPD's vision: Three of them, which depend crucially on the availability and use of sexual and reproductive health care, call for reducing maternal and infant deaths and combating the AIDS pandemic.[10] In 2007, MDG 5 was expanded to include the target of universal access to reproductive health services.

Although governments worldwide have committed to making sexual and reproductive health services available to all, resources have been insufficient to make universal access a reality. Funding for health overall has increased substantially since the early 2000s, but there are imbalances in the way that external donor assistance is spent across health programs. For example, between 2002 and 2006, 53% of all health aid provided directly to developing countries was committed to initiatives to control and treat HIV/AIDS, malaria, tuberculosis and other diseases—and these initiatives are still short of achieving their goals. The remaining assistance left only $2.25 per capita* per year for all the other health services, including family planning and maternal and child health.[5,11]

Furthermore, donor assistance dedicated to family planning has decreased substantially in absolute dollar amounts in recent years, from $653 million in 1997 to $394 million in 2006.[12] It is unclear how much additional funding was allocated to family planning through general budget support. Still, this long-term decline is critical, given that the number of women of reproductive age (15–49) increased by 25% between 1995 and 2007 and is expected to increase by an additional 10% by 2015 and by another 8% by 2025. In addition, needs continue to rise because a growing share of women and couples want to have smaller families.[13]

Funding shortfalls are a key factor explaining why most developing countries will be unable to meet the health-related MDGs by 2015. For example, MDG 5 calls for reducing the maternal mortality ratio (maternal deaths per 100,000 live births) by 75% from 1990 to 2015, but by 2005, the ratio had declined only 6% in developing regions. With just a little more than five years to go, progress has been negligible in Sub-Saharan Africa and parts of South Asia, the regions that account for most maternal deaths.[14]

Along with mobilizing more resources, policymakers and health planners will need to address in a comprehensive way many implementation challenges, ranging from upgrading physical infrastructure and training health personnel to addressing cultural barriers to the use of services. These and many other challenges are context-specific and outside the scope of this report, but the benefits of achieving gains in family planning and maternal and newborn health are universal and profound.

In response to the lack of progress in meeting the health-related MDGs, the High Level Taskforce on Innovative

*All monetary amounts in this report are expressed in U.S. dollars, and "per capita" refers to the population of the developing world.

Box 1.1 Key Terms

An **unintended pregnancy** is one that occurs when a woman wanted to postpone a conception for at least two years or did not want to become pregnant at all.

Women wanting to avoid a pregnancy are currently married or unmarried and sexually active, are able to become pregnant, and want to stop childbearing or to wait at least two years before having a child (or another child). These women are sometimes referred to as being at risk for unintended pregnancy.

Modern contraceptive methods include all hormonal methods (i.e., the pill, injectables and implants), IUDs, male and female sterilization, condoms and modern vaginal methods (e.g., the diaphragm and spermicides).

Women with **unmet need for modern contraceptives** are those who want to avoid a pregnancy but are not using a modern contraceptive method. Other publications may not define women using traditional methods as having unmet need. However, this report focuses on unmet need for modern contraceptives because traditional methods, such as periodic abstinence and withdrawal, are much more likely to fail than are modern methods.

Modern family planning services include information and counseling by health personnel about modern contraceptive methods, provision of these methods or prescriptions, and related surgical procedures (for example, IUD insertion or sterilization); they also include screening and testing for reproductive tract infections, STIs (including HIV), cervical and breast cancer, and other gynecologic and urologic conditions. This report focuses only on counseling and the provision of modern contraceptive methods.

Maternal and newborn health care consists of routine antenatal and delivery care by trained professionals, care for complications that arise during pregnancy and delivery (including emergency obstetric and newborn care, as well as care for abortion complications), and timely postpartum care for both mothers and newborns.

Disability-adjusted life years (DALYs) are a measure of the burden of disease from mortality and morbidity. The DALY, developed by the World Health Organization and the World Bank, combines years of life lived with disability (adjusted for severity) and years lost to premature death resulting from a given health condition. It allows for comparison of the impacts of various health conditions and the relative effectiveness of different interventions. A DALY roughly translates to one healthy year of life.

Box 1.2 Sexual and Reproductive Health and the Millennium Development Goals

In the 2000 Millennium Declaration, world leaders agreed to a broad agenda aimed at reducing poverty, hunger, illiteracy, disease, environmental degradation and discrimination against women. By 2002, the agenda had been refined into eight goals (listed below), each paired with a set of targets and indicators for measuring progress.[1] Following the five-year review, "universal access to reproductive health" was added as a target to support Goal 5, improving maternal health.

1. **Eradicate extreme poverty and hunger**
2. **Achieve universal primary education**
3. **Promote gender equality and empower women**
4. **Reduce child mortality**
5. **Improve maternal health**
   - Target 5a: Reduce by three-quarters the maternal mortality ratio
   - Indicators: 5.1 Maternal mortality ratio
   - 5.2 Proportion of births attended by skilled health personnel
   - Target 5b: Achieve universal access to reproductive health
   - Indicators: 5.3 Contraceptive prevalence rate
   - 5.4 Adolescent birthrate
   - 5.5 Antenatal care coverage
   - 5.6 Unmet need for family planning
6. **Combat HIV/AIDS, malaria and other diseases**
7. **Ensure environmental sustainability**
8. **Develop a global partnership for development**

Beyond supporting Goal 5, improved sexual and reproductive health underpins nearly all of the other MDGs, either directly or indirectly. Specifically, it supports Goal 1 because smaller families and wider birth intervals allow families to invest more in each child's nutrition and health, and can reduce poverty and malnutrition for all members of a household. Improved sexual and reproductive health also contributes to improving educational prospects for children, especially by closing the gender gap in education (Goal 2); empowering women (Goal 3); reducing child mortality (Goal 4); and curbing the AIDS pandemic (Goal 6).[2] In developing countries, slower population growth can reduce pressure on environmental resources (Goal 7).[3] Achieving Goal 5 would require improved cooperation between global, national and local actors (Goal 8).

International Financing for Health Systems was launched in 2008 to focus world leaders' attention on the need for additional resources, particularly in support of MDGs 4 and 5.[5] This task force is also seeking ways to increase the efficiency of health financing and promote the effective use of funds. Governments and the international development community have also reached consensus on key principles, through the Paris Declaration on Aid Effectiveness[15] and the Accra Agenda for Action,[16] to improve the effectiveness of development assistance. These principles recognize that sustainable development requires coordinated support for national development plans, less-fragmented funding and more effective partnerships. A number of global and regional partnerships have also formed in support of nationally led processes to improve health care and its outcomes. These include the International Health Partnership, Harmonization for Health in Africa and, more recently, Health 4, an agreement between four agencies—the United Nations Population Fund, UNICEF, the World Bank and the World Health Organization—to coordinate their support in the areas of reproductive, maternal, newborn and child health at the country level.

Against this backdrop, family planning and maternal and newborn health services require renewed focus and additional resources if governments are to achieve the dramatic reductions in maternal and infant deaths that the MDGs aim for and if they are to make greater headway toward the overarching goal of eradicating extreme poverty. Thus, now is a critical time to evaluate the health benefits that can be gained from investing in these services.

A guide to this report

This report builds on prior work[17–21] to provide up-to-date estimates of the costs and benefits of family planning and maternal and newborn health services. When *Adding It Up* was first published in 2003, the cost-benefit analysis focused on family planning (contraceptive) services. This report expands that analysis to include maternal and newborn health care and the synergistic effects of investing simultaneously in this care and family planning.

The report gives special attention to vulnerable and underserved populations, particularly those living in low-income countries and the poor and the young throughout the developing world. It

- provides an overview of reproductive health in the developing world, including levels of unintended pregnancies, abortions, maternal and newborn deaths, contraceptive use and use of maternal health care (Chapter 2);
- estimates the costs and direct health benefits of providing modern family planning methods to prevent unintended pregnancies (Chapter 3);
- estimates the costs and direct health benefits of providing adequate maternal and newborn health care to reduce maternal and infant morbidity and mortality (Chapter 4);
- examines the additional health benefits and financial savings that result from investing simultaneously in family planning and maternal and newborn services (Chapter 5); and
- discusses the implications of the findings and the need for renewed commitment to sexual and reproductive health care for all (Chapter 6).

Beyond the health benefits that are quantified here, individuals, families and societies reap innumerable gains from the ability to freely choose the number and spacing of their children and to protect the health of pregnant women, mothers and newborns. Though not quantified, the wide-ranging social, economic and environmental impacts are also described briefly in the report.

Chapter 2

Progress and Challenges In Women's and Newborns' Health

As individuals and couples in the developing world plan their pregnancies and have children, they need a range of health services to ensure that they can prevent unintended pregnancies and protect the health of women and their newborns. While unintended pregnancies and infant deaths (deaths before age one) have declined in the last decade, they are still much too common, and progress toward reducing their frequency varies widely across and within countries. Progress toward reducing newborn deaths—those occurring during the first 28 days of life—and maternal deaths is much less evident, particularly in Sub-Saharan Africa and South Asia.

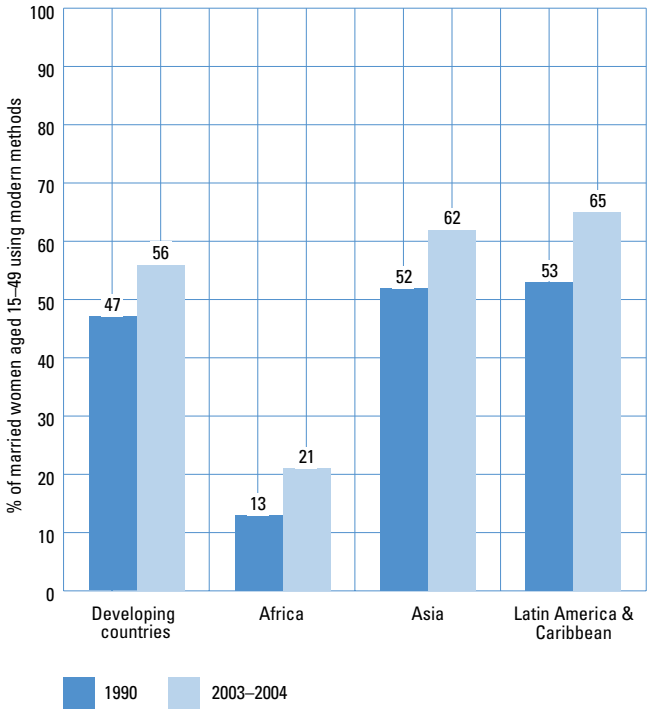
This chapter gives an overview of the need for family planning and maternal and newborn health services and will set the stage for analyzing the costs and benefits of providing these services to all who need them. It also will reveal factors that underlie variations in the use of services among countries and subgroups of people.

The use of modern contraceptives has increased, but unmet need remains high

Throughout the world, women and men are marrying later and wanting to have fewer children than did their parents and grandparents. Modern family planning methods have played a major role in the shift to smaller families in the developing world since they started to become available in the 1960s. Increases in use have been gradual in recent decades: In developing countries, 56% of married women aged 15–49 used modern contraceptives in 2003–2004, compared with 47% in 1990 (Figure 2.1).[22,23] At 21%, use was considerably lower in Africa in 2003–2004 than in other regions.

FIGURE 2.1

Use of modern family planning methods has risen throughout the developing world, but is still very low in Africa.



Note Modern family planning methods include all hormonal methods (i.e., the pill, injectables and implants), IUDs, male and female sterilization, condoms and modern vaginal methods.

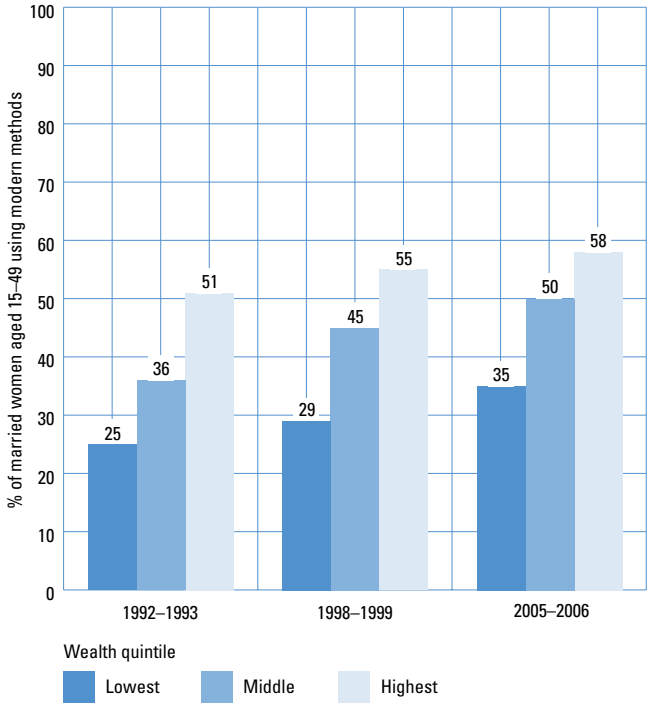
Sources **1990**—reference 22. **2003**—reference 23.

India illustrates the experience of many countries: The use of modern contraceptives increased across all income groups from the early 1990s to 2006, but poorer women consistently lagged behind their better-off counterparts (Figure 2.2). In 2005–2006, 58% of married women of reproductive age in the highest wealth quintile used modern methods, compared with 35% in the lowest quintile; as a result, unmet need was about twice as high among the poorest as among the wealthiest women.[24,25] Research covering large areas of the world has found a strong link between poverty and low use of modern contraceptives. In many developing countries, women in the top income bracket are twice as likely as the poorest women to use modern contraceptives.[26] Poor women are more likely than those who are relatively well-off to have unwanted births.[27]

Despite past gains, a number of countries have experienced little recent change in the use of modern family planning, and some continue to have very low levels of use. In Bangladesh, Kenya and Pakistan, use of modern methods appears stalled at about 47%, 32% and 20%, respectively, among married women of reproductive age. In a number of West African countries, such as Niger and Nigeria, fewer than 10% of married women practice modern contraception.[23]

FIGURE 2.2

In India, modern contraceptive use has risen over time but remains lowest among the poor.



Note Health data by wealth quintile are drawn from Demographic and Health Surveys (DHS). The DHS ranks individuals according to their household assets and divides the population into five groups of equal size, or quintiles, to capture relative differences in wealth. The lowest quintile represents the poorest individuals.

Sources References 24 and 25.

Unmet need for modern contraceptives is still substantial in developing regions, ranging from 28% of married women aged 15–49 in Sub-Saharan Africa and 23% in Asia (excluding East Asia) to 18% in Latin America and the Caribbean.[28] Latin America and the Caribbean is the only region that has seen a marked decline in unmet need for modern family planning methods since the early 1990s.

Why does unmet need persist? The reasons women give for not using modern contraceptives even though they want to avoid a pregnancy are numerous and complex, and researchers continue to study this issue. Some women have misperceptions about their risk of becoming pregnant; others have concerns about the health consequences and side effects of modern contraceptive methods. In some cases, opposition from husbands or family members may discourage contraceptive use.[29] In many developing countries, lack of access to an adequate mix of modern contraceptive methods limits women's choices. Having many methods available is associated with better quality services and higher levels of contraceptive use.[30,31]

Levels of unintended pregnancies and births are declining but still very high

In developing countries, the rate of unintended pregnancies declined by 20% between 1995 and 2008 (from 71 to 57 per 1,000 women aged 15–44),*[32] mostly because contraceptive use increased. But mistimed and unwanted pregnancies continue to be all too common around the world.

■ In 2008, annual rates of unintended pregnancies were highest in Africa, at 86 per 1,000 women aged 15–44. The rate varied from 56 in Northern Africa to 72 in Southern Africa and 118 in Eastern Africa. Different levels of modern contraceptive use largely explain the different rates.

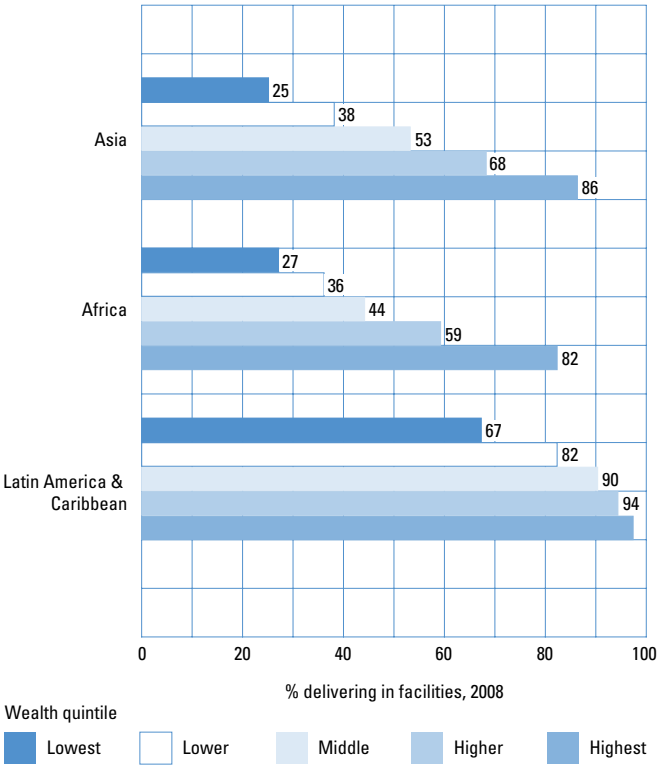
■ Unintended pregnancy rates are also high in Latin America and the Caribbean (72 per 1,000), despite a relatively high level of contraceptive use. Factors include high rates of discontinuation of modern contraceptives and incorrect and inconsistent use of methods.

■ In Asia (including China), the rate of unintended pregnancies is lower—49 per 1,000. Factors underlying this relatively low level of unintended pregnancies include the widespread use of long-acting contraceptive methods (IUDs, injectables and implants) and contraceptive sterilization, combined with relatively low proportions of unmarried women who are sexually active.

*Unintended pregnancies include pregnancies that end in induced abortion (all of which are assumed to have been unintended conceptions), pregnancies that end in births that women report as having occurred at least two years earlier than they had wanted ("mistimed") or after they had all the children they wanted ("unwanted"), and mistimed and unwanted pregnancies that end in miscarriage. Pregnancy rates for 2008 are projected values, calculated from trends in abortion rates, survey-based proportions of unplanned births and model-based estimates of miscarriages.

FIGURE 2.3

The poorest women in all regions are the least likely to deliver their babies in a health facility.



Notes See note in Figure 2.2 for information about wealth quintiles. Weighted regional averages are shown for countries that have Demographic and Health Surveys. Asia excludes China, and Latin America & Caribbean excludes Mexico.

Source Reference 37.

In many countries, adolescents have a particularly high risk of unintended pregnancy (Box 2.1, page 12). Young, unmarried women are less likely than their older and married counterparts to have access to and to use modern contraceptives, and married adolescents may feel social pressure to bear a child and thus not seek family planning services. Adding to their vulnerability, some adolescents may be subjected to sexual exploitation or abuse, and many have limited knowledge about how to protect their sexual and reproductive health or where to obtain information and services.[33]

Too many women lack adequate health care during pregnancy and delivery

To protect their health and that of their infants, women need access to basic health care during pregnancy and delivery. This includes antenatal visits, delivery in a well-equipped health facility with skilled providers or assistance from a skilled professional when giving birth at home, access to emergency obstetric care and a timely postpartum visit.[34]

Because complications during pregnancy can rarely be predicted and can be life-threatening for both mother and infant, all pregnant women and their newborns need access to emergency care.* In developing countries, access to such care is still woefully inadequate. There are too few health facilities providing maternal and newborn care, and those that do exist often do not provide the full range of emergency services needed.[35] A study of 2.7 million deliveries across seven developing countries found that only one-third of women who needed lifesaving care for a complication received it.[36]

Skilled professional assistance during delivery is key to saving lives and is therefore an important indicator for monitoring progress on target 5a of the MDGs, to reduce the maternal mortality ratio. The poorest women are the least likely to receive such care, because they are more likely than better-off women to deliver at home and trained health personnel are scarce in poor regions. In Asia, only 25% of women in the poorest quintile of the population deliver their babies in a health facility, compared with 86% of those in the richest quintile (Figure 2.3).[37] The pattern is similar in other regions and in all countries where such data are available, though disparities are greatest in countries with the lowest levels of facility-based births. Similarly, gaps in the use of emergency obstetric care are pronounced between better-off and poor women.[38]

Access to safe abortion services and care for complications is limited

In 2003, nearly 20 million abortions worldwide—about 47% of all abortions—were unsafe procedures.[6] Unsafe abortions are defined as those performed by individuals lacking the requisite skills or in environments below the minimum medical standards, or both.[39] More than 95% of unsafe abortions were in developing countries.

The 1994 International Conference on Population and Development (ICPD) recognized unsafe abortion as a major health concern. It called for all women to have access to quality services to manage the complications arising from unsafe abortion.[4] The failure to obtain postabortion care stems from a variety of factors, including inadequate

*Basic emergency care for pregnant women and newborns, provided in health centers, large or small, includes the capabilities for administration of antibiotics, oxytocics and anticonvulsants; manual removal of the placenta; removal of retained products following miscarriage or abortion; assisted vaginal delivery; and newborn care. Comprehensive emergency obstetric and newborn care, typically delivered in district hospitals, includes all of the basic functions plus cesarean section, safe blood transfusion and care for sick and low-birth-weight newborns, including resuscitation.

capacity of health care systems; poor service quality; social stigma, which discourages women from using services; poverty and women's low status; and women's lack of independence in seeking health care.[40]

The ICPD also stated that in circumstances where abortion is not against the law, services should be safe.[4] In some developing countries where abortion is permitted under broad legal criteria (for socioeconomic reasons or without restriction as to reason), safe services are generally accessible and almost all abortions are safe. Examples include Cuba, Tunisia, Turkey and Vietnam. In others, such as Cambodia, India, Nepal, South Africa and Zambia, access to safe abortion services is inadequate and a large proportion of women obtaining abortions still do so under unsafe conditions. A number of other countries that permit abortion for specific reasons (to protect the woman's physical or mental health or in cases of fetal impairment, rape or incest), such as Colombia, Ethiopia and Ghana, are taking steps to provide safe abortion services under the permitted criteria, but their success in implementing such laws needs to be assessed. In countries where abortion is permitted on even narrower grounds (to save the life of the mother), access to safe legal abortion is extremely rare: In these countries, women who can afford to pay a private provider may obtain a safe clandestine procedure, but large proportions of abortions continue to be unsafe and to threaten women's health and survival.[6]

Box 2.1 Adolescents' Vulnerability to Unintended Pregnancy and Abortion

About one in six females aged 15–19 in the developing world are married.* Excluding China, which has a very low rate of early marriage, the proportion is about one in four. In addition, about three in 10 unmarried adolescent girls in Sub-Saharan Africa and nearly one in four in South America have initiated sexual activity.[1] As young people start puberty earlier (mainly because of improved nutrition) and marry later than previous generations, the period during which they are single and sexually mature lengthens, and the chances that they will have a sexual relationship during their adolescent years increases. Consequently, many female adolescents, both married and unmarried, will have unintended pregnancies if they do not use modern contraceptives. In countries where women still marry very young, unintended adolescent pregnancies are most likely to occur within marriage.

An estimated 44% of married adolescents aged 15–19 in the developing world want to avoid pregnancy, the vast majority because they would like to delay their next birth.† Slightly fewer than one-third of those who want to avoid a pregnancy are using a modern contraceptive method; the rest are inadequately protected because they are using either traditional methods (13%) or no method (55%).

Among married adolescents who want to avoid becoming pregnant, unmet need for modern contraceptives ranges from roughly one-third in Northern Africa and Southeast Asia to more than two-thirds in South Central and Western Asia, and in Eastern, Middle and Western Africa. Less is known about unmarried adolescents, particularly in Asia and Northern Africa. Available survey data show that 17% of unmarried adolescent females in Sub-Saharan Africa, and 12% of those in Latin America and the Caribbean, are sexually active and want to prevent pregnancy.‡ A substantial proportion of these adolescents are using modern contraceptive methods—41% in Sub-Saharan Africa and 49% in Latin America. The remainder are at high risk of an unintended pregnancy because they are using either traditional methods or no method.

In 2008, adolescents aged 15–19 in the developing world had an estimated 14.3 million births, about one-eighth of all developing world births.[2] Fewer than one-half of these adolescents made four or more antenatal visits (44%) or delivered at a health facility (46%).[3] Adolescents received only slightly less maternal health care than adult women.

In the developing world as a whole, adolescents aged 15–19 account for 14% of all unsafe abortions, proportional to their share of all births.[4] However, in Sub-Saharan Africa, females in this age-group are disproportionately likely to have unsafe abortions: They account for 25% of all unsafe abortions, compared with 16% of all births.

Most adolescents are poor or lack money of their own because they are still in school, married with little or no control of household income, not working, or able to earn only very low wages.[5] Having inadequate knowledge about contraception, little independence in making decisions about the timing of births or use of contraceptives,[6,7] and inexperience in obtaining family planning services are further reasons why adolescents are especially vulnerable. Unmarried adolescents, in particular, often face societal disapproval and condemnation if they are sexually active.[8,9]

Thus, the plight of young women involved in a nonmarital sexual relationship or facing an unintended pregnancy[10] is often even more problematic than that of older women.[11] Greater efforts are needed to reduce stigma among service providers and to provide sensitive, confidential services. Expanded efforts are also needed to provide sex education in schools and to reach out to young people not attending school, given high levels of misinformation about sexual health and low levels of access to sexual and reproductive health services.[12]

*This box focuses on females aged 15–19 because of the lack of information on 10–14-year-olds. The proportion who are married is based on survey data covering 87% of the population of the developing world.

†Unless otherwise stated, results are based on weighted averages calculated from countries that have recent national surveys; these surveys cover about 83% of the adolescent population in the developing world.

‡Most of the rest of this group are not sexually active; however, some are sexually active and pregnant, postpartum or wanting a pregnancy.

Little progress has been made worldwide in reducing maternal deaths and ill health

Pregnancy and childbirth are a major source of ill health for women in developing countries. Developing countries accounted for 99% of maternal deaths* that occurred in 2005—533,000 out of 536,000.[8] Slightly more than half of these deaths occurred in Sub-Saharan Africa (270,000), and a little more than one-third in South Asia (188,000).

Globally, the numbers of maternal deaths have changed little since 1990. The maternal mortality ratio (maternal deaths per 100,000 live births) has dropped slightly (by 6% over 15 years), but total deaths have remained about constant because of the growing number of women of reproductive age. Variations in maternal mortality among regions are huge—among the largest for any health indicator. For example,

- one in 22 women in Sub-Saharan Africa die during pregnancy or childbirth over the course of their lifetimes, compared with one in 110 in Asia, one in 280 in Latin America and the Caribbean, and one in 5,900 in more developed regions; and
- from 1990 to 2005, the maternal mortality ratio declined only 2% in Sub-Saharan Africa, compared with 20% in Asia and 26% in Latin America and the Caribbean.[8]

A lack of health infrastructure and trained personnel, along with low awareness among families about where and when to seek care, underlie the high levels of maternal deaths in the poorest countries and among the poorest women within countries. Severe bleeding (hemorrhage) is the most frequent cause of maternal death; other common causes are hypertensive disorders, infection (sepsis), obstructed labor and unsafe abortion.[41] Women and their infants are at greatest risk of death during labor and delivery—hence the need to focus attention and resources on this critical period.

For every woman who dies, 20–30 women suffer short- or long-term illness or disabilities, such as severe anemia, damage to the reproductive organs, severe postpartum disability (such as obstetric fistula†), chronic pain or infertility.[42–44] Though these women are fortunate to survive, their disabilities can have devastating physical, social and economic consequences. Marrying and having children too early, as well as practices such as female genital mutilation, increase the risk of pregnancy-related complications.[33]

According to global estimates, 38 million disability-adjusted life years (DALYs) are lost among women as a result of pregnancy-related causes each year.[45] About 40% of pregnancy-related DALYs lost worldwide are in Sub-Saharan Africa, and another 36% are in South Central Asia. Large proportions of these deaths and disabilities could be prevented if women received adequate maternal health care, including care for obstetric emergencies and postabortion complications.

Newborn deaths are tragic, usually avoidable and linked to mothers' health

Each year, nearly four million babies die in the first month of life, 99% of them in developing countries. Two-thirds of these newborn deaths occur in Africa, South Asia and Southeast Asia.[46] Newborn mortality has declined little in recent decades, despite overall declines in infant and child mortality.

Newborn deaths now account for 38% of all deaths among children aged five and younger. Between one-quarter and one-half of newborn deaths occur in the first 24 hours after birth; three-quarters occur in the first week of life. With adequate antenatal and delivery care, and low-cost interventions to save babies in the first days after birth, a large proportion of newborn lives can be saved. The main causes of newborn deaths are preterm birth, asphyxia and infection (sepsis, pneumonia, tetanus and diarrhea).[47] In addition, the death of a mother substantially increases the risk of death for her newborn child.

Whether women have access to and use services that would save their lives and those of their newborns depends on a number of factors, such as the availability, affordability and quality of services. Women's circumstances are also important, including whether they are poor, live in rural communities, have low education and have low status in their families and communities. Closing the gaps in access to and use of services—and preventing the tragic loss of life among women and infants—requires focusing resources on those least likely to be receiving care.

*A maternal death is defined by the World Health Organization as "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes."

†A fistula is a hole between the vagina and the bladder or between the vagina and the rectum, usually caused by prolonged obstructed labor, although it can sometimes be caused by vaginal trauma. In cases of obstetric fistula, the baby almost always dies, and the woman suffers from chronic leaking of urine, feces or both.

The New Estimates: What They Are and Where They Come From

To inform decisions about allocating resources, Chapters 3–5 present new estimates of the costs and direct health benefits of meeting the needs for family planning services and maternal and newborn health care, two core components of sexual and reproductive health services. Estimates are for 2008, and monetary costs and benefits are expressed in 2008 U.S. dollars. The most recent available data were used and were projected to 2008 when necessary. Unless otherwise indicated, all estimates were prepared by the Guttmacher Institute.

For both family planning and maternal and newborn health care services, estimates were developed for three scenarios:

- current use, which describes the current level of services in the most recent complete year, 2008;
- no use, a scenario in which no women receive services; and
- 100% of needs met, a scenario in which all women who need services obtain them.

Comparing the current-use scenario with the no-use scenario shows the costs and benefits of current services. Comparing the scenario in which 100% of needs are met with current use shows the additional costs and benefits that would result from meeting unmet need for modern family planning and maternal and newborn health services.

Estimates for family planning services take into account all women who need modern contraceptive services—those who are currently using a modern method and those who are not (who have unmet need for modern contraceptives). In the case of maternal and newborn care, all pregnant women need adequate antenatal care, delivery at a facility attended by a health professional, appropriate care for any complications of pregnancy and timely postpartum care. All newborns need routine care, as well as care for health complications.

Presentation of the new estimates of costs and benefits

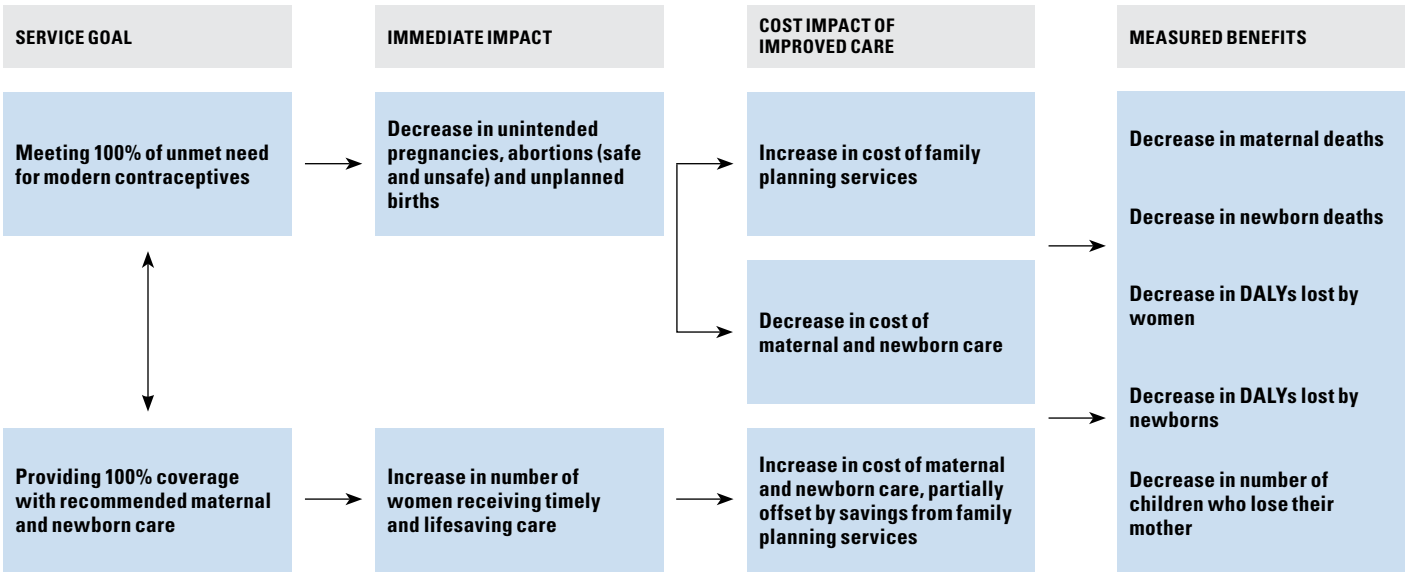
The framework for the analysis is shown in Figure A, and the results are presented in Chapters 3, 4 and 5. The new estimates quantify the costs and direct health benefits that result from providing these core services to all who need them.

The analysis does not provide estimates of broader and longer term social and economic benefits to women, families and society from providing adequate levels of family planning and maternal and newborn health care—benefits that are outlined in Figure B and discussed below.

Data sources

Nationally representative surveys are the principle source of data for all measures of women's need for and use of services, including contraceptive use, preferences regarding timing of births and family size, unmet need for contraceptives, receipt of pregnancy care by trained health professionals and delivery in a health facility. These surveys are Demographic and Health Surveys, U.S. Centers for Disease Control and Prevention Reproductive Health Surveys, UNICEF Multiple Indicator Cluster Surveys and other independent surveys. Population estimates of women aged 15–49 and of the annual number of births are from the United Nations Population Division.[1] Estimates of the direct costs of family planning, maternal and newborn services—including supplies, drugs and personnel—are based on the Reproductive Health Costing Tool developed by UNFPA. The program and other systems costs, often referred to as overhead or indirect costs, are also based on UNFPA estimates. They include physical infrastructure (maintenance of existing facilities and construction of new facilities); support programs (such as information, education and communication activities); systems for supplying commodities; and management and improvement in management systems.[2] (See Appendix, page 35, for more details.)

FIGURE A Family planning and maternal and newborn services result in measurable benefits.



Note: DALY=disability-adjusted life year.

Unmeasured benefits of providing family planning and maternal and newborn care

The analysis encompasses only the direct health benefits that result from preventing unintended pregnancies, illnesses and deaths (among women and newborns) when women are able to delay and limit childbearing and to obtain adequate antenatal care, care for complications of pregnancy and childbirth, essential newborn care and timely postpartum care. They exclude indirect and long-term benefits and savings in health care that would accrue in both the public and the private sectors.

Family planning services historically have been undervalued in assessments of the benefits of health interventions, partly because unintended pregnancy—an outcome prevented by contraceptive use—is not a disease. Assessments of the short-term health outcomes of unintended pregnancy, moreover, do not capture the social, economic and environmental benefits that can be attained by enabling individuals and couples to control the timing and number of their children (Figure B). Although it is logical to assume these additional benefits, they are often unacknowledged because they are extremely difficult to quantify.

Results of some studies provide evidence that preventing unintended pregnancies and improving reproductive health would yield social, economic and health benefits beyond those quantified in this report. Researchers have estimated, for example, that one-third of the economic growth in the final decades of the last century in a number of Eastern and Southeast Asian countries can be attributed to the "demographic dividend" provided by rapid fertility declines.[3–5] In these countries, savings and investment increased as the working-age population began to have fewer dependents to support.

Worldwide, the benefits of family planning extend well beyond the health sector and beyond a single generation.[6,7] Use of contraceptives contributes to better educational prospects for children: Delaying first pregnancies helps girls complete their education, and reducing the size of families lessens the chances that girls will be kept at home to care for siblings. Also, with fewer children, parents are better able to invest in each child's schooling, particularly in their daughters' education.[8–11] Better reproductive health also improves women's lives by reducing the prevalence of obstetric fistula, infertility and other conditions that can affect women's status in the family and the community.[12,13]

For maternal and newborn health services, savings beyond the health sector have been reported elsewhere for a few countries. For example, preventing poor health due to pregnancy and childbirth saves families the cost of caring for a sick member and prevents a loss of productivity and income. The U.S. Agency for International Development estimated global costs of more than $15 billion every year because of reduced productivity caused by pregnancy-related death among women and among newborns who die because of losing their mother.*[14]

*This estimate is based on data from a study of four Sub-Saharan African countries, using the REDUCE model, developed by Barton Burkalter in 2001 for USAID's Africa Bureau through the Academy for Educational Development, Washington, DC.

FIGURE B These services have wide-ranging benefits, beyond what is measured in this report.

EXAMPLES OF UNMEASURED BENEFITS FOR WOMEN AND FAMILIES

- Healthy birthspacing and smaller families, which improve women's health[15-21]
- Improved education and status for women[23,24]
- Improved well-being of families because of mothers' survival[22,27,28]
- Better nutrition and education for children, especially girls[16,25,27,31-33]
- Prevention of high-risk pregnancies (i.e., those among teenagers, women older than 35 and women with many children)[18,34]
- Longer time to breast-feed, which improves infant health and survival[17,35-37]
- Fewer women suffering from anemia, which is disabling and poses a risk for future births[40-42]
- Reduced suffering and stigma due to fistula, infertility and other reproductive health problems[22,27,41,47,48]
- More of parents' time and income allocated to each child[27]

EXAMPLES OF UNMEASURED BENEFITS FOR SOCIETY

- Reduced public-sector spending on health services for long-term consequences of mothers' and newborns' ill health[22]
- Reduced public-sector spending on education, childhood vaccinations, malaria prevention, water and sanitation[25,26]
- Reduced transmission of HIV/AIDS from use of male and female condoms[29,30]
- Reduced mother-to-child transmission of HIV/AIDS from family planning use among, and recommended care for, women with HIV[29]
- Improved productivity and higher income; greater savings and investment[27]
- Potential for faster economic growth when the working population has fewer children to support[38,39]
- Reduced population pressure on scarce natural resources (e.g., water, forests, arable farmland)[43-46]
- Greater equality between men and women[27,49]
- Less discrimination against girls[9,11,27]

Chapter 3

Meeting the Need for Modern Family Planning Services

Providing modern family planning services brings a wide range of benefits for women, their families and society. It improves women's health and enhances their status and rights; at the same time, it protects the health of infants and young children and improves the well-being of families (see The New Estimates, page 14).[48] However, a substantial proportion of women who want to avoid a pregnancy—whether to postpone or to stop childbearing—are not using modern contraceptives.

There is international consensus that individuals and couples should have informed and voluntary choice in using family planning and choosing the most appropriate methods. Scenarios that present all women in need using modern methods (based on the mix of modern methods among current users) are meant not to be prescriptive, but rather to show the public health impact of these choices.

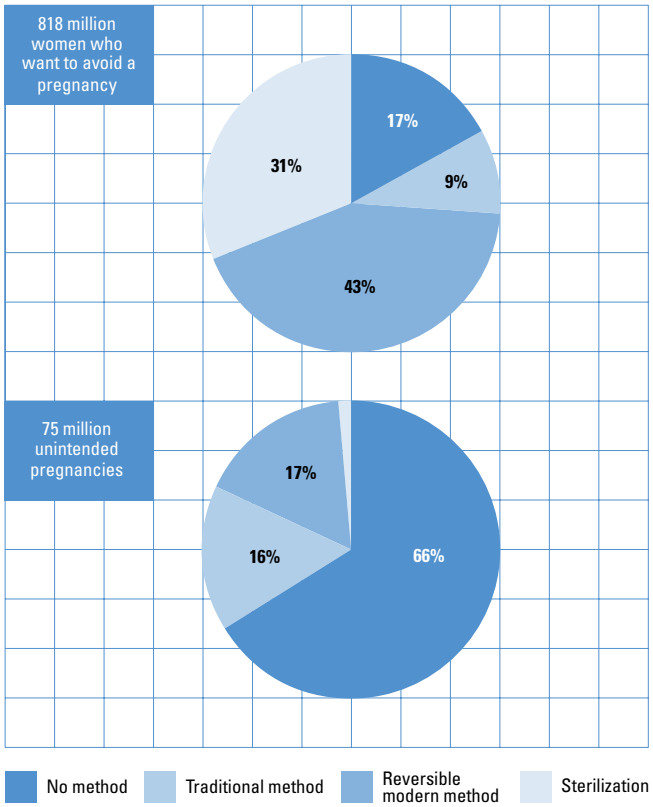
More than half of reproductive-age women want to avoid a pregnancy

In 2008, one in four people in developing countries—1.4 billion—were women of reproductive age (15–49).[49] More than half of these women—818 million—wanted to avoid a pregnancy and therefore required effective, ongoing contraception.

Two-thirds of women who want to avoid a pregnancy want no more children, while one-third want to delay having a child.[49] In poorer countries, and especially in Sub-Saharan Africa, where large families are still the norm, more women who need effective contraceptives want to postpone (or space) a future birth than to stop childbearing. Women's preferences for spacing versus limit-

FIGURE 3.1

Women with unmet need make up 26% of those who want to avoid a pregnancy but account for 82% of unintended pregnancies.

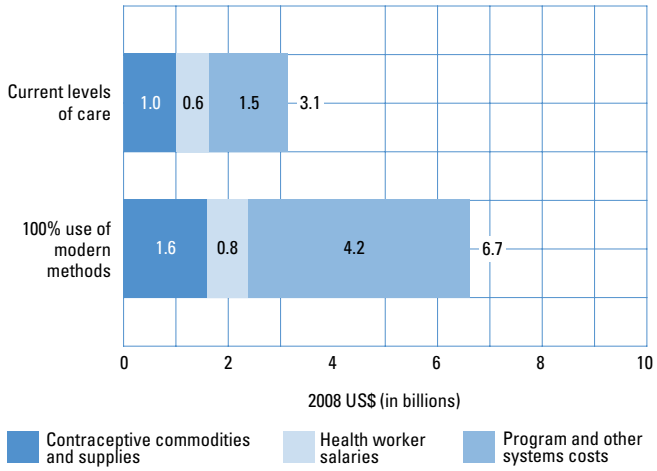


Notes Estimates are for 2008 for all developing countries. Women with unmet need are those who want to avoid a pregnancy and who use a traditional family planning method or no method. Traditional methods include mainly periodic abstinence and withdrawal. Reversible methods include all modern methods other than sterilization.

Source Reference 49.

FIGURE 3.2

Providing modern family planning to all who need it would cost $3.6 billion more than is currently spent.



Notes Estimates are for 2008 for all developing countries. Components may not add up to totals because of rounding. "Current levels of care" meet only part (74%) of existing need for modern family planning. "100% use of modern methods" meets all existing need for modern family planning. Program and other systems costs include costs for program management, supervision, training of personnel, health education, monitoring and evaluation, advocacy, information systems and commodity supply systems, and costs for maintaining and expanding the physical capacity of health facilities.

Source Reference 49.

ing their total number of births influence their choices of contraceptive methods: Those wanting to stop childbearing are likely to use one of the most effective methods (sterilization or a long-acting reversible method, such as the IUD), while those wishing to postpone a birth choose among reversible methods.

One in four women who want to avoid a pregnancy are not using a modern method

Of the 818 million women who want to avoid a pregnancy, 603 million are using modern contraceptives and 215 million are not (Figure 3.1).[49] More specifically,

- 17% use no method;
- 9% use traditional methods (e.g., periodic abstinence and withdrawal), which do not require trained providers or supplies, but may require couple training and have high failure rates among users;
- 43% rely on a reversible modern method of contraception that requires trained providers, continuous supplies or both (i.e., IUDs, oral contraceptives, injectables, implants, and condoms and modern vaginal methods); and
- 31% have had a tubal ligation (contraceptive sterilization) or have a partner who has had a vasectomy (female sterilizations outnumber male sterilizations by 10 to one).

In 2008, two-fifths of the 186 million pregnancies that occurred among women aged 15–49 in the developing world were unintended; that is, they were the result of contraceptive nonuse, incorrect or inconsistent method use, or method failure.[49] Women with unmet need for modern contraceptives account for a disproportionate share—82%—of unintended pregnancies: Sixty-six percent are among women using no method, and 16% are among those using traditional methods. The three-fourths of women who use modern contraceptive methods account for 18% of unintended pregnancies.

As with other indicators of reproductive health, low-income countries* and Sub-Saharan Africa are disproportionately affected: Seventeen percent of all women who want to avoid a pregnancy live in low-income countries, and 9% live in Sub-Saharan Africa; these women account for about 34% and 23%, respectively, of all unintended pregnancies in the developing world.[49]

Unmet need for modern contraceptives is concentrated in the poorest regions

Some 215 million women in the developing world as a whole have an unmet need for modern contraceptives; they account for about 15% of all women aged 15–49.[49] The level of unmet need varies markedly across regions and among groups of women. Unmet need is

- concentrated in Sub-Saharan Africa and South Central Asia—regions that together account for 59% of all women with unmet need;
- disproportionately high in low-income countries—54% of women who want to avoid a pregnancy in these countries have unmet need for a modern contraceptive method, compared with 20% in better-off developing countries;
- higher among women who are younger, have less education and live in rural areas than among older, better educated and urban-dwelling women; and
- higher among poorer women than better-off women (33% of women in the poorest quintile experience unmet need, compared with 15% of those in the richest quintile).

Unmet need is about twice as high among women who want to delay a birth as among those who want no more children—40% vs. 20%.[49] The difference largely reflects that women who want to delay a birth are much more

*The World Bank classifies countries according to gross national income (GNI) per capita. In this report, we use this classification system, collapsed into three groups: low-income countries, which have a GNI per capita of less than $936 (e.g., most of Sub-Saharan Africa, Haiti, Afghanistan and Bangladesh); lower-middle–income countries, which have a GNI per capita of $936–3,705 (e.g., India, Egypt and China); and upper-middle– or high-income countries, a category that combines two World Bank designations because high-income developing countries account for only 2% of the developing-world population. Countries in this category (e.g., Mexico, Turkey and South Africa) have a GNI per capita of at least $3,706.

likely than those who want no more children to use no contraceptive method at all. The use of traditional methods differs little between the two groups of women.

Family planning services in developing countries currently cost $3.1 billion

The cost of providing modern family planning services to 603 million users in the developing world in 2008 was an estimated $3.1 billion (Figure 3.2, page 17).[49] This estimate includes the costs of contraceptives and related supplies, labor costs of health workers, and the program and other systems costs for the public health systems that support the services.* These services and supplies are paid for by a combination of domestic sources, including tax revenues, contributions from the private sector, employer and employee contributions to health insurance, and out-of-pocket payments by users of private- and public-sector services, as well as contributions from the international community. Although data are not available on spending specifically for family planning services, a recent analysis of national health accounts in developing countries suggests that around one-half of all health expenditures are paid for privately by individuals and households.[5]

Meeting the total need for modern family planning would cost $6.7 billion

If the 215 million† women with unmet need used the same mix of contraceptive methods as women in their country who currently use modern contraceptives,

- about 52 million more women in the developing world would use sterilization—49.3 million would have a tubal ligation, and 2.4 million would have partners who have had a vasectomy;
- some 73 million more women would use long-acting methods—42.7 million IUDs and 29.9 million long-acting hormonal methods, primarily injectables;
- some 44 million more would use oral contraceptives; and
- about 47 million more would use condoms (45.6 million) or other supply methods (one million) as their primary contraceptive method.[49]

These estimates assume that all women with unmet need would use modern contraceptives, and that the method mix among these new users would be the same as that among current modern method users in the same country with the same marital status and childbearing plans, because women's choices are affected by the strengths and limitations of services within their country and by their personal situations. If, in reality, smaller numbers of these women adopted a modern method, then both the costs and the benefits of contraception would be reduced. On the other hand, with more accessible information and services, both current and new users of modern methods may be better able to select methods that they would use consistently and correctly, further increasing benefits.

The total cost of meeting current need and unmet need would amount to $6.7 billion annually (in 2008 dollars)—$3.1 billion for current services and $3.6 billion for extending those services to all women with unmet need for effective contraceptives.[49] The cost per user of fulfilling unmet need would be higher than the cost of serving current users because of the expenses related to expanding and improving health care services in many developing countries. Sub-Saharan Africa, the region in greatest need of strengthening its health care systems,

TABLE 3.1

Benefits resulting from modern contraceptive use among women who want to avoid a pregnancy, according to contraceptive use scenario, 2008

Measure (000s)	Current use of modern methods	Fulfillment of unmet need for modern methods	Total
Unintended pregnancies averted	187,800	53,460	241,260
Unplanned births	53,550	21,820	75,370
Abortions	112,310	24,800	137,100
Miscarriages	21,940	6,840	28,780
Deaths averted			
Newborn	1,170	640	1,810
Maternal	230	150	380
Children who would not become orphans	740	600	1,340
DALYs saved			
Women	24,640	12,430	37,070
Newborns	46,350	23,710	70,060
No. contraceptive users	603,090	214,450	817,540

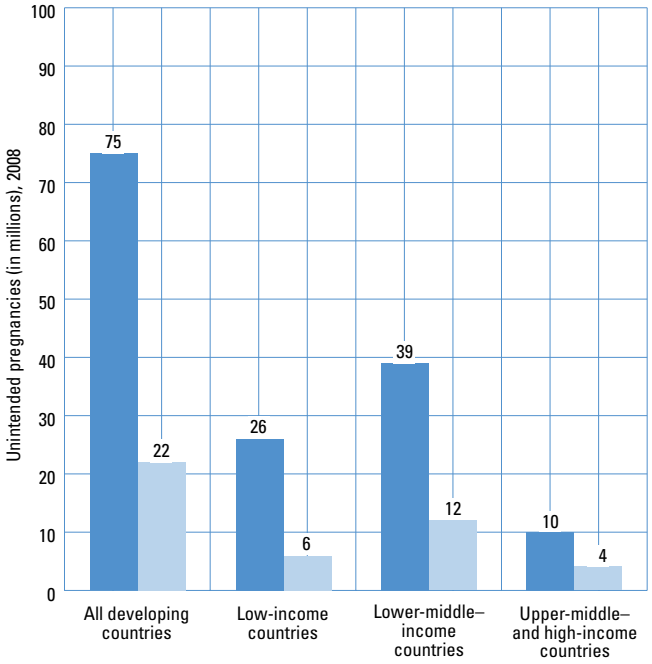
Note Numbers may not add up to totals because of rounding.
Source Reference 49.

*Supplies include gloves, antiseptic, syringes, needles, anesthesia, sedatives, pain medications, sutures, gauze and tape. Program and other health systems costs include program management, supervision, health education, monitoring and evaluation, advocacy, health system infrastructure, information systems, human resources training and commodity supply systems.

†Because of rounding, the numbers in the four categories that follow do not add up to 215 million. In general, while calculations were done with unrounded data, the numbers presented in this report are rounded; thus, some numbers given in the text or in figures may differ slightly from the sum or differences calculated from the rounded subcategory numbers.

FIGURE 3.3

If all women wanting to avoid a pregnancy used modern family planning methods, unintended pregnancies would decline sharply.



Note Estimates are for 2008 for all developing countries. See footnote on page 17 for definitions of country income levels.

Source Reference 49.

has especially high proportions of women with unmet need. Both current and new users would benefit from expanded and upgraded services. As with current costs, the additional costs would be borne by a combination of domestic and international financing. The sources of additional funds would vary from one country to another, but low-income countries would require greater assistance from the international community.

Increased use of modern contraceptives would save lives and improve health

In 2008, modern contraceptive use prevented 188 million unintended pregnancies, 1.2 million newborn deaths, and 230,000 maternal deaths and other negative health outcomes that would have occurred in the absence of any modern method use (Table 3.1).[49] By preventing these outcomes, current spending on family planning services also reduced the need for other health services, such as treatment for complications of childbirth and unsafe abortion. As expected, parts of the world where modern contraceptive use is low—such as Sub-Saharan Africa and low-income countries in other regions—benefited proportionately less than regions where contraceptive use is more prevalent.

Effectively addressing unmet need would reduce the number of unintended pregnancies even further: If the 215 million women with unmet need used modern family planning methods, current unintended pregnancies would drop by 71%, from 75 million to 22 million per year (Figure 3.3), and unplanned births would drop from 30 million to eight million; the greatest percentage reduction would occur in low-income countries.[49] (Some unintended pregnancies would still occur because of contraceptive failure or inconsistent use among women using the current mix of modern methods; should either of these be improved, these unintended pregnancies would also decline.) Eliminating 53 million more unintended pregnancies per year would result in about

- 22 million fewer unplanned births;
- 25 million fewer induced abortions; and
- seven million fewer miscarriages.

Box 3.1 Increasing Contraceptive Use in Pakistan

Despite years of promoting family planning, Pakistan had extremely low levels of contraceptive use through the early 1990s.[1] In 1993, the government launched a new scheme to increase access to basic health care services, particularly in rural areas.[2] Lady health workers, as they were called, were trained to deliver a range of services related to maternal and child health, including family planning information and supplies. They received 15 months of training, a small allowance and continuous supervision, and were attached to a government health facility that provided their training and supplies.

The lady health workers visited women in their homes, about 75% of which were in rural areas, providing information on contraception and other health topics, contraceptive supplies (such as pills and condoms) and referrals for other methods, such as the IUD and sterilization.[2] By 2001, a national program evaluation found that 20% of rural women in areas served by the lady health workers were using modern contraceptives, compared with 14% of rural women in areas the program did not serve. The evaluation concluded that doorstep delivery of contraceptives—modeled after Bangladesh's successful family planning program—should remain central to achieving universal access to modern contraceptive methods. Although contraceptive use in Pakistan has increased little since the early 2000s,[3] the early successes of this program suggest that it could be used to reinvigorate national family planning efforts.

TABLE 3.2

Cost-effectiveness of common health interventions

Intervention	Cost per DALY saved
Insecticide-treated bed nets	$13–20
Malaria prevention for pregnant women	$29
Tuberculosis treatment (epidemic situations)	$6–60
Modern contraceptive methods	$62
Antiretroviral therapy	
India	$150
Sub-Saharan Africa	$252–547
BCG vaccination of children (for tuberculosis)	$48–203
Oral rehydration therapy	$1,268
Cholera immunization	$3,516

Note Costs are in 2008 U.S. dollars.
Sources References 49–53.

The immediate health benefits of fulfilling unmet need and thus averting these unintended pregnancies would be substantial. Compared with the current situation, a scenario in which unmet need were fulfilled would result in the following changes: Each year, there would be

- 640,000 fewer newborn deaths;
- 150,000 fewer maternal deaths (more than 50,000 fewer from unsafe abortion and more than 90,000 fewer from other pregnancy-related causes);
- 600,000 fewer children who lose their mother; and
- 36 million fewer healthy years of life lost (12 million fewer among women and 24 million fewer among newborns).[49]

The regions with the greatest needs for family planning—Sub-Saharan Africa and South Central Asia—would see the greatest health and welfare gains from fulfilling unmet need.[49] Sub-Saharan Africa, for example, accounts for only 9% of women in developing countries who want to avoid a pregnancy, but because of its high maternal death rates, the region would account for 55% of women's lives saved and 59% of children who would not become orphans. Pakistan's Lady Health Worker Programme provides an example of how a large-scale initiative can achieve notable increases in modern contraceptive use among rural women in a low-resource and socially conservative setting (Box 3.1, page 19).

Fulfilling unmet need is a cost-effective way to improve health

Meeting the need for modern family planning methods for all 818 million women in developing countries who want to avoid a pregnancy would cost, on average, $1.20 per year per capita (averaged across all people in the developing world), or $8 per year for every woman who practices modern contraception (averaged across all methods).[49] Specifically, it would cost

- $28 to avert an unintended pregnancy;
- $3,050 to save the life of a woman or newborn; and
- $62 to save a DALY (women and newborns combined).

The cost per DALY saved compares favorably with the cost of other widely accepted health interventions, such as antiretroviral therapy, BCG vaccination for tuberculosis and oral rehydration therapy (Table 3.2).[49–53] Family planning is considered a "best buy" in global health because of its relative cost-effectiveness.[31,54]

Chapter 4

Meeting the Need for Maternal and Newborn Health Services

Everywhere in the world, pregnancy and birth pose a risk to the life and health of women and newborns, regardless of whether a pregnancy was intended. The level of risk depends on a woman's health before she is pregnant, her living conditions and the care she receives during pregnancy and delivery. Antenatal care can prevent some pregnancy-related health complications, for example, by providing women with tetanus immunizations or malaria drugs if needed; these services can also help identify conditions, such as hypertension, that may require special care around the time of delivery. To ensure that childbirth is as safe as possible for mothers and their newborns, health professionals are needed to provide routine care for uncomplicated births, as well as to monitor possible complications and, if necessary, either treat the problem or refer the woman or newborn to a facility that can provide care for such complications.

It is difficult to differentiate the contribution of each component of maternal and newborn health care to achieving healthy outcomes, but research suggests that linkages among the components are crucial and that the entire package is important.[55] For example, receiving antenatal care increases the chances that a woman will deliver at a health facility and obtain emergency care if she needs it. Timely care for complications of pregnancy and delivery that meets recommended standards* not only saves women's and infant's lives, but also protects their future health.[56]

This chapter presents new estimates of the costs and immediate health benefits of providing all pregnant women in the developing world with recommended maternal and newborn health care. The benefits for women include reducing pregnancy-related death and disability; for newborns, they include reducing death and disability from health conditions that arise around the time of birth.

The overall need for maternal and newborn care is large

In 2008, an estimated 186 million women in developing countries were pregnant, of whom

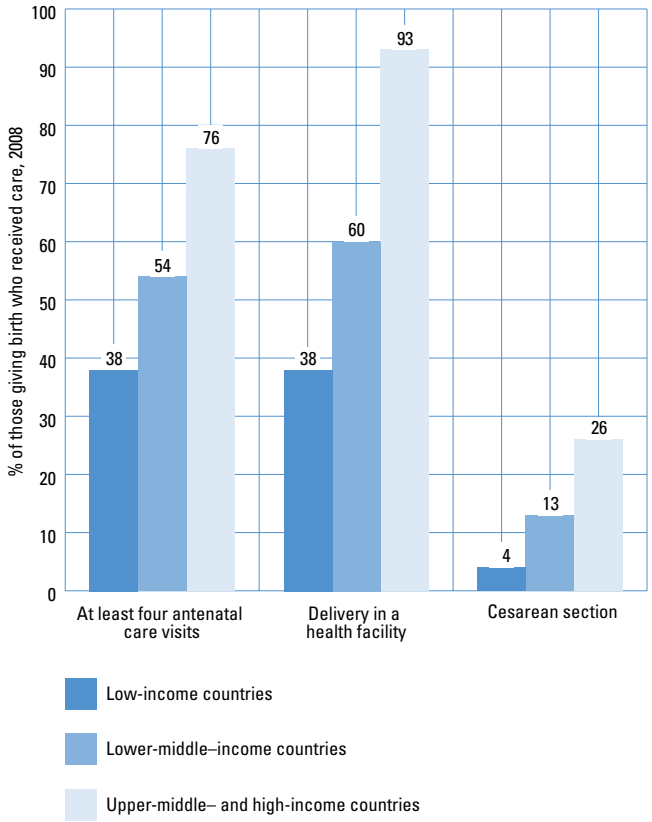
- 123 million gave birth (93 million had intended to conceive, and 30 million had unintended pregnancies), and all of these women needed routine antenatal, delivery and postpartum care and care for their newborns;
- 28 million had miscarriages (and some needed medical care as a result); and
- 35 million had induced abortions (including about 20 million who had unsafe abortions and 8.5 million who needed care for complications of unsafe procedures).[6]

However, many of these women did not get the medical care that they needed. There are major gaps in the availability, accessibility and content of maternal health

*The standard of care recommended by the World Health Organization forms the basis for our estimates and encompasses the provision of antenatal care (at least four antenatal visits, treatment of severe anemia, hypertensive disorders of pregnancy, and malaria prevention and treatment); normal delivery and postpartum care; emergency care; care for complications of pregnancy, delivery and the postpartum period (e.g., prelabor rupture of membranes, prolonged labor, antepartum and postpartum hemorrhage, puerperal sepsis, eclampsia and severe preeclampsia, postabortion complications, obstetric fistula, urinary tract infection and mastitis); and newborn care (routine care and treatment for complications such as sepsis and other infections, birth asphyxia and breathing difficulties, and low birth weight).

FIGURE 4.1

Women in poorer countries are much less likely to receive adequate maternal health care than women in better-off developing countries.



Note Estimates are for 2008 for all developing countries. See footnote on page 17 for definitions of country income levels.

Source Reference 49.

services in the developing world, and variations among regions, subregions and countries are large. These gaps in service provision reflect, in large part, weaknesses in health systems, including inadequate infrastructure and insufficient availability of skilled health personnel.[2] They also reflect, to some degree, economic, social, cultural and personal factors that constrain women's access to health care. For example, the lack of culturally appropriate care may affect use of services; many families may be unable to pay required charges for services at a health facility or costs of transportation to get there; some societies may place lower value on women's health than on men's, thus making the perceived cost of care too high; or a couple may not seek care for an unwanted pregnancy. In addition, having closely spaced pregnancies, becoming pregnant at a very young age or after age 35, being undernourished or having underlying health problems, such as anemia, malaria and other illnesses, makes it difficult for women to have healthy pregnancies, safe deliveries and healthy babies.

The adequacy of maternal care varies widely across the developing world

As discussed in Chapter 2, the care that women receive during pregnancy and delivery varies substantially among and within countries; wealthier, urban women are more likely than their poorer, rural counterparts to receive adequate care. Overall, an estimated 51% of women in developing countries who carry their pregnancies to term make four or more antenatal visits to a trained professional. But large differences can be seen by countries' level of income, reflecting wide variations in the adequacy of health systems. Thirty-eight percent of women giving birth in low-income countries made four or more antenatal care visits, compared with 76% in upper-middle– and high-income countries (Figure 4.1).[49]

Women are less likely to have antenatal care if they live in rural areas, are less educated, are aged 35 or older, or have had four or more children than if they live in urban areas, are younger and have had fewer children.[37] Older women who have had many children may perceive (incorrectly) that they do not need antenatal care. Within countries, the proportion of women making four or more antenatal visits ranges from an average of 43% among women in the poorest fifth of the population to 79% among women in the wealthiest fifth. These data show only levels of service use; they do not reveal service quality, which may also vary greatly.

Disparities in the use of health facilities for deliveries are even wider than differences in the use of antenatal care. Overall, 55% of deliveries in the developing world take place in health facilities;* the proportion ranges from 38% in low-income countries to 93% in upper-middle– and high-income developing countries.[49] Within countries, the disparities between poorer and better-off women are largest in Africa and Asia (Figure 2.3, page 11).[37] These two regions also have the lowest proportions of women delivering at a facility—46% in Africa and 55% in Asia (including China),† compared with 87% in Latin America and the Caribbean. However, regional averages conceal large differences among subregions in Asia and Africa (Table 4.1).

Emergency obstetric care, such as cesarean sections, which are needed when the baby cannot pass through the birth canal, can save mothers' and newborns' lives. Variations in the level of cesarean deliveries by national income and by region are among the widest of any maternal health service. In many countries, the proportion of deliveries performed by cesarean section is lower than the level that the World Health Organization

*Women are more likely to receive skilled assistance and the full range of interventions needed if they deliver in a health facility than if they do so at home; however, some health facilities in poor or remote areas may lack medically trained health professionals.

†When China is excluded, the proportion for Asia drops to 46%.

‡Our estimates assume that 10% of women would need cesarean deliveries (the midpoint of the WHO's range) in countries with proportions below this.

(WHO) estimates is likely to be needed (5–15);‡[57] in other countries, the prevalence of cesarean deliveries is well above that level because many of the procedures are elective. In developing countries overall, fewer than one-third as many rural women as urban women have cesarean sections (5% vs. 17%),[37] and 4% of women in low-income developing countries receive this service, compared with 26% in upper-middle– and high-income developing countries.[49] Within countries, differences in the receipt of cesarean-section deliveries are similarly wide between women in the poorest and richest quintiles.[37] Cesarean section is less accessible to the poorest women than is facility-based delivery, because the facilities that are available to them may lack health workers who are trained to perform this lifesaving surgery.

Tens of millions of women in the developing world have an unmet need for maternal health care, in spite of the progress made over several decades of efforts to make pregnancy safer. Indeed, roughly half of women needing antenatal and facility-based delivery care, and 75% or more of those needing care for obstetric complications, do not receive it. The estimated total numbers of women who did not receive key components of needed pregnancy-related care in 2008 include

- 60 million who made fewer than the recommended minimum of four antenatal visits to a trained provider;
- 55 million who did not receive facility-based delivery care;
- 4–6 million who did not receive needed care for each of the four major obstetric complications; and
- three million who needed and were unable to obtain care after an unsafe abortion (Table 4.2).[49]

In addition, more than five million newborns in the developing world did not receive needed care for sepsis or other infections, and 11 million did not receive the care they needed for low birth weight. The highest levels of unmet need for maternal and newborn health care are in Sub-Saharan Africa, where maternal mortality is highest.[49]

TABLE 4.1

Of women who gave birth, percentage who received specific types of maternal health care, by region and their countries' World Bank income category, 2008

Region or income group	At least four antenatal care visits	Delivery in a health facility	Cesarean section
All developing countries	51	55	11
Africa	45	46	5
Sub-Saharan Africa	44	43	3
Eastern Africa	42	36	3
Middle Africa	45	61	3
Southern Africa	74	82	15
Western Africa	45	39	2
Northern Africa	46	67	13
Asia	49	55	11
East Asia (incl. China)	68	84	19
South Central	35	41	9
Southeast Asia	68	51	7
Oceania	77	46	8
Western Asia	51	72	12
Latin America and the Caribbean	79	87	31
Caribbean	79	73	23
Central America	71	81	32
South America	83	91	32
Country income category			
Low	38	38	4
Lower-middle	54	60	13
Upper-middle and high	76	93	26

Source Reference 49.

The costs of providing more and better services are substantial

Improving the quality and accessibility of maternal and newborn health care will require major improvements in health systems. Encouragingly, there is now widespread political recognition of the need for such changes, and a number of global, regional and national initiatives are under way to achieve these improvements within countries. However, the enormous challenges involved in strengthening weak health systems and the difficulty of maintaining commitment over the long term should not be underestimated.[58–60]

The current cost of providing maternal and newborn care is $8.7 billion for the developing world as a whole (Figure 4.2, page 24).[49] This cost reflects the fact that many women receive inadequate care or no care.[34,49]

Expanding maternal and newborn services so that all pregnant women receive the recommended standard of care would increase costs by $14.3 billion for a total of $23.0 billion—more than double the current cost.[49] The estimated cost to provide the average pregnant woman in the developing world with the recommended standard of maternal and newborn care is $123 per year: $43 for antenatal care; $75 for delivery, newborn and postpartum care; and $5 for postabortion care.

TABLE 4.2

Need for and receipt of maternal and newborn health care in the developing world by health intervention, 2008

Type of care	No. of women or newborns (in 000s)		
	Needed care	Received care	Did not receive care
For women			
Antenatal care (4+ visits)	122,710	62,330	60,390
Delivery in a facility	122,710	68,050	54,670
Care for major complications*			
Hemorrhage	5,510	1,370	4,130
Sepsis	7,170	1,740	5,430
Hypertension	6,830	1,600	5,230
Obstructed labor	7,570	1,810	5,760
Care for complications of unsafe abortion	8,500	5,300	3,200
For newborns			
Care for major complications*			
Sepsis/infection	12,270	6,800	5,470
Low birth weight	20,280	9,200	11,080
Asphyxia/breathing difficulties	3,680	1,640	2,040

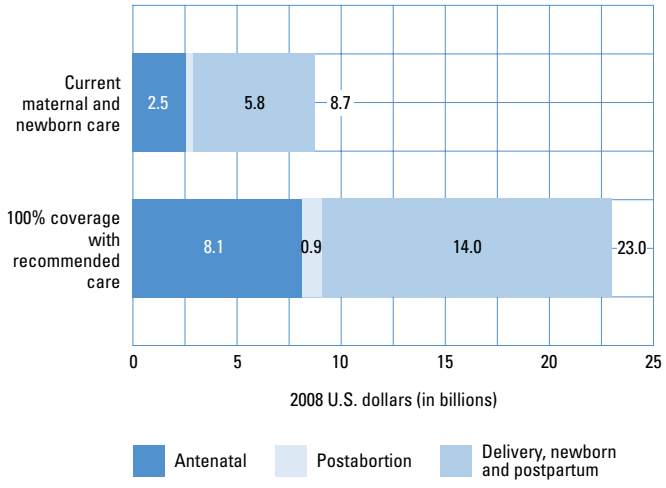
*Results are based on the proportions of women giving birth and newborns who experienced and received treatment for each of the listed complications (obtained largely from UNFPA's Reproductive Health Costing Tool).

Note Numbers may not add up to totals because of rounding.

Source Reference 49.

FIGURE 4.2

Increased funding is needed to improve maternal and newborn health care.



Notes Estimates are for 2008 for all developing countries. Costs include direct costs and the program and systems costs of supporting the services.

Source Reference 49.

Maternal and newborn care prevents needless deaths and disabilities

The current level of maternal and newborn care annually prevents

- 170,000 maternal deaths (Figure 4.3);*
- 550,000 newborn deaths;
- the loss of 13 million maternal DALYs (not shown); and
- the loss of 28 million newborn DALYs.[49]

Providing all pregnant women with recommended maternal and newborn health care would reduce the burden of death and disability even more, protecting the future health of more women and infants by lowering their risk of complications and providing care for complications to those who need it without delay. For example, enabling more women to deliver in sanitary conditions would reduce postpartum infections and sepsis, and increasing adequate management of labor and the availability of cesarean deliveries would help eliminate obstetric fistula.

Providing the recommended standards of maternal care to every pregnant woman would have a major impact:

- The number of maternal deaths would drop by 57% from the current level, to an estimated 240,000 per year;
- the number of newborn deaths would decline to 2.1 million;†
- the number of maternal DALYs lost would decline to 19 million (not shown); and
- the number of newborn DALYs lost would decline to 63 million.[49]

If the recommended package of maternal and newborn health care were provided to all pregnant women, it would cost $4.20 per capita per year.[49] The cost per birth would be $187, and saving a healthy year of life (for a woman or infant) would cost $122 in Asia, $248 in Sub-Saharan Africa and $320 in Latin America and the Caribbean.

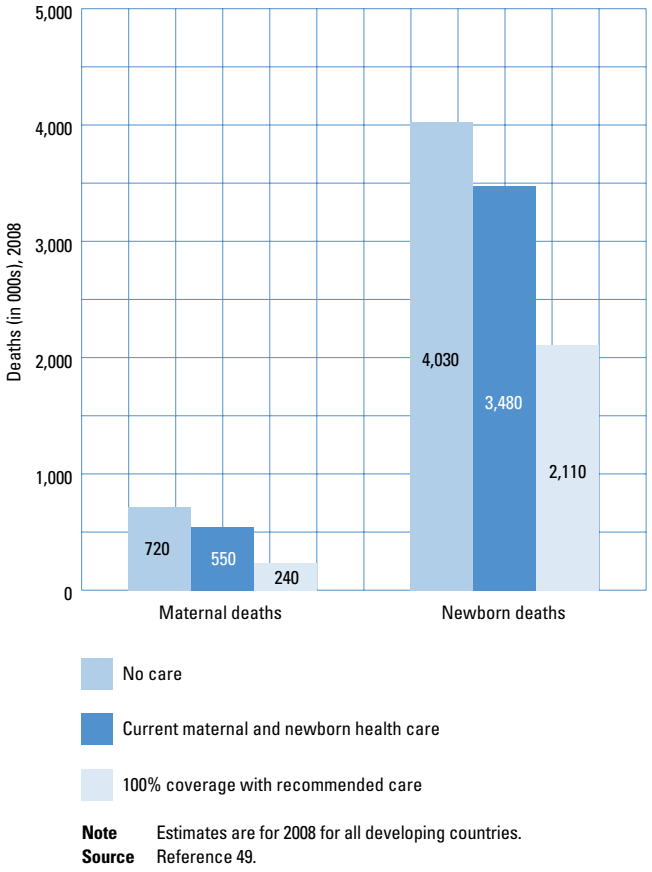
The cost of saving a DALY is averaged for infants and women because the total package of maternal and newborn care protects the health of both women and their infants, so the impact of these components of care is interrelated. The average cost to provide all women the recommended care is higher in Sub-Saharan Africa

*Maternal mortality ratios for 2005 (the most recent available) are assumed to remain constant and are applied to the population of women in 2008, yielding an estimate of 550,000 maternal deaths in 2008.

†Maternal and newborn deaths would not decline to developed-world levels because certain economic and social constraints would remain (poverty, poor transport, poor nutrition, low education and cultural influences); in addition, while implementation of the WHO standards of care that underlie these estimates would result in a huge improvement over current conditions, these standards are not equivalent to standards of health care provision in developed countries.

FIGURE 4.3

Increased levels of maternal and newborn health care lead to fewer deaths.



Note Estimates are for 2008 for all developing countries.
Source Reference 49.

than in other regions, because of the greater need in this region to improve service provision and to expand the capacity of the health infrastructure. Expenditures to improve provision of maternal and newborn services would have the additional benefit of contributing to increased provision of other health services by their overall strengthening of health systems. Such improvements are especially needed in Sub-Saharan Africa.[61]

Every component of the maternal and newborn care package—from the first antenatal visit to a postpartum visit for women six weeks after birth—is essential, even if each is not lifesaving on its own.[55,56,62] Women need to be educated about how to care for themselves and their babies; know the warning signs of complications and where to go for emergency care; receive routine antenatal care and treatment for complications of pregnancy and delivery; and be screened and treated for health conditions, such as hypertension, that are aggravated by pregnancy and childbirth. Ultimately, saving lives depends on a functioning health system with qualified personnel providing all communities with basic maternity services and linking them to an effective referral network for services that are not available locally.

Chapter 5

Investing in Both Family Planning and Maternal and Newborn Care

Women's needs for family planning services and maternal health care are closely linked, and therefore the costs and benefits of these services are also linked. This chapter discusses the costs and benefits of meeting women's needs for both types of care simultaneously.

Family planning and maternal health services should be viewed as interconnected parts of a continuum of care that supports women throughout their reproductive lives: At different times in their lives, most women need help to prevent unintended pregnancies and to have healthy and safe pregnancies. Effective contraceptive use reduces unintended pregnancies, enabling women and couples to have the births they desire when they consider the time best for themselves and their families; and timely and appropriate medical care is needed during any pregnancy, regardless of its outcome. After delivery, miscarriage or abortion, women need information and services to help them start or resume contraceptive use—to prevent future unintended pregnancies and to delay future births until a time that is healthier for the woman and her children.

Better timing and spacing of births can reduce complications related to pregnancy and delivery, and improve the health of women and their infants. Family planning services provided as part of postabortion and postpartum care, and contraceptive services linked with STI/HIV care are examples of integrated services that can be more effective in meeting women's health needs than standalone programs. In addition, providing care as part of an integrated package of essential services is easier for women and is generally more cost-effective than separate approaches.

Meeting contraceptive needs would reduce unintended pregnancy and related costs

As discussed in Chapter 3, if all women at risk of unintended pregnancy used modern contraceptives, the number of women with unintended pregnancies would decline from 75 million to 22 million in the developing world as a whole, and the number of unplanned births would decline from 30 million to about eight million.[49]

Reducing unintended pregnancies can make improvements in maternal health care more affordable. Providing medical care related to unintended pregnancies currently costs $2.5 billion (Figure 5.1).[49] However, some women do not receive care, and others receive care that does not meet the recommended standards. If the recommended care were provided to all women who have unplanned births or unsafe abortions, the cost of care for unintended pregnancies would increase to $6.9 billion.

But if all women wanting to avoid a pregnancy used modern contraceptives, the resulting decline in unintended pregnancies would reduce the cost of providing all of these women with the recommended standard of maternal and newborn care by $5.1 billion—from $6.9 billion to $1.8 billion.[49] Low-income countries would benefit to an even greater extent than other countries from this large cost saving: These countries would account for 56% of the $5.1 billion in savings, even though they are home to only about 23% of women of reproductive age.

As noted in Chapter 3, the cost of providing modern family planning methods to women with unmet need is an additional $3.6 billion.[49] That means that for each additional dollar spent to provide modern contraceptives, $1.40 would be saved in costs of medical care because fewer women would have unintended pregnancies.

Reducing unsafe abortions saves lives and decreases health care costs

While treating postabortion complications currently contributes only 4% of the costs of medical care related to pregnancy, complications from induced abortions account for 13% of maternal deaths and 20% of healthy years of life lost among women because of pregnancy-related conditions.[49] The high levels of abortion-related health complications reflect both the high levels of unintended pregnancy and the poor conditions under which many women have abortions.

If women's contraceptive needs were fully addressed (and assuming no changes in abortion laws), the reduction in unintended pregnancies would result in very large declines in abortions and related health complications.[49]

■ The number of induced abortions in the developing world would decline by 70%, from 35 million to 11 million.

■ The number of unsafe abortions would decline by 73%, from 20 million to 5.5 million.

■ The number of women needing medical care for complications from unsafe abortion would decline by 73%, from 8.5 million to 2.3 million.

■ Safe and legal abortions would decline by 66%, from 15 million to 5.1 million.

Reducing the number of abortions, particularly those that are unsafe, would have a large impact on various dimensions of the cost of health care services. The cost of providing postabortion care for the approximately 5.5 million women in the developing world who currently receive it is $370 million.[49] This amount would increase to $880 million if the approximately three million women who need and are not receiving postabortion care were to receive it. However, if all women at risk of unintended pregnancy used modern contraceptive methods, the resulting declines in unintended pregnancy and unsafe abortion would reduce the cost of postabortion care to about $230 million a year (and to $9 million if all abortions were safe).*

If modern contraceptive needs were fully met, the number of maternal deaths due to unsafe abortion would decline by 82%, from an estimated 70,000 to around 10,000, assuming all women who need postabortion care receive it, and assuming no change in abortion laws.[49]

Investing in both family planning and maternal and newborn health services is cost-effective

If all women with an unmet need for modern contraceptives were to receive them, the cost of family planning services would increase from $3.1 billion to $6.7 billion (Figure 5.1).[49] Adding this amount to the cost of providing the recommended package of maternal health care to all pregnant women would bring total costs to $24.6 billion for the developing world as a whole.

■ The cost of providing the recommended maternal and newborn care package would decline by $5.1 billion (as noted above), from $23.0 billion to $17.9 billion, because of the large decline in the number of unintended pregnancies.

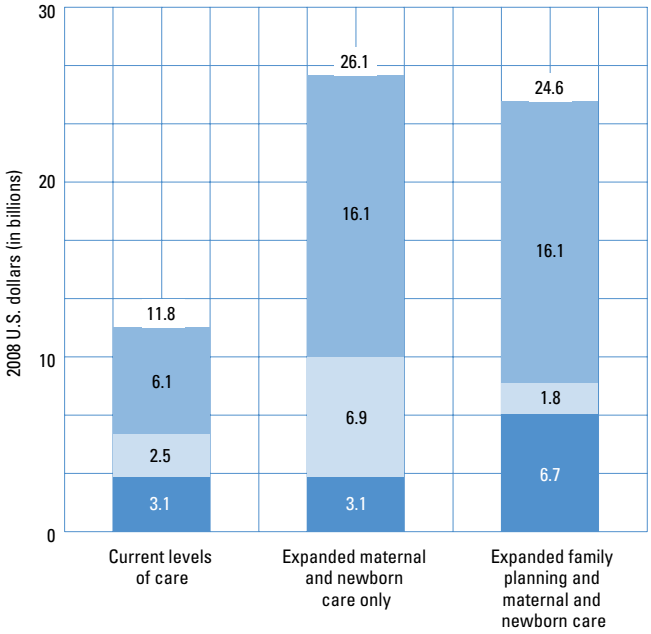
■ Providing both services simultaneously would reduce costs from $26.1 billion to $24.6 billion—a net saving of $1.5 billion, compared with investing in maternal and newborn care alone.

■ The cost of providing both services to all women in developing countries who need them would be equivalent to an average yearly cost of $4.50 per person ($3.30 for

*Our estimates assume that even when abortions are provided by trained personnel in hygienic and legal settings, 1% of women will experience complications.

FIGURE 5.1

Investments in family planning would help offset the cost of improved maternal and newborn health care.



Notes Estimates are for 2008 for all developing countries. A small proportion of the cost of care for unintended pregnancies is for postabortion care. Components may not may not add up to totals because of rounding. "Current levels of care" reflects no change in contraceptive use or maternal and newborn care. "Expanded maternal and newborn care only" reflects 100% coverage with recommended care and no change in contraceptive use. "Expanded family planning and maternal and newborn care" reflects 100% use of modern methods and 100% coverage with recommended maternal and newborn care.

Source Reference 49.

maternal and newborn care and $1.20 for contraceptive services).

■ The average cost of saving one healthy year of life (for a woman or a newborn) would be $96.

In the ideal situation, in which all women who want to avoid a pregnancy use modern family planning methods and all women giving birth receive the recommended standard of maternal and newborn care, the levels of deaths and disabilities averted would be far greater than would be the case if improvements were made in only one set of services. Providing women with both sets of services brings synergistic benefits: better timing and spacing of pregnancies, reduced risks of pregnancy complications, and improvements in the health of women and newborns.

■ Maternal deaths would decline by 70%, from the current annual level of 550,000 deaths to 160,000 per year, compared with a decline of 57% if developing countries invested in maternal and newborn health care alone (Figure 5.2).[49]

■ Newborn deaths would decline by 44%, from 3.5 million to 1.9 million, compared with a 39% decline from investing in maternal and newborn health care alone (not shown).

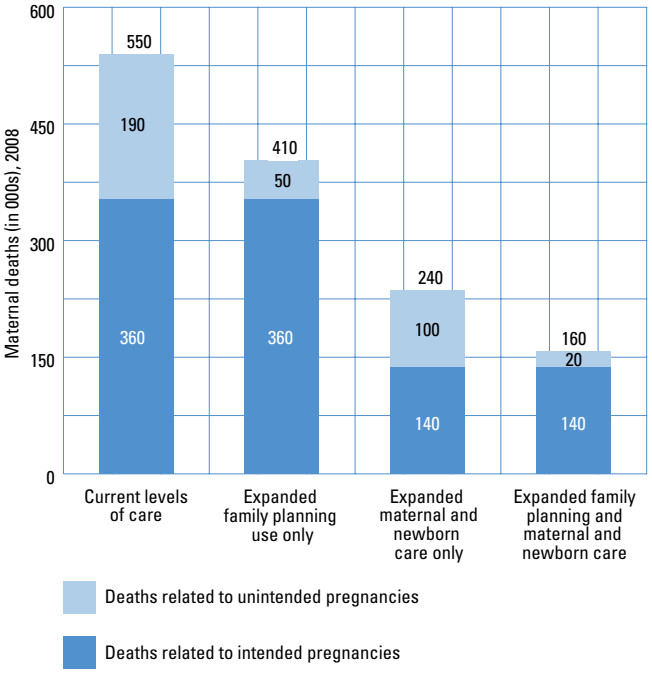
■ The current level of DALYs lost because of pregnancy-related illness and premature death among women would be reduced by 66%.

■ Sixty percent fewer healthy years of life would be lost among newborns.

The benefits of improved health from meeting women's needs for family planning and for maternal and newborn care would be greatest among those currently experiencing the highest levels of unintended pregnancy and

FIGURE 5.2

Fulfilling unmet need for family planning and maternal health care would save women's lives.

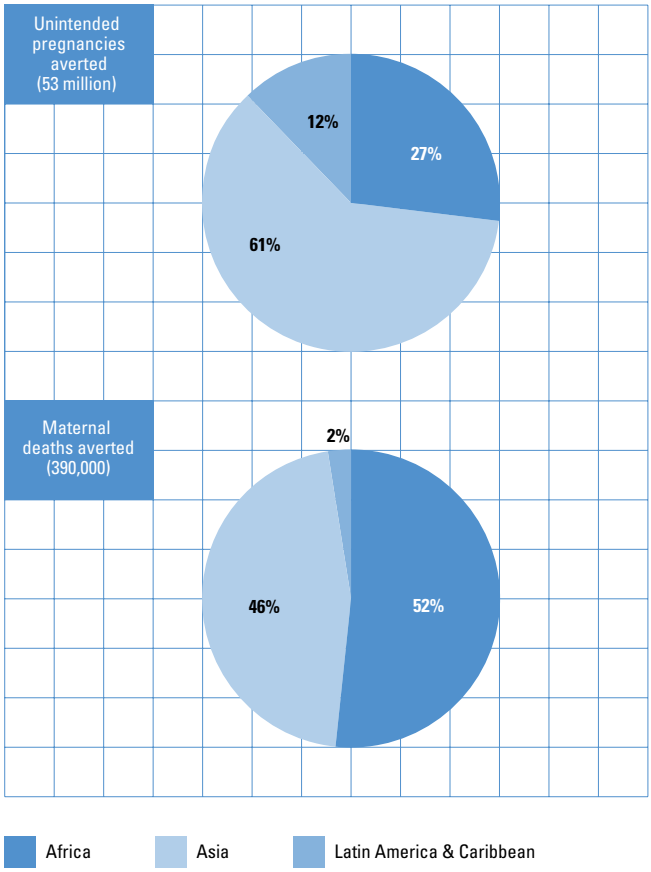


Notes Estimates are for 2008 for all developing countries. Components may not add up to totals because of rounding. "Current levels of care" reflects no change in contraceptive use or maternal and newborn care. "Expanded family planning use only" reflects 100% use of modern contraceptive methods and no change in maternal and newborn care. "Expanded maternal and newborn care only" reflects 100% coverage with recommended care and no change in contraceptive use. "Expanded family planning and maternal and newborn care" reflects 100% use of modern methods and 100% coverage with recommended maternal and newborn care.

Source Reference 49.

FIGURE 5.3

One in four unintended pregnancies and one in two maternal deaths averted by full use of modern family planning and maternal health care would be in Africa.



Notes Estimates are for 2008 for all developing countries. Unintended pregnancies and maternal deaths averted are the numbers that would be prevented with full modern family planning and maternal and newborn care compared with current 2008 levels.

Source Reference 49.

maternal and newborn mortality. These include women and newborns in low-income countries, as well as those who are poor in all countries. The 17% of all women aged 15–49 in developing countries who live in Africa would account for 27% of unintended pregnancies averted and—because of high maternal mortality rates—52% of all maternal deaths prevented (Figure 5.3).[49]

The use of modern contraceptives contributes in multiple ways to improving the health of mothers and infants. Timing births to avoid periods when women are at especially high risk—when they are adolescents, for example, or when they have other conditions that would endanger their health or that of their newborns—increases the likelihood that infants will survive. Spacing births is also beneficial: Infants have a much higher risk of dying if the interval between pregnancies is very short (less than 15 months) than if the interval is at least 36 months.[63] For example, babies born less than two years after the next oldest sibling are more than twice as likely to die in the first year as are those born after an interval of three years.[64] In addition, the risk of complications during pregnancy is significantly higher among women who have short birth intervals than among those who give birth at longer intervals.[65,66]

At the same time, maternal health care services can contribute to increased contraceptive use. For example, a substantial proportion of all unmet need for contraceptives is among postpartum women, who often underestimate their risk of pregnancy; thus, including family planning information (and services when appropriate) in maternal health care responds better to women's needs than offering the services separately.[31]

Recognizing the importance of offering these services together as part of universal primary health care, a number of developing countries have made family planning and maternal and newborn health care part of an essential package of care available to all citizens. Colombia, where these services are not only available but a guaranteed legal right, is one such example (Box 5.1). Rwanda, where reforms have improved family planning and maternal health services for a largely rural population, is another (Box 5.2).

Benefits extend to other areas of health

As demonstrated in this report, the medical benefits of family planning services and maternal and newborn health care are substantial. The services not only provide good value for money in terms of achieving health gains; they also save the health system money in other ways. The examples below illustrate ways in which family planning and maternal and newborn health services improve general health outcomes.

■ Family planning services and antenatal care can connect women with the health system, sometimes for the first time, making it more likely they will use health services to address pregnancy-related and other health complications when they arise.

Box 5.1 Making Health Care a Guaranteed Right in Colombia

In the early 1960s, in response to the alarming incidence of unsafe abortions, associated complications and maternal deaths, the Colombian government became receptive to civil society initiatives to promote family planning, in spite of religious opposition to planning pregnancies. Nongovernmental organizations (NGOs) began training health personnel in family planning, and delivery of services began in 1965. Several years later, the government adopted a national population policy that made family planning an integral part of maternal and child health care services in public health facilities.[1] In the decades that followed, the Ministry of Health and the progressive NGO Profamilia were the main providers of reproductive health services in Colombia. Together, they succeeded in increasing contraceptive use among married women aged 15–49 from about 20% in 1969 to 66% in 1990[2] and reducing the unmet need (defined here as using no method) to 11% in 1990.[3] The maternal mortality ratio fell from more than 240 maternal deaths per 100,000 live births in 1969 to an estimated 120 deaths per 100,000 live births around 1990.[4]

In 1991, the government adopted a new constitution, which recognized health and social security as basic rights for all.[5] This prompted sweeping health reforms, including the establishment of universal health insurance so that all Colombians would have access to health services.[6] Those unable to pay for coverage were offered a minimum package of basic health services that included family planning and maternal and child care.[7] Those who could afford to pay were required to purchase an insurance plan offering a more comprehensive benefits package.

By 2007, health insurance coverage reached 82% of the total population, making Colombia one of the few developing countries approaching universal coverage.[8] The result has been significantly improved access to health services and better health outcomes. Since the establishment of the health insurance system, unmet need for contraceptives has dropped to 6% and contraceptive use has increased to 78% among married women. The maternal mortality ratio declined from 120 to an estimated 68 per 100,000 live births between 1990 and 2005.[1,9] Nevertheless, inequities are still pronounced, and wealthier households enjoy considerably better health than poorer households. In response, Colombia's Constitutional Court ordered the government in 2008 to unify the benefits packages offered by the two insurance plans and guarantee universal coverage by 2010.[7] This ruling is expected to contribute to continued improvements in health in Colombia and the enjoyment of health as a right for all.

Box 5.2 Rwanda's Bold Health Service Reforms

Rwanda has increased the use of family planning and maternal and child health services by meeting the needs of women and families at the community level. The country has been in the forefront of health-sector reforms that rely on a decentralized health system, performance-based financing and community-provider partnerships to support high-quality and accessible health services.[1] Rwanda's current development plan and poverty reduction strategy for 2008–2012 place strong emphasis on reproductive health, including family planning.[2,3]

Following the 1994 genocide, which resulted in a devastating loss of health personnel and infrastructure, the government had to gradually rebuild the health system while responding to significant social and cultural obstacles. In 2001, the government initiated bold and innovative reforms, including starting community-managed health organizations that pooled funds for health care (a kind of health insurance), delivering health services through a decentralized structure (by province, district and sector) to bring services closer to communities[4] and requiring that district performance contracts be signed by the president of Rwanda and district mayors. The reforms established that grants to health facilities are conditional on meeting performance benchmarks and indicators. Interventions to improve maternal health include free institutional deliveries to women who participate in regular antenatal clinics, payment of traditional birth attendants that bring women to health centers and setting up additional health centers to bring services closer to people.

As a result of these and other reforms, Rwanda is back on track to meet the health-related MDGs. Between 2005 and 2008, the level of modern contraceptive use among married women increased from 10% to 27%; the proportion of births attended by skilled personnel rose from 39% to 52%; and infant mortality dropped by 35%, from 152 to 103 deaths per 1,000 live births.[5] The greatest mortality reductions occurred among the poor. Individuals now pay less for their health care than they did before the reforms, and incentive-based payments to health centers have increased the quality of the services provided.

■ Health system improvements that increase the capacity of facilities to respond to obstetric emergencies—such as by giving blood transfusions and anesthesia and having a functioning operating room for cesarean sections and other obstetric surgeries—can help improve responses to other health emergencies. More generally, these improvements will contribute to strengthening the overall provision of health care, thereby achieving wider health gains.[55]

■ Postpartum counseling can include referrals to well-baby programs, gynecologic care, services related to STIs and nonmedical services such as counseling on domestic abuse.[17]

■ Family planning services often promote condom use among clients at risk of STIs, including HIV. Lowering the incidence of these infections not only protects clients' health, but can lead to improved pregnancy and delivery outcomes for women and improved newborn and infant health.

■ Family planning services also help prevent mother-to-child transmission of HIV by reducing unintended pregnancies among women living with HIV.[67]

Linkages with other areas of sexual and reproductive health enhance synergies

The examples above demonstrate how family planning and maternal and newborn health care help to link women and their partners with other important components of sexual and reproductive health care. These services include care related to HIV and other STIs, preventive urologic and gynecologic care, care for reproductive cancers, infertility services and services to prevent gender-based violence. Maximizing such linkages was a central goal of the 1994 International Conference on Population Development. While the cost-effectiveness of linking or integrating specific services may vary from one setting to another, using these approaches to increase access to a full range of services responds to women's and men's health needs and promotes more efficient use of health resources.

In 2008, several international agencies conducted a systematic review of the linkages between HIV and other components of sexual and reproductive health. The report identified the best practices and optimal circumstances for linking various services, as well as the benefits for individuals and health systems.[68] For example, linking family planning and HIV counseling was considered beneficial and feasible in both family planning clinics and HIV counseling and testing centers.

Cost-effectiveness studies also suggested net savings from integrating HIV prevention into maternal and child health services.[68,69] For women who are living with HIV, therapy in pregnancy and at delivery can protect their health and prevent their infants from acquiring HIV. Continued treatment, care and support can further safeguard their own and their babies' health.

The review study found that linking HIV-related programs with other components of sexual and reproductive health produced a number of mutually reinforcing benefits, including

■ improved access to and uptake of key HIV and sexual and reproductive health services;

■ reduction in HIV-related stigma and discrimination, and better understanding and protection of individual rights;

■ improved coverage of vulnerable and underserved populations; and

■ decreased duplication of efforts and competition for resources, resulting in increased program efficiency and better use of scarce public resources.[68]

Chapter 6

Conclusion

Family planning and maternal and newborn health services have substantial, measurable impacts on the health of women and families, as this report has shown. These services save lives, improve long-term prospects for good health, and enhance individuals' and families' productivity and well-being. In addition, the services save money in at least two ways. First, when women postpone or avoid unintended pregnancies, fewer resources are needed to provide maternal and newborn health care and to manage complications of unsafe abortion. Second, when all pregnant women and their babies receive the recommended standard of maternal and newborn health care, complications that might incur high costs can be avoided or managed at lower cost.

Savings in medical costs and health benefits are greatest when family planning and maternal and newborn health services are available to all who need them. Planning pregnancies is essential for protecting women's health and that of their newborns, and good postpartum and postabortion services can help women plan their future pregnancies. Thus, the combination of services discussed in this report should be viewed as a part of the continuum of care that women need during their reproductive years and as essential components of a comprehensive package of sexual and reproductive health services.

Meeting the needs of women and newborns would lead to large health improvements

The use of modern family planning methods and maternal and newborn health care already contributes to lower rates of unintended pregnancy, unsafe abortion, and maternal and newborn death and disability. But all of these indicators remain too high in the developing world. Of the 186 million pregnancies that occurred in 2008, about two in five were unintended, and nearly half of these ended in abortions, many of which occurred under unsafe conditions (Chapters 3 and 4).[49] Among the women who carried their pregnancies to term, tens of millions received either no care or inadequate care during pregnancy and childbirth. And more than three in four women who needed care for obstetric complications in 2008 did not receive it (Table 4.2).

Fully addressing unmet need for modern contraceptives and ensuring that pregnant women and their newborns receive the recommended standards of care would have enormous benefits: Maternal deaths would plummet by 70% from current levels, and newborn deaths would fall by 44%; in addition, the number of years of healthy life lost because of maternal and newborn illness would drop by about two-thirds (Chapter 5).[49] Most countries would be able to meet the Millennium Development Goal (MDG) of reducing the maternal mortality ratio by three-fourths and would be farther along in achieving a two-thirds decline in infant and child mortality. In addition, greater investment in family planning and maternal and newborn services would help address weaknesses in health systems, making it easier to achieve other improvements.

Helping women and couples have healthy, wanted pregnancies helps achieve social and economic gains beyond the health sector, as well—through higher educational attainment, especially for women; higher labor productivity, including greater female labor force participation; and greater accumulation of household wealth through savings and investment, which helps to meet the MDG of reducing poverty. Environmental benefits also accrue for future generations when couples have smaller families, lowering population growth and related consumption of scarce natural resources.

…providing the necessary services to meet existing needs for family planning and maternal and newborn care simultaneously would require $24.6 billion… an additional $12.8 billion investment above current spending…

As noted in Figure B of The New Estimates, page 14, families with fewer children to support would be better able to provide their children (particularly girls) with an education, and young women who delay pregnancy would have greater potential than those who do not to continue their education and be economically productive. In addition, families who have access to quality contraceptive and maternal and newborn services would save time and resources that might otherwise be spent on caring for family members suffering from complications of pregnancy and childbirth. Healthy, productive families are the building blocks of national development. Planned pregnancies, healthy mothers and healthy newborns are the starting point.

The poorest countries and most vulnerable groups of women have the most to gain

Low-income countries, poor women and sexually active adolescent women have greater-than-average unmet need for the services described in this report and would therefore benefit greatly from additional investments. Reducing death and ill health among the poor would contribute immensely to meeting the MDGs.

For example, as shown in Chapter 3, the regions with the highest unmet need for modern family planning methods—Sub-Saharan Africa and South Central Asia—would see the greatest health and welfare gains from fulfilling that need. Sub-Saharan Africa accounts for only 9% of women wanting to avoid a pregnancy, but because of high maternal death rates in the region, it would account for more than one-half of women's lives saved by fully meeting the need for modern contraceptives.[49]

Sexually active adolescents, whether married or unmarried, are particularly vulnerable and consistently underserved because of their weak role in decision making and because of conservative social values. They would benefit greatly from expanded and improved services, especially for contraceptives. For example, 44% of married adolescent women in the developing world want to avoid pregnancy, but fewer than one-third of those who wish to do so are using a modern contraceptive method—a much lower proportion than among married women older than 20 who want to avoid a pregnancy.[49] Meeting adolescents' needs would break the cycle of having too many children too early in life, which poses health risks for young families and places stress on their meager resources.

Social and economic changes will increase the demand for services

Decision makers and program planners need to recognize that changes outside the service environment may further increase demand for sexual and reproductive health care. Changes that could dramatically increase the number of people seeking services include

- women's and couples' growing desire for smaller families, resulting from socioeconomic improvements, particularly improvements in women's education and employment;
- reduced stigma associated with contraceptive use among unmarried women, especially adolescents;
- increased recognition of the benefits of maternal and newborn health services, resulting from rising education and from improvements in the quality of services;
- increased support for women's role in decision making inside and outside the family; and
- greater male involvement in family planning and care during pregnancy and support for women's decisions to obtain contraceptive and maternity care.

Significant investments are needed now

As earlier chapters have shown, addressing current needs for effective family planning and providing all women and their babies with the recommended standards of maternal and newborn health care will require significant additional spending. The annual cost of providing modern contraceptives to all women in developing countries who need them (current users and women with unmet need) would be $6.7 billion (in 2008 U.S. dollars), and the cost of providing all pregnant women the recommended standards of maternal and newborn health care would be $17.9 billion, assuming that unmet need for modern contraceptives is effectively addressed.[49]

In sum, providing the necessary services to meet existing needs for family planning and maternal and newborn care simultaneously would require $24.6 billion (Figure 5.1). Thus, an additional $12.8 billion investment above current spending is required to meet these needs in the developing world as a whole.[49] As with current expenditures, the additional funds would come from multiple sources, but low-income countries are likely to require the greatest assistance from the international community to address health system weaknesses and provide services to people who have little means to pay for them.

Greater political and financial commitment is fundamental to improving health

Insufficient and unpredictable funding are key factors hindering improvements in the availability and quality of family planning services and maternal and newborn health care. While other constraints also exist and must be dealt with, the solutions will require substantial increases in resources and much stronger political support. Moreover, these solutions will require action at the national, regional and international levels. Weaknesses in

Box 6.1 Estimating the Resource Requirements for Reproductive Health

Several organizations and advocacy networks have estimated the resources required to meet the need for sexual and reproductive health services in developing countries. These include the United Nations Population Fund (UNFPA),[1] the Joint United Nations Programme on HIV/AIDS (UNAIDS),[2] Women Deliver,[3] the High Level Taskforce on Innovative International Financing for Health Systems[4] and Norway's Global Campaign for the Health MDGs.[5] The estimates vary in part because sexual and reproductive health services consist of many components, and each set of estimates may include a slightly different package. For instance, UNAIDS prepares estimates for the prevention, treatment and care of HIV/AIDS and other STIs, while other organizations have provided estimates of the need for family planning and other sexual and reproductive health services (some of which may include child health). Differences can also be explained by the following factors:

- which countries are included (varying from all developing countries to selected subsets of countries, such as the least developed ones);
- whether the estimates cover only direct service costs or include the indirect costs that support the services, such as infrastructure, management and training of personnel;
- whether the estimates include total costs or only the additional funds needed;
- the time frame included in the estimates;
- the costing methodology used; and
- the targeted level of coverage for services (i.e., what proportion of the population in need is covered by the estimated costs).[6]

The new cost estimates presented in this report and estimates published by UNFPA in 2009[1] are the two most comprehensive and recent estimates of the cost of meeting the unmet need for family planning and other sexual and reproductive health services in the developing world. They rely on similar costing methodologies and data sources. In addition, both are comprehensive, include not only the direct cost of providing services but also program and other health systems costs, and present estimates in 2008 U.S. dollars.

However, the two sets of estimates have some notable differences. The analysis in this report excludes some items and assumptions that the UNFPA family planning and maternal health estimates include: screening for and treatment of reproductive cancers, treatment of women currently suffering from obstetric fistula, provision of sexual and reproductive health care in humanitarian crises, condoms for a certain proportion of users of other modern methods, population growth and doubling of personnel salaries by 2015, and countries in transition (i.e., a subset of Southern and Eastern European countries). On the other hand, this report uses the United Nations Population Division definition of the developing world and therefore includes a few higher-income developing countries that UNFPA's estimates exclude. Another important difference is that this report estimates the cost of immediately meeting the need for contraceptive and maternal and newborn care, while UNFPA assumes a gradual increase in service coverage between 2009 and 2015.

In addition, this report's estimates assume that program and other health systems costs average 49% of total current expenses across regions and would average 69% for meeting all unmet need immediately (which, in practical terms, means in the very near future). These are equivalent to the 2008 and 2009 rates used for the UNFPA estimates and are consistent with the assumption that capacity must be expanded rapidly if all unmet need is to be met in the short term. When we removed components of the UNFPA estimates that are not included in those presented here, estimates for the current and full coverage scenarios were almost identical in both reports.

health systems that need to be addressed include insufficient physical capacity, weak contraceptive and medical commodity supply systems, poor financial management systems and too few trained health professionals. Nonsystem barriers also hinder improvements in health care, such as stigma among providers toward unmarried, sexually active young people, or toward women who have had unsafe abortions. Moreover, cultural and individual attitudes and behaviors can impede the use of sexual and reproductive health services and will require attention (in the form of increased health information and outreach) at the same time that health systems are strengthened.

As noted in Chapter 1, international donor assistance for family planning and maternal and newborn care has fallen short of needs. This is confirmed by estimates from many sources (Box 6.1). Thus, it is not surprising that developing-country governments are far from achieving MDG 5, reducing maternal deaths, and that most are falling behind the target for MDG 4, reducing child deaths.

Getting back on track to achieve MDGs 4 and 5 will require accelerated efforts at the international level, such as those led by the International Health Partnership and Health 4, and increased support for national processes as called for under the Paris Declaration and the Accra Agenda for Action. These agreements promote greater national ownership of programs, more effective and inclusive partnerships among all actors involved in development, and active monitoring and transparent assessment of results.

The new scientific evidence in this report strongly supports the argument for more vigorous international and national efforts to expand and improve essential health services for women and their newborns. Current levels of investment in family planning and maternal and newborn health care already yield substantial health and financial benefits. Investment of additional resources is justified because of the large gains it would generate in health and productivity, the millions of lives it would save, and the broad benefits that it would have for women, families and society. Action is needed urgently because despite the progress that has been achieved in the past, family planning efforts are failing to keep pace with the growing demand for effective contraceptives, and the result is unacceptably high levels of unintended pregnancies. Pregnancy-related care (including postabortion services) and newborn care has been tragically underfunded for decades, and the result has been millions of needless, entirely avoidable deaths and injuries.

The cost of meeting the need for both modern family planning and maternal and newborn health services is $4.50 per capita per year.[49] These services would save hundreds of thousands of women's lives each year and reduce the yearly number of newborn deaths by more than 1.5 million. This is good value for money and would provide an immediate return on investment, as well as incalculable health, social and economic benefits for years to come.

Data and Methods Appendix

Estimates of the costs and health benefits of contraceptive services and maternal and newborn care include all developing countries[1] and are based on the year 2008. Measures are computed for each country and summed to obtain results by region and by countries' income category, as defined by the World Bank. Where data are missing for a particular country, averages for its subregion or region, or data from a demographically or socioeconomically comparable country, are used.

Data Sources

Nationally representative surveys are the principal source of data on women's use of and need for health services. These surveys consist of Demographic and Health Surveys (DHS), U.S. Centers for Disease Control and Prevention Reproductive Health Surveys, UNICEF Multiple Indicator Cluster Surveys and other independent surveys. Population estimates of women aged 15–49 and of the annual number of births for each country are from the 2008 revision of *World Population Prospects*.[1] The analysis uses the most recent available estimates of maternal mortality and newborn mortality rates,[2–4] as well as distributions of maternal and newborn deaths and disability-adjusted life years (DALYs) by specific conditions.[5,6] Data on unsafe abortion were obtained from the World Health Organization (WHO)[3] and other sources, and estimates of receipt of postabortion care are from the Guttmacher Institute.[7]

Calculations of Pregnancies and Outcomes

The numbers, intention status and outcomes of pregnancies in each country are calculated using a number of sources. One key source is the most recent worldwide estimate of births (by intention status), abortions and miscarriages, developed for each subregion by the Guttmacher Institute for 2008.[7] Using the approach developed for a previous analysis,[8] we estimated for each developing country the proportions of women aged 15–49 currently using modern methods of contraception and those in need of effective contraceptives; we applied these proportions to United Nations estimates of the number of women aged 15–49 in each country in 2008[1] to estimate the number of women wanting to avoid pregnancy and using each method (or no method) for each country.

We estimated unintended pregnancy rates in each country, according to women's method use, marital status and desire to delay or stop childbearing, by applying 12-month use-failure rates for reversible methods*[9] and for sterilization[10] to these population estimates to obtain the number of unintended pregnancies for each country. The use-failure rates for each country, method and subgroup of women were adjusted so that each region's and subregion's total unintended pregnancies equaled the external estimates of total unintended pregnancies mentioned above.

Costs of Providing Family Planning and Maternal and Newborn Health Services

The direct costs of both of these service components are based on the Reproductive Health Costing Tool (RHCT), developed by the United Nations Population Fund (UNFPA), which recently used it to generate updated estimates of the financial resources needed to implement the International Conference on Population and Development Programme of Action.[11] UNFPA's estimates of indirect costs,[12,13] are the basis for systems costs (overhead costs for program management, supervision, health education, monitoring and evaluation, advocacy, human resources training, information systems, commodity supply systems, and capital costs for maintaining and expanding the physical capacity of health facilities). Total costs are calculated from the proportions of women currently receiving specific interventions and the proportions needing but not receiving them. All cost estimates presented in the report are in 2008 U.S. dollars. Estimates of the costs and benefits of services were developed for three scenarios:

- current use, which describes the current level of services in the most recent complete year, 2008;
- no use, a scenario in which no women receive services; and
- 100% of needs met, a scenario in which all women who need services obtain them.

Family planning services. In each scenario, the level of contraceptive use and method mix determine the number of unintended pregnancies that occur. Contraceptive use is analyzed separately for married, formerly married and never-married women,† and within these three groups, for those delaying or spacing pregnancies and those who want no more pregnancies. The data for all of these subgroups are then combined to provide national estimates. We assume that when unmet need is met, women will use the same mix of modern methods as do current users in their country with the same marital status and childbearing goals.

For each contraceptive method, the costs of the method itself and the medical supplies and labor needed to pro-

*Use-failure rates include pregnancies that occur because of inconsistent and incorrect use, as well as failure of the method itself. Initial failure rates were adjusted by comparing total unintended pregnancies (births, abortions and miscarriages) estimated from external sources and total unintended pregnancies estimated on the basis of initial failure rates. Nonuse is considered a method category with its own failure rate.

†Married includes formally married women and women in a consensual or cohabiting union.

vide it were summed to arrive at an annual cost per user of protection against unwanted pregnancy.* Program and systems costs for current service provision and for full provision were added to estimate total service costs.

Maternal and newborn care. Compared with contraceptive services, maternal and newborn services are more complex and more difficult to define and measure. This analysis estimates the cost of the following set of interventions, taken from UNFPA's costing tool: antenatal care (routine care, treatment of severe anemia and hypertensive disorders of pregnancy, and malaria prevention and treatment); delivery care (routine care, as well as emergency prereferral care, assisted delivery, cesarean section, and care for prelabor rupture of membranes, prolonged labor, hemorrhage, puerperal sepsis and eclampsia); postpartum care; postabortion care; treatment for complications related to delivery (obstetric fistula, urinary tract infections and mastitis); and newborn care (routine care and treatment for complications, including sepsis, birth asphyxia and breathing difficulties, and low birth weight).†

For each intervention component, we used the costs of drugs, supplies and materials, labor and hospitalization to arrive at a cost per client. We combined estimated proportions of pregnant women and newborns needing specific care components and the proportions of women receiving them with the component-specific costs to estimate total maternal and newborn care costs in each scenario. Proportions of pregnant women needing and obtaining various care components were taken from the costing tool—which draws on a variety of sources, including WHO estimates—and from other sources (see Data Sources, above). Program and systems costs for current service provision and for full provision were added to estimate total service costs.

Benefits of Providing Family Planning and Maternal and Newborn Services

Benefits of meeting the need for contraceptive services. For each scenario, we estimate direct health benefits that result from that pattern of contraceptive use. The benefits that are quantified include the number of unintended pregnancies prevented (calculated as unplanned births, miscarriages and abortions), the number of maternal deaths averted, the number of newborn deaths averted, the number of DALYs saved and the number of children who would not lose mothers because of maternal mortality. The current situation (in terms of both costs and benefits) is compared with the two other scenarios. The difference between the scenario in which no one uses contraceptives and the current scenario provides a measure of the costs and benefits accruing from the current pattern of contraceptive use. The difference between the current scenario and the scenario in which all women who want to prevent unintended pregnancies are using modern methods provides a measure of the costs and benefits that would result from fulfilling unmet need for contraceptive services.

Benefits of meeting the need for maternal and newborn care. Estimating the benefits of maternal and newborn care is difficult because few studies have examined the issue. Most existing studies provide estimates of the impact of specific interventions in isolation.[14,15] We took condition-specific effectiveness rates of improvements in maternal and newborn care in reducing maternal and newborn deaths and DALYs, which are estimated by the World Bank's Disease Control Priorities Project and based on a thorough review and synthesis of empirical literature.[16] We used these rates, country-specific maternal and newborn mortality and DALYs (by cause), and proportions of women and newborns needing and receiving cause-specific treatment to estimate cause-specific mortality rates and ratios, according to whether women and newborns received needed medical care. The benefits that are quantified include the number of maternal deaths averted, the number of newborn deaths averted and the number of DALYs averted. The current situation (in terms of both costs and benefits) is compared with the other two scenarios. The difference between the scenario in which no pregnant woman receives maternal and newborn services and the current scenario provides a measure of the benefits accruing from the current provision of these services. The difference between the current scenario and the scenario in which all pregnant women receive needed maternal and newborn care provides a measure of the benefits that would result from providing universal coverage for these services.

Key Limitations

Estimates presented in this report do not address the possibility that unmet need for family planning may increase over time: They take into account only the costs and benefits of meeting current levels of unmet need. They also do not include adjustments for potential decreases in contraceptive use-failure rates or changes in method use patterns that may occur from improved access and from additional information, education and support of users, or from the introduction of new methods.

Estimates presented here may not include the full cost of improving the quality of services. For example, the estimates may not adequately account for the cost of additional counseling for users who have side effects from contraceptive use or difficulty using methods. They do not take into account the possibility of higher costs of services for special groups of users (e.g., women with complications of HIV infection and young women who may need more counseling time). Indirect costs (i.e., health systems and program costs) make up more than half of the total cost of services and include health education, outreach and advocacy, but these elements are difficult to measure.

*The methods included in our analysis are pills, IUDs, injectables, implants, condoms, male and female sterilization, and other supply methods. Estimates presented here assume that traditional methods (periodic abstinence, withdrawal and other nonsupply methods) have no costs associated with their use.

†Adequate antenatal care coverage was defined as making at least four antenatal visits to health clinics. Adequate delivery coverage was defined as delivering at a health facility.

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