PROGRESS FOR CHILDREN

A Report Card on Maternal Mortality

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CONTENTS

MATERNAL MORTALITY AND THE MDGS

Each year, more than half a million women die from pregnancy-related causes and an estimated 10 million experience injuries, infections, disease or disability that can cause lifelong suffering.

Most of these deaths and disabilities are avoidable. Where deliveries are overseen by skilled health personnel with access to emergency obstetric care, and where women receive adequate nutrition and basic health-care services, the risk of maternal death is less.

This edition of *Progress for Children*, the seventh in the series that monitors progress towards the Millennium Development Goals, measures the world's performance on maternal health, with a particular focus on maternal mortality. It details progress in maternal health and highlights areas where improvements are needed.

Globally, the maternal mortality ratio improved by an estimated 5.4 per cent between 1990 and 2005 – a reduction from 430 maternal deaths per 100,000 live births to 400. In the developing world, increases in coverage of skilled attendance during delivery and antenatal care are bases for further reductions.

However, in the developing world, the risk of death from complications relating to pregnancy and childbirth over the course of a woman's lifetime is one in 76, compared with one in 8,000 in the industrialized world. In Niger that risk is estimated to be one in seven.

Progress made so far is not sufficient to ensure the achievement of the MDG target of reducing the maternal mortality ratio by three quarters between 1990 and 2015. To achieve the target, maternal health must be addressed as part of a continuum of care that connects essential maternal, newborn and child health packages.

Interventions must be scaled up, so that essential care can be provided throughout pregnancy and childbirth and during the post-natal period.

Behind the maternal mortality statistics in this report are more than half a million personal tragedies. But the improvements in maternal health the report recommends will have an impact far beyond the lives of women under threat. That impact will be felt by their children and families, and by their communities and nations.

Ann M. Veneman
Executive Director, UNICEF

MATERNAL MORTALITY: Neglected for too long

Maternal mortality is one of the world's most neglected problems, and progress on reducing the maternal mortality ratio (MMR) has been far too slow. The issue was given prominence in Millennium Development Goal 5, to improve maternal health, with one of its boldest targets the reduction of the MMR by three quarters between 1990 and 2015. The international community agreed to address the issue of maternal mortality, and that focusing on maternal health would have an obvious and significant impact. This has proved to be far from easy.

At the present rate of progress, the world will fall well short of the target for maternal mortality reduction. There is much uncertainty around the data, but they suggest that to reach the target, the global MMR would have had to be reduced by an average 5.5 per cent a year between 1990 and 2015. The current average rate of reduction is less than 1 per cent a year.

Globally, more than 500,000 women die each year because of complications related to pregnancy and childbirth. Almost half of these women are in sub-Saharan Africa. But the 0.1 per cent annual rate of reduction in this region, where the problem is most acute, is slower than in any other region.

There is no mystery about why most of these women are dying. They are dying because they have no access or limited access to health care, or because the quality of care is poor. They die due to haemorrhage, sepsis, hypertensive disorders, unsafe abortion and prolonged or obstructed labour – complications that can often be effectively treated in a health system that provides skilled personnel facilities to handle emergencies when they occur and post-partum care. A woman's health and nutritional status, including HIV and anaemia, underlie these causes, along with societal factors such as poverty, inequity, women's low status and attitudes towards women and their needs.

There are clear linkages between improvements in maternal health and other MDGs. The costs associated with poor maternal health are often a cause of impoverishment; improved maternal health can reduce poverty (MDG 1) by saving families from the often devastating economic consequences of a mother's death or disability. Skilled care for mothers during birth and immediately following will

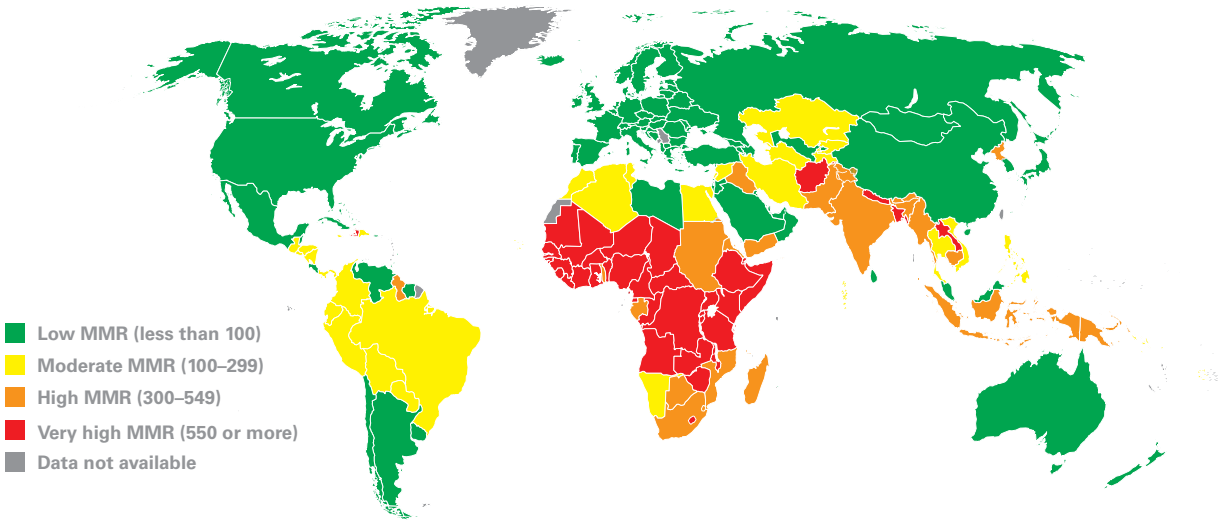
Millennium Development Goal 5: Improve maternal health

Targets	Indicators
5.A Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio	5.1 Maternal mortality ratio
	5.2 Proportion of births attended by skilled health personnel
5.B Achieve, by 2015, universal access to reproductive health	5.3 Contraceptive prevalence rate
	5.4 Adolescent birth rate
	5.5 Antenatal care coverage (at least one visit and at least four visits)
	5.6 Unmet need for family planning

Progress on reducing maternal mortality has been far too slow and must now be accelerated

Maternal mortality is highest in countries of sub-Saharan Africa and South Asia

Maternal mortality ratios (MMR) per 100,000 live births (2005)



Source: WHO, UNICEF, UNFPA and World Bank; for details, see <www.childinfo.org>.

Note: This map and all maps in this publication are stylized and not to scale. They do not reflect a position by UNICEF on the legal status of any country or territory or the delimitation of any frontiers. The dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

improve child survival (MDG 4), both by protecting infants in the vulnerable neonatal period and by allowing more mothers to survive to care for their children. Access to reproductive health – the focus of MDG target 5.B – is also associated with poverty reduction and child survival. And effective maternity care services will make it possible to prevent and treat malaria in mothers and babies, as well as to prevent mother-to-child transmission of HIV (MDG 6).

The lack of progress on maternal health has implications for human development worldwide. The avoidable loss of each woman who dies from pregnancy- or birth-related causes is disheartening enough in itself, but the problem is much graver and more widespread than the death statistics show.

The impact on children is enormous. Evidence shows that infants whose mothers die within the first six weeks of their lives are more likely to die before reaching age two than infants whose mothers survive.[1] In addition, for every woman who dies in pregnancy or childbirth there are 20 who endure injury, infection, disease and disabilities, such as fistula, that cause lifelong suffering.[2] Sometimes these are so severe that women are effectively removed, or even barred, from the family and from playing a major role in maintaining and improving their children's health. These women, moreover, are lost to their families and communities while they are still young or in their prime, when their most productive years would still have been ahead of them.

That women in some regions of the world, primarily sub-Saharan Africa and South Asia, are still facing such high risks of dying during pregnancy and childbirth is an infringement of their rights. Article 12.2 of the Convention on the Elimination of All Forms of Discrimination against Women, which 185 countries have ratified to date, requires States Parties to "ensure to women appropriate services in connection with pregnancy, confinement and the post-natal period, granting free services where necessary, as well as adequate nutrition during pregnancy and lactation."

The causes of maternal mortality and morbidity are so clear – as are the means to combat them – that it is difficult to avoid the conclusion they have remained unaddressed for so long due to women's disadvantaged social, political and economic status in many societies.

Global overview

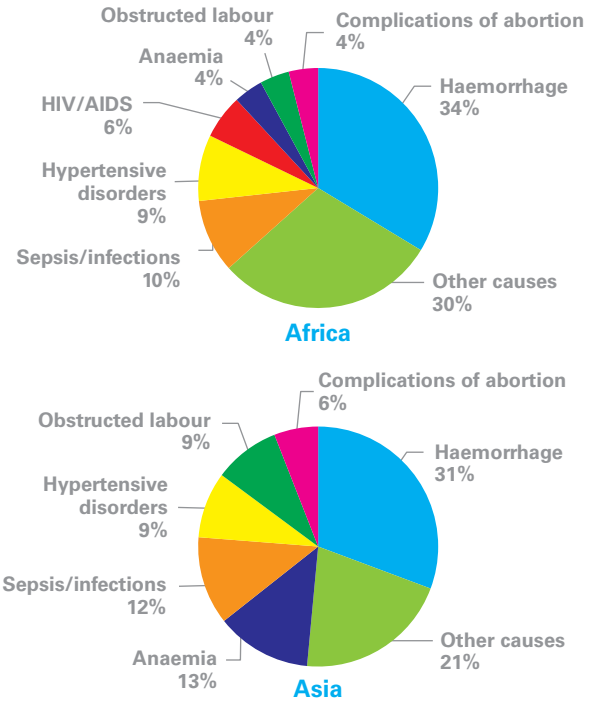
Of the estimated 536,000 maternal deaths worldwide in 2005, developing countries accounted for more than 99 per cent. About half of the maternal deaths (265,000) occurred in sub-Saharan Africa alone, with a third of them occurring in South Asia (187,000). Thus, sub-Saharan Africa and South Asia accounted for 84 per cent of global maternal deaths, with haemorrhage the leading cause of death in these regions. Moreover, just 10 countries account for almost two thirds of all maternal deaths. India has by far the largest single number, at 117,000, or 22 per cent of the global total.

Inevitably, the list of countries with the most maternal deaths is tilted towards those with the largest populations. But these are not necessarily the countries where women suffer the highest lifetime risk of maternal death. Lifetime risk is the probability that a woman will die from complications of pregnancy and childbirth over her lifetime; it takes into account both the maternal mortality ratio (probability of maternal death per childbirth) and the total fertility rate (probable number of births per woman during her reproductive years). Thus in a high-fertility setting a woman faces the risk of maternal death multiple times, and her lifetime risk of death will be higher than in a low-fertility setting.

The lifetime risk of maternal death in the developing world as a whole is 1 in 76, compared with 1 in 8,000 in the

Haemorrhage is the leading cause of maternal death in Africa and Asia

Causes of maternal death (1997–2002)

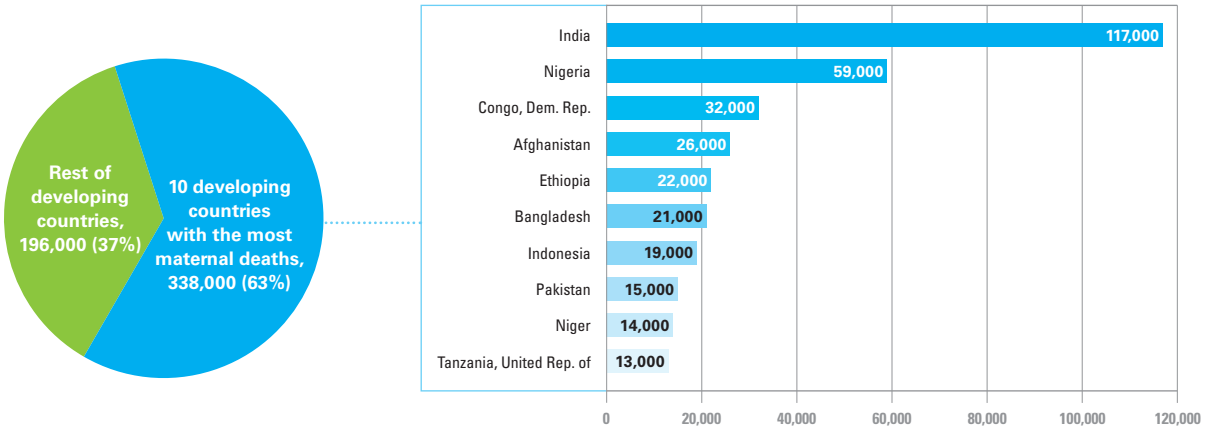


Note: Percentages in the charts do not total 100% because of rounding.

Source: Khan, Khalid S., et al., 'WHO Analysis of Causes of Maternal Death: A systematic review', *The Lancet*, vol. 367, p. 1069, 1 April 2006.

10 countries account for almost two thirds of all maternal deaths in the developing world

Estimated annual number of maternal deaths (2005)



Source: WHO, UNICEF, UNFPA and World Bank; for details, see <www.childinfo.org>.

industrialized world. This gap becomes a yawning chasm if the countries with the best and worst records are compared: In Ireland, where the MMR is 1 – the lowest in the world – women have a 1 in 47,600 lifetime risk of dying during pregnancy or from a birth-related cause, whereas women in Niger face a 1 in 7 lifetime risk.

Similar disparities emerge when progress between 1990 and 2005 is considered. Recent estimates suggest the world as a whole has reduced the maternal mortality ratio by 5.4 per cent, from 430 maternal deaths per 100,000 live births in 1990 to 400 in 2005 – appreciable progress, though not enough to keep pace with the MDG target for 2015.

This global summary also masks major differences in performance between regions. In sub-Saharan Africa, for example, there has been no appreciable progress. The 2005 estimate of 920 deaths per 100,000 live births in the region is lower than the 1990 estimate of 940, but due to the wide uncertainty bounds around the estimates, this may not represent statistically significant change *(see box, page 14)*. In this region in particular, some of the countries with very high MMR are countries affected by conflict, which increases the challenges of measurement. Given that the need for progress is greatest of all in sub-Saharan Africa, this lack of progress is of the utmost concern.

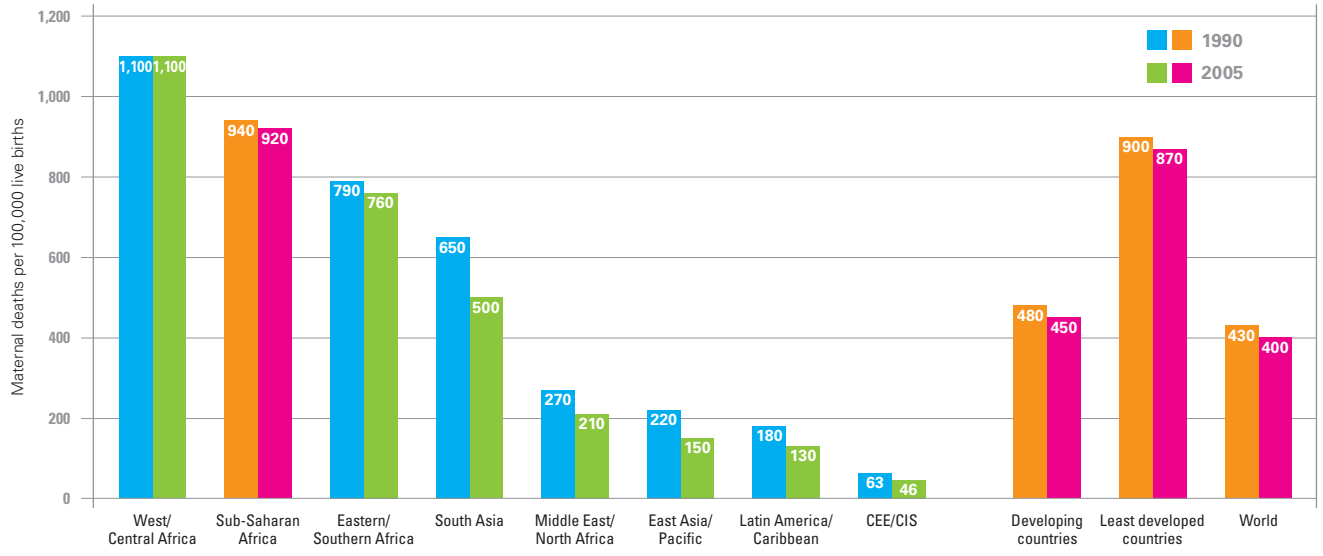
The evidence suggests that most regions outside sub-Saharan Africa are making at least some progress. The way forward is clearly established and supported by data and numerous studies. The goal needs to be a continuum of care for women and their children that includes nutrition, prevention of unplanned pregnancies and unsafe abortions, provision of high-quality pregnancy and delivery care, including emergency obstetric care, and post-partum care for mother and infant, with a functioning referral system linking the whole.

Maternal morbidity

For every woman who dies from a pregnancy-related cause, around 20 experience injury, infection, disease and disabilities – and so, an estimated 10 million women who survive their pregnancies experience such adverse outcomes.[3]

Varied progress in maternal mortality across regions

Trends in the maternal mortality ratio, by region (1990 and 2005)



Source: WHO, UNICEF, UNFPA and World Bank; for details, see <www.childinfo.org>.

In many developing countries these conditions are untreated and can result in lifelong pain and psychological suffering.

One such disabling condition is obstetric fistula, which occurs when the pressure of the baby's head during prolonged and obstructed labour restricts blood flow to areas of tissue within the birth canal; the tissue may die, causing holes to form in it during the period after birth. This results in uncontrollable leakage into the vagina from the bladder or the rectum, leaving the woman incontinent. Infection and nerve damage are among other complications of fistula. At least 75,000 women are estimated to develop fistula every year, and many go untreated. According to some estimates, at least 2 million women are now living with this debilitating condition.[4]

Millions of women suffer from anaemia and infertility due to complications of childbirth. Intrapartum and post-partum haemorrhage can cause severe anaemia, which contributes to chronic morbidity. Anaemia interacts with malaria to heighten vulnerability, adds to the risk of death in cases of haemorrhage and when severe can lead to cardiac failure in women. Infertility can result when pelvic inflammatory disease is untreated with antibiotics, and from unsafe abortion.

Maternal anaemia and undernutrition

It is estimated that around half the pregnant women in the world suffer from some form of anaemia, a common danger during pregnancy as the foetus absorbs the nutrients it needs for development. The condition can be exacerbated by infectious diseases, particularly malaria and intestinal parasites, and by low-quality diet. Anaemia is treatable during antenatal care, but iron supplementation programmes have not been very effective in many developing countries. Pregnant adolescents – who are more prone to the condition than older women – are at additional risk because they are often less likely to receive such care.[5]

Maternal undernutrition affects women's chances of surviving pregnancy, and the incidence of low birthweight in infants is higher among women who are underweight. A body-mass index of less than 18.5 kg/m^2 indicates chronic energy deficiency and is prevalent in many regions. Serious maternal undernutrition is common in sub-Saharan Africa, South Asia and South-East Asia, and is critical in Bangladesh, Eritrea and India.[6]

Malaria

Around 50 million pregnant women are exposed to malaria each year. In malaria-endemic areas, up to 25 per cent of severe maternal anaemia cases are attributable to malaria, as is nearly 20 per cent of low birthweight in babies. Malaria during pregnancy also increases the risk of stillbirth, spontaneous abortion, low birthweight and neonatal death.[7]

The use of insecticide-treated mosquito nets to prevent malaria is vital. The majority of sub-Saharan African countries with stable endemic malaria have introduced intermittent preventive treatment to pregnant women during the second and third trimesters to prevent anaemia and placental malaria infection at delivery.

HIV and AIDS

In 108 low- and middle-income countries, an estimated 1.5 million women living with HIV gave birth in 2006.[8] These women may be at higher risk than others of haemorrhage, sepsis and complications of Caesarean section, all causes of maternal death.[9]

Pregnant women and mothers who are living with HIV need access to antiretroviral prophylaxis for their survival and to reduce the risk of mother-to-child transmission. And in advanced stages of AIDS, some women need access to treatment for their own health and survival. It is estimated that 20–30 per cent of HIV-positive pregnant women are in need of a combination of antiretroviral drugs for their own health at the time of diagnosis.[10]

In 2007, an estimated 33 per cent of HIV-positive pregnant women in low- and middle-income countries received antiretroviral therapy to prevent transmission of HIV to their children, compared with only 10 per cent in 2004.[11]

Services to prevent unintended pregnancy can be facilitated as part of a comprehensive package of care for HIV-positive women that includes sexual and reproductive health services and voluntary and confidential testing and counselling for HIV.

A CONTINUUM OF CARE

Women are at an elevated risk of mortality and morbidity due to complications before, during and after birth, but high coverage of specific interventions can reduce that risk. Antenatal care, skilled attendance at birth, emergency obstetric care, post-partum care, contraception and family planning delivered across a continuum of care – beginning in pre-pregnancy and continuing through pregnancy, birth and the post-partum period – can have multiple benefits for both mother and child.

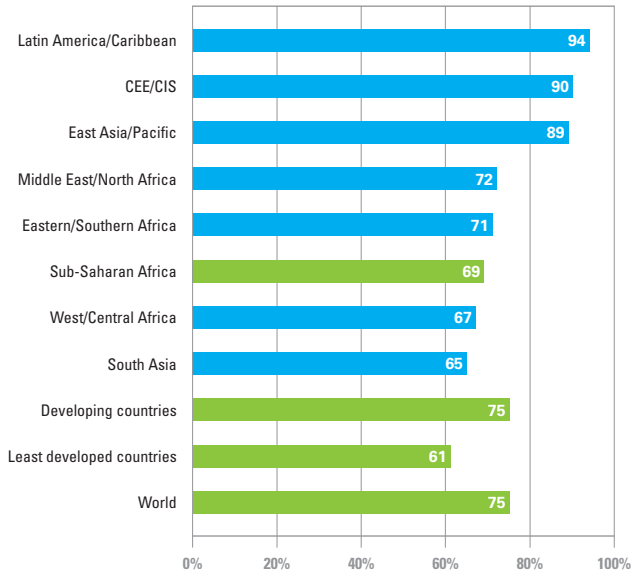
Antenatal care

The antenatal period is an important time for reaching women with interventions and information that foster their health, well-being and survival – and that of their infants. UNICEF, the United Nations Population Fund (UNFPA) and the World Health Organization (WHO) recommend a minimum of four antenatal care visits during pregnancy, the minimum needed to provide the most important services, which can include treatment of hypertension to prevent eclampsia, tetanus immunization, intermittent preventive treatment for malaria and distribution of insecticide-treated nets, prevention of mother-to-child transmission of HIV, micronutrient supplementation, and birth preparedness, including information about danger signs during pregnancy and childbirth.

Most of the available data relate to women who have benefited from antenatal care at least once. According to the latest estimates, 75 per cent of women in the developing world receive antenatal care from a skilled health provider at least once during pregnancy, up considerably from 60 per cent during the mid-1990s. Around 9 in 10 pregnant women are attended at least once in Latin America/Caribbean, Central and Eastern Europe and the Commonwealth of Independent States (CEE/CIS) and East Asia/Pacific. In the

Three quarters of women in the developing world receive some antenatal care

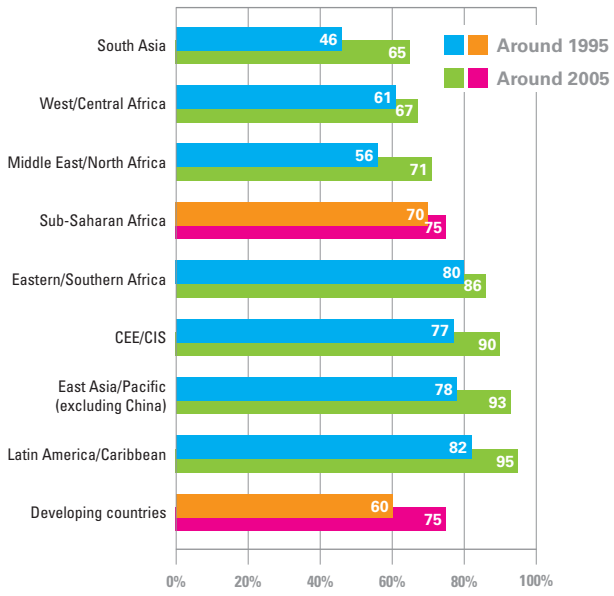
Percentage of women aged 15–49 receiving antenatal care at least once during pregnancy, by region (2000–2006)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

Coverage of antenatal care increased in all developing regions during the past decade

Trends in the percentage of women aged 15–49 receiving antenatal care at least once during pregnancy, by region, based on a subset of 67 countries with trend data (around 1995 and around 2005)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

Middle East/North Africa, 72 per cent of women receive antenatal care from a trained provider, followed by sub-Saharan Africa (69 per cent) and South Asia (65 per cent). South Asia has the lowest coverage overall but has made the fastest recent progress, improving its coverage by 19 percentage points since the mid-1990s.

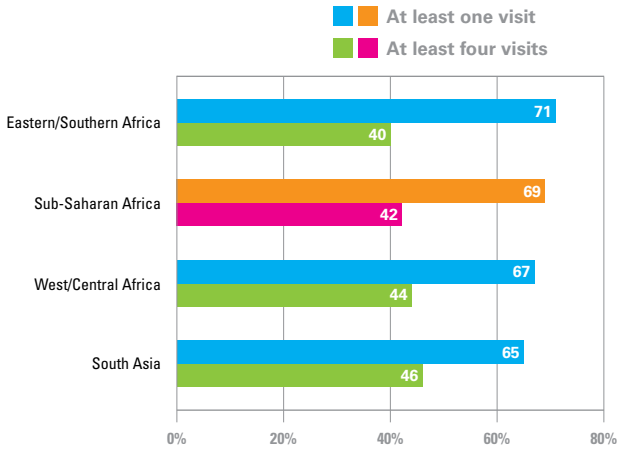
The countries with the lowest levels of coverage of at least one antenatal care visit during pregnancy are Afghanistan (16 per cent), Somalia (26 per cent), the Lao People's Democratic Republic (27 per cent) and Ethiopia (28 per cent) *(see table, pages 42–44)*.

Globally, only about half of all pregnant women benefit from the minimum recommended four antenatal visits. In a subset of sub-Saharan African countries with these data, 69 per cent of pregnant women received antenatal care at least once in 2000–2006, compared with 42 per cent who received it at least four times.

These antenatal care data do not reflect the quality of antenatal care, which is difficult to measure. Yet, it is essential to ensure the quality of antenatal care so that services provided contribute to improved maternal health.

Less than half of women in sub-Saharan Africa and South Asia benefit from the recommended four antenatal visits

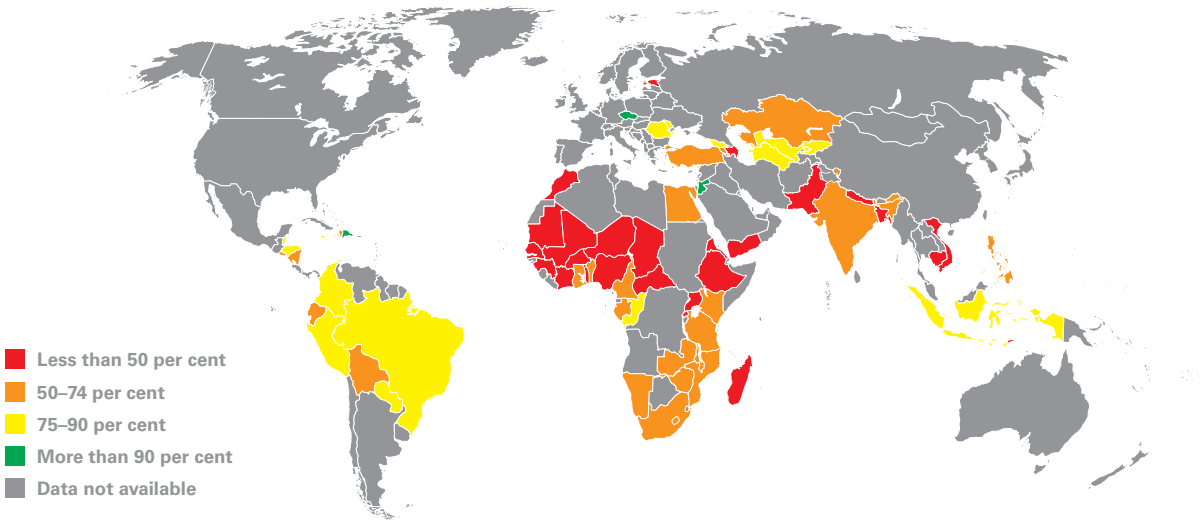
Percentage of women aged 15–49 receiving antenatal care at least once during pregnancy and the percentage receiving antenatal care at least four times (2000–2006)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

Coverage of four antenatal visits is insufficient across the developing world

Percentage of women aged 15–49 receiving antenatal care at least four times during pregnancy (2000–2006)



Source: DHS and other national household surveys; for details, see <www.childinfo.org>.

Skilled health personnel attending delivery

One of the most critical interventions to prevent maternal mortality and morbidity is to ensure that women receive appropriate care during delivery. All deliveries should be attended by personnel with the skills to handle typical deliveries safely and to recognize the onset of complications and either provide the necessary treatment if within their capacities or refer the woman to emergency care if treatment is beyond their capacities. When emergency-care referrals are needed, these skilled personnel must have access to a well-functioning health system.

Around 50 million births in the developing world, or about 4 in 10 of all births worldwide, are not attended by skilled health personnel. Sub-Saharan Africa and South Asia have the lowest levels of skilled birth attendance and bear the greatest burden of maternal mortality. In contrast, 95 per cent of deliveries in CEE/CIS countries are attended by skilled personnel.

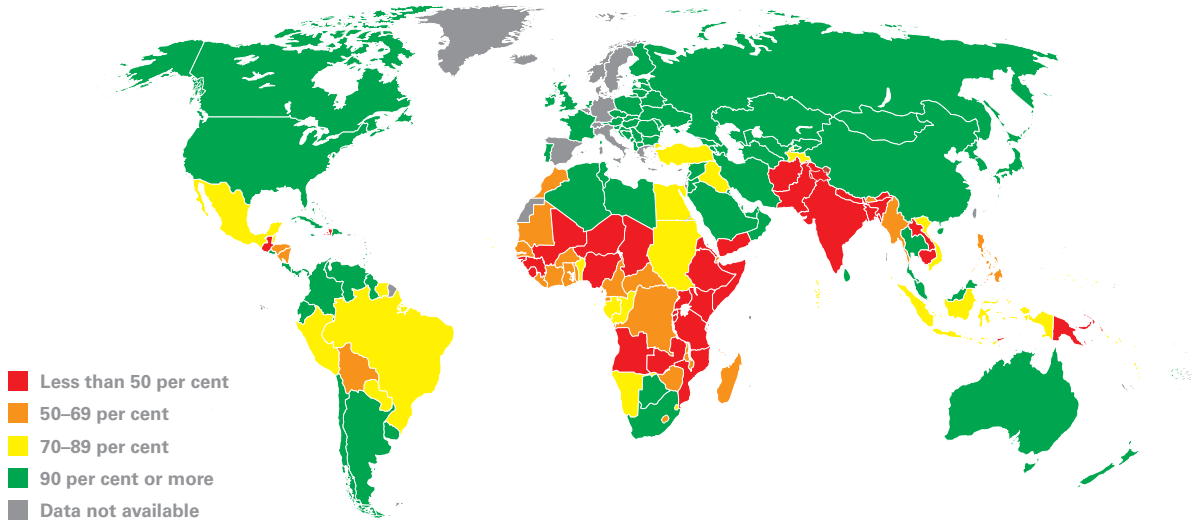
Except for Eastern/Southern Africa, all developing regions have increased their coverage of skilled delivery attendance during the past decade, with a particularly marked increase in the Middle East/North Africa, which improved from 55 per cent in 1995 to 74 per cent in 2005. Just 10 countries account for slightly more than two thirds of unattended deliveries worldwide, with India alone responsible for more than one quarter.

Worldwide, births in urban areas are twice as likely to be attended by skilled health personnel as births in rural areas. Among countries with data, there is also a significant difference between rich and poor: In the developing world as a whole, women from the poorest households who give birth are broadly half as likely to benefit from skilled delivery attendants as those from the richest households.

The quality of care provided by health personnel is crucial. Particularly when complications occur, skilled personnel need access to essential drugs, supplies, equipment and emergency obstetric care. They should receive training on required competencies. And they need supervision that helps ensure high standards of care, which is vitally important.

Rates of skilled delivery attendance in CEE/CIS are among the highest in the world

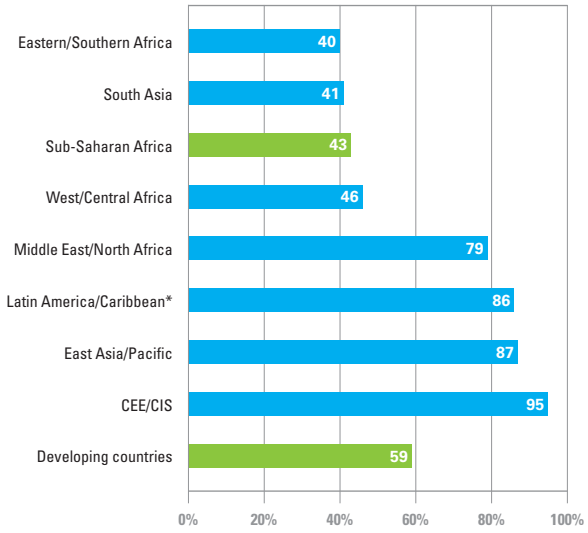
Percentage of births attended by skilled health personnel (2000–2006)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

Sub-Saharan Africa and South Asia lag behind other regions on coverage of skilled attendance at delivery

Percentage of births attended by skilled health personnel, by region (2000–2006)

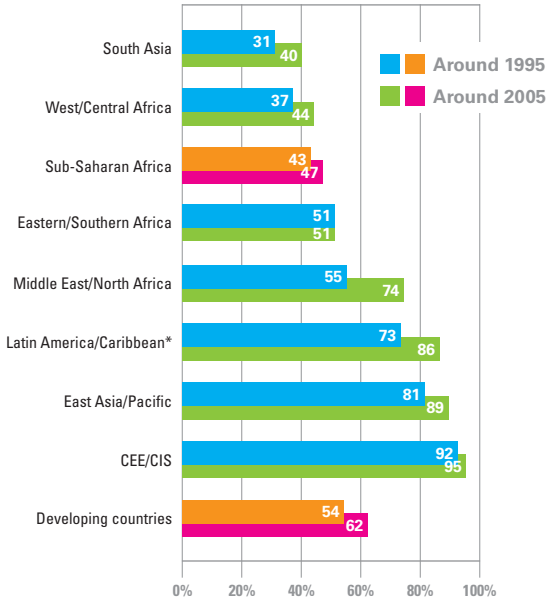


* Estimate for Latin America/Caribbean is based on institutional deliveries.

Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

In all regions, coverage of skilled delivery attendance increased during the past decade

Trends in the percentage of births attended by skilled health personnel, by region, based on a subset of 80 countries with trend data (around 1995 and around 2005)

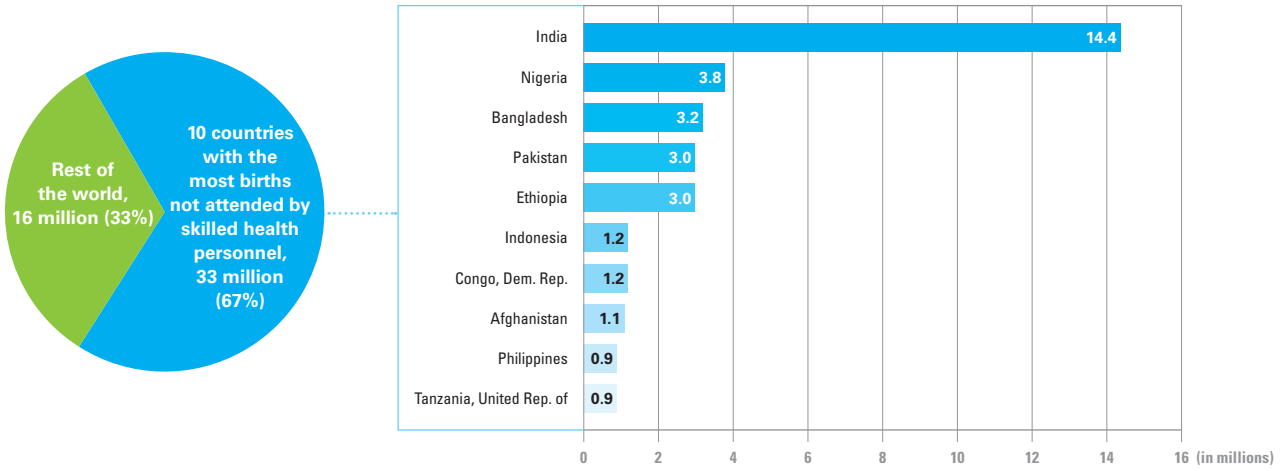


* Estimate for Latin America/Caribbean is based on institutional deliveries.

Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

10 countries account for two thirds of births not attended by skilled personnel

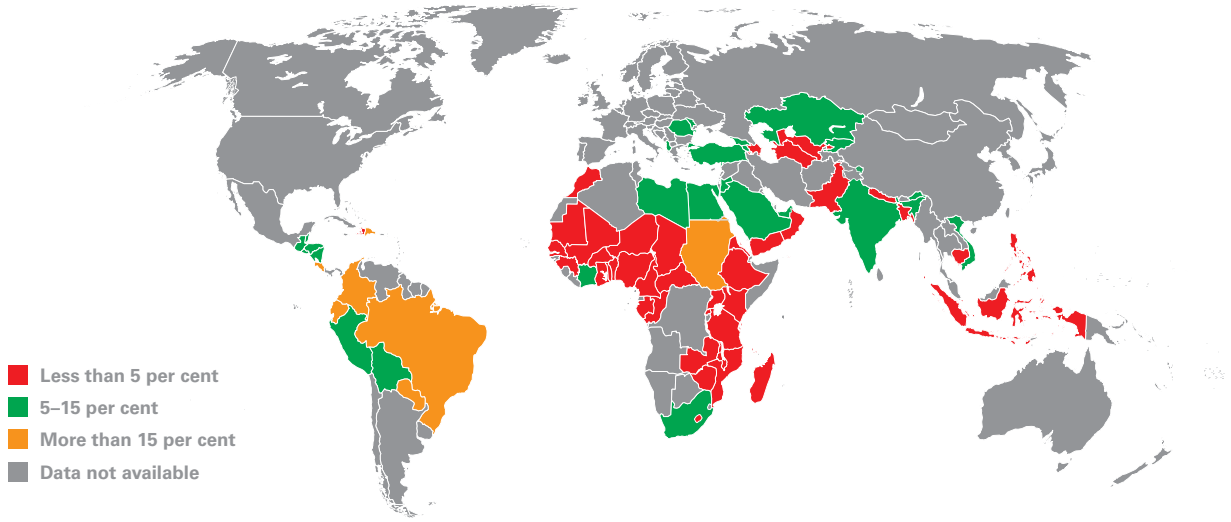
Estimated annual number of births not attended by skilled health personnel (2006)



Source: UNICEF analysis based on DHS, MICS, other national household surveys and United Nations Population Division data.

Caesarean section remains beyond many women's reach in rural areas of sub-Saharan Africa

Rate of Caesarean section in rural areas (2000–2006)



Source: DHS and other national household surveys.

Emergency obstetric care

When complications such as haemorrhage, sepsis and obstructed labour arise at birth, women need timely care in a clinic or hospital. A facility equipped to provide basic emergency obstetric care offers seven signal functions: the administration of parenteral antibiotics, oxytocic drugs and anticonvulsants; manual removal of the placenta; removal of retained products; assisted vaginal delivery; and neonatal resuscitation. A facility capable of comprehensive emergency obstetric care will be able to provide these seven signal functions as well as perform Caesarean sections and blood transfusions.

The 'met need' indicator measures use of emergency obstetric care services; 15 per cent of live births are expected to have complications requiring emergency obstetric care, and all women with complications should have access to such care. Assessments in several African countries find important gaps in coverage.[12]

One barrier to accessing emergency obstetric care is lack of facilities near rural communities. Access is also hindered by poor transportation and inadequate roads. Besides these geographic barriers, financial and cultural barriers are also likely to keep people from seeking emergency help. And it is vital that the facility have effective infrastructure, medical equipment and supplies, and qualified staff. A study in northern United Republic of Tanzania found the main barrier to access to be the poor quality of care in facilities, not a mother's lack of knowledge or her inability to reach a facility.[13]

Given that Caesarean sections may be necessary in 5–15 per cent of births, it is unlikely that an adequate level of emergency care is being offered in areas where rates for this procedure are less than 5 per cent. Caesarean section rates of more than 15 per cent have been associated with higher rates of maternal mortality and morbidity.

Post-partum care

The post-partum period continues for 42 days after birth and within that period most maternal deaths occur in the first week. Yet, data on post-partum maternal care are often unavailable, and post-natal visits had the lowest coverage among indicators within the continuum of maternal, newborn and child health care in 68 priority countries that are part of the Countdown to 2015 Initiative.[14] Even when mothers and babies receive immediate care, they are often neglected during the days and weeks that follow.

Because of cultural or traditional practices or lack of access, mothers do not always seek post-partum care, even if they have a potentially life-threatening condition, such as post-partum bleeding. Providers at the local health facility may not be able to assess the gravity of such maternal complications and provide treatment or timely referral. There is a clear need for greater emphasis on post-partum care, and for greater continuity and cooperation between those who supervise the delivery and the services that follow at the facility level and in the community.

Contraception and family planning

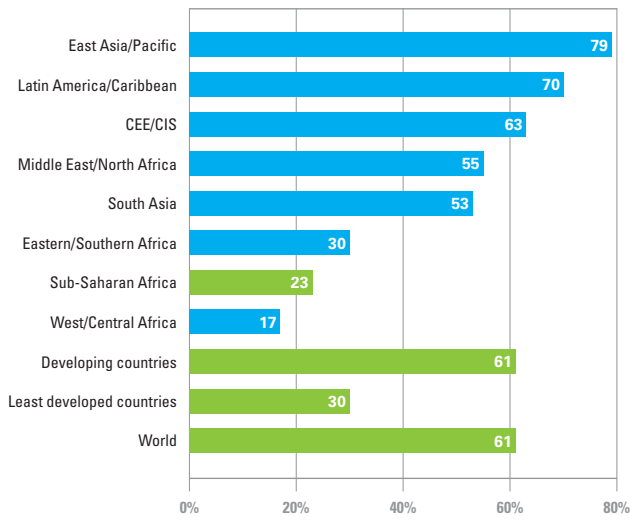
Reducing the number of unwanted pregnancies will also reduce the risk of maternal death over the course of a woman's reproductive years. One MDG indicator is the contraceptive prevalence rate, or the percentage of women aged 15–49 currently married or in union using a method of contraception.

The contraceptive prevalence rate is 61 per cent in the developing world as a whole and just 30 per cent in the least developed countries. In sub-Saharan Africa, only 23 per cent of women who are married or in union use any form of contraception; of the 11 countries in the world where fewer than 10 per cent of women aged 15–49 who are married or in union use a contraceptive method, all but 3 are in this region.

Access to effective contraception contributes to maternal health by averting disabilities and death; it is estimated that the promotion of family planning, in line with national policies, could prevent about one third of maternal deaths in countries where birth rates are high.[15] The data suggest that unwanted pregnancies carry a greater risk than those that are wanted, and that women with unwanted pregnancies are less likely to receive early antenatal care or give birth under medical supervision. In addition, spacing pregnancies by at least two years increases the chance of child survival. Moreover, contraception can prevent women from seeking unsafe abortions; it thereby contributes to reducing maternal death and disability.[16]

Contraceptive use is highest in East Asia/Pacific, lowest in sub-Saharan Africa

Percentage of women aged 15–49 married or in union using any method of contraception, by region (2000–2006)



Source: DHS, MICS and other national household surveys.

Contraceptive prevalence rate, 2000–2006

Percentage of women aged 15–49 married or in union using any method of contraception, by region (2000–2006)

Developing countries with the lowest prevalence (%)	
Chad	3
Sierra Leone	5
Angola	6
Solomon Islands	7
Sudan	7
Eritrea	8
Mali	8
Mauritania	8
Burundi	9
Djibouti	9
Guinea	9
Developing countries with the highest prevalence (%)	
Costa Rica	96
China	87
Bulgaria	86 x
Uruguay	84 x
Republic of Korea	81 x
Colombia	78
Brazil	77 x
Cuba	77
Thailand	77
Venezuela (Bolivarian Republic of)	77 x

x Data refer to years or periods other than those specified.

Source: DHS, MICS and other national household surveys.

A related MDG indicator is the 'unmet need' for contraception, which refers to women who do not want a child or who want to postpone their next pregnancy but are not using any contraception. Around 137 million women who want to space or limit their childbearing use no contraceptive method at all, while another 64 million use only traditional methods, such as withdrawal.[17] It is estimated that up to 100,000 maternal deaths could be avoided each year if the need for contraception was effectively met.[18]

RELATED ESTIMATES AND INDICATORS

Fertility rate

Worldwide in 2006, the total fertility rate – the number of children a woman would have during her lifetime if she were to experience current age-specific fertility rates throughout her reproductive years – was 2.6. This global figure disguises vast differences between regions, ranging from 5.3 in sub-Saharan Africa to 1.9 in East Asia/Pacific and 1.7 in CEE/CIS, both well below replacement levels.

Developing countries have even wider variations in total fertility rates, from 7.3 in Niger and 7.2 in Afghanistan to 1.2 in Belarus, Bosnia and Herzegovina, the Republic of Korea and Ukraine. High levels of fertility mean that women are more often exposed to the risk of maternal death. Countries with very high fertility rates tend to be among the least developed nations *(see table, pages 42–44)*.

Adolescent fertility

Adolescent childbearing, common in many parts of the world, carries particular risks. Younger adolescents may not be physiologically mature, and adolescents giving birth for the first time may lack essential information and access to health services and support. Each year, nearly 70,000 girls aged 15–19 die from pregnancy-related complications, which are responsible for most mortality for this age group. Mothers younger than 15 are at even greater risk, being five times as likely to die in childbirth as women in their twenties. Annually, an estimated 2.2 million to 4 million adolescents resort to unsafe abortion, which adds significantly to the number of deaths and permanent injuries.[19]

Fertility is high across most of the developing world

Total fertility rate* (2006)

Total fertility rate, by region (2006)	
Sub-Saharan Africa	5.3
Eastern/Southern Africa	5.0
West/Central Africa	5.6
Middle East/North Africa	3.1
South Asia	3.0
Latin America/Caribbean	2.4
Replacement fertility rate	2.1
East Asia/Pacific	1.9
CEE/CIS	1.7
Industrialized countries	1.7
Developing countries	2.8
Least developed countries	4.7
World	2.6

* Number of children who would be born per woman if she lived to the end of her childbearing years and bore children at each age in accordance with prevailing age-specific fertility rates.

Source: United Nations Population Division.

Adolescent fertility is high across sub-Saharan Africa

Annual number of births among females aged 15–19, per 1,000 females in that age group (2006)

Adolescent birth rate, by region (2006)	
Sub-Saharan Africa	126
Eastern/Southern Africa	106
West/Central Africa	146
Middle East/North Africa	34
South Asia	69
East Asia/Pacific	19
Latin America/Caribbean	78
CEE/CIS	31
Industrialized countries	23
Developing countries	58
Least developed countries	121
World	54

Source: United Nations Population Division.

Adolescent fertility is exceptionally high in sub-Saharan Africa. The 10 countries with the highest adolescent birth rates are found in this region, and the highest rates of all are found in the Democratic Republic of the Congo (225 births per 1,000 girls and young women aged 15–19), Liberia (221) and Niger (204).

Child marriage

Adolescent pregnancy and motherhood are a foreseeable consequence of early marriage and entail greater risks both for the mother, who may not have reached physical maturity, and her baby. UNICEF estimates that more than 60 million women aged 20–24 were married or in union before age 18 – around 34 per cent of all women in that age group in the developing world. Child marriage is most common in South Asia and sub-Saharan Africa. Among girls and women aged 20–24, 45 per cent were married before age 18 in South Asia, 40 per cent in sub-Saharan Africa and 26 per cent in Latin America/Caribbean.[20] Gender inequalities and discrimination lie at the root of child marriage. Birth registration, the establishment of minimum ages for marriage, and interventions designed to change community and social norms are important supportive measures to inhibit child marriage and, consequently, delay the age of first pregnancy.

Female genital mutilation/cutting (FGM/C)

FGM/C can have grave consequences during childbirth, including significantly increased risk of such adverse events as prolonged or obstructed labour and post-partum haemorrhage. Death rates are also higher for infants born to mothers who have undergone this harmful practice.[21] For both women and their babies, the dangers during childbirth increase significantly according to the severity of the mutilation suffered.[22] FGM/C is a reflection of gender inequality and discrimination, a form of violence against girls. UNICEF estimates that in 27 countries of Africa and the Middle East, 70 million girls and women aged 15–49 have undergone FGM/C.[23]

Education and women's empowerment

Statistics indicate that for each additional year of education achieved by 1,000 women, two maternal deaths will be prevented.[24] Research shows that maternal mortality is also reduced by better knowledge about health-care practices, expanded use of health services during pregnancy and birth, improved nutrition and increased spacing between births – all factors that are fostered by girls' education.[25] Women and girls are empowered when they have adequate knowledge about reproductive health, sexuality and HIV and AIDS, and can make decisions regarding these issues.

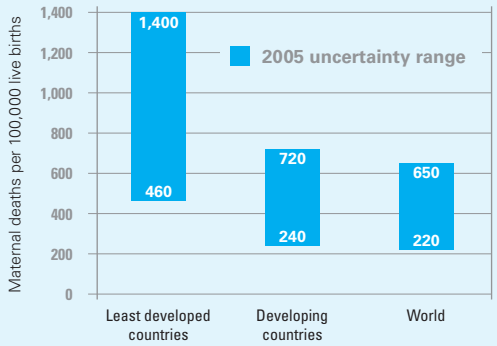
ABOUT THE DATA

Maternal mortality is very difficult to measure, and few developing countries know exactly how many women die in childbirth each year. To accurately categorize a death as maternal, information is needed on pregnancy status, cause of death and when the death occurred in relation to the termination of the pregnancy. This information may be missing, misclassified or under-reported even in industrialized countries with fully functioning vital registration systems, not to mention in developing countries facing the highest burden of maternal mortality. For example, the cause of death may be misclassified if pregnancy status is unknown or if a pre-existing condition was exacerbated by pregnancy or birth. There may also be a reluctance to report a death occurring as a result of an abortion.

Due to the measurement challenges, maternal mortality ratio estimates are always provided with a range of uncertainty. This highlights the fact that while these are the best estimates available, the 'real' MMR may be higher or lower than the one presented. Although this is true of any statistic, in the case of MMR the uncertainty is particularly high, so these data should be cautiously interpreted. For more information, see the box on page 45.

Wide range of statistical uncertainty makes it difficult to calculate trends in the maternal mortality ratio

Maternal mortality ratio uncertainty range (2005)



Source: WHO, UNICEF, UNFPA and World Bank; for details, see <www.childinfo.org>.

WEST AND CENTRAL AFRICA: Where mothers are most at risk

West/Central Africa accounts for more than 30 per cent of global maternal deaths, and 162,000 women died of pregnancy- or childbirth-related causes in 2005. The maternal mortality ratio is substantially higher here than in any other region, at 1,100 maternal deaths per 100,000 live births. Furthermore, no discernible progress has been made in reducing the ratio since 1990. Of the 23 countries in the region with comparable estimates, every country but Cape Verde has an MMR of at least 500, and a third of these countries have an MMR of 1,000 or greater.

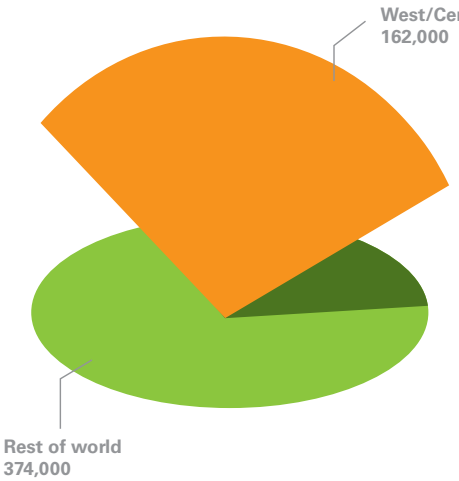
Almost two thirds of maternal deaths in the region occur in the Democratic Republic of the Congo, Niger and Nigeria – which together account for approximately 20 per cent of all maternal deaths worldwide.

West/Central Africa has the highest fertility rates in the world, with a total fertility rate of 5.6 and an average adolescent birth rate of 146 births per 1,000 girls and young women aged 15–19. In 17 countries, fewer than a fifth of women aged 15–49 who are married or in union are using some method of contraception. In addition, this region's levels of adult female literacy, an associated indicator, are among the lowest in the world.

High levels of fertility mean that women are more often exposed to the risk of maternal death. The lifetime risk of maternal death for women in this region averages 1 in 17; in Niger the lifetime risk is as high as 1 in 7, the worst in the world, and in Sierra Leone it is little better, at 1 in 8.

Only 46 per cent of women in the region who give birth are attended at delivery by skilled health personnel. Urban women are twice as likely as rural women to give birth with skilled health personnel in attendance, and in Chad they are eight times as likely. The disparities based on household

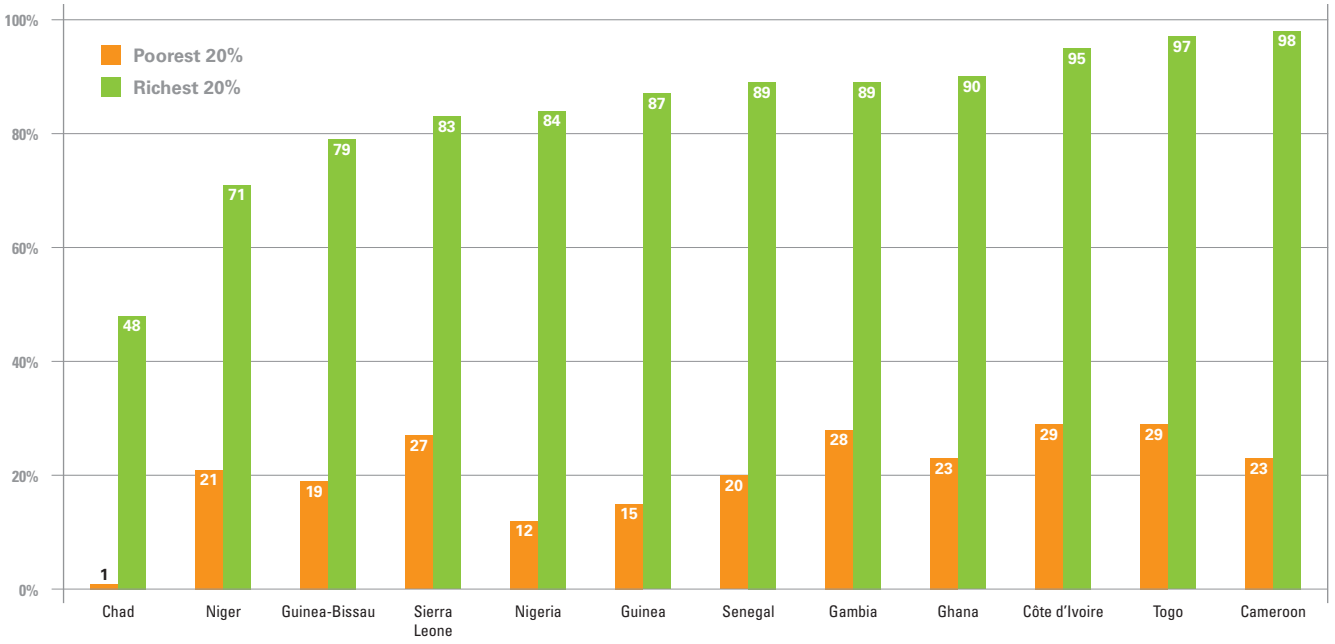
Estimated annual number of maternal deaths in West/Central Africa (2005)



Source: WHO, UNICEF, UNFPA and World Bank; for details, see <www.childinfo.org>.

Women from the poorest households are less likely to be attended by skilled health personnel at childbirth

Percentage of births attended by skilled health personnel, by household wealth quintile, in countries where the difference is at least 50 percentage points (2004–2006)



Source: DHS and MICS; for details, see <www.childinfo.org>.

wealth are even greater. In 16 countries with these data, women from the richest quintile are three and a half times as likely as those from the poorest to be attended by a skilled health professional. Again, the disparity is greatest in Chad, where only 1 per cent of the poorest women are attended, compared with 48 per cent of the wealthiest women.

There has been some progress during recent years, although it is not yet reflected in the overall maternal mortality ratio. The percentage of births attended by skilled personnel in the region as a whole increased from 37 per cent to 44 per cent over the 1995–2005 period, representing one of the largest regional improvements in coverage in the world. Benin, Burkina Faso, Côte d'Ivoire and Togo have made notable strides, increasing their coverage by at least 10 percentage points and currently reaching more than half of all births with skilled attendance.

The data suggest, however, that lack of access to emergency obstetric care remains a grave problem. In 15 of 16 countries with data, less than 5 per cent of rural women delivered via Caesarean section, indicating that this potentially life-saving procedure is still unavailable to many rural women.

According to recent data from Burkina Faso, Cameroon, Ghana and Niger, the majority of women who do not give birth in a clinic or hospital do not receive a post-partum check-up; even among the minority who do, less than half are seen during the 24 hours following delivery, the period when most complications occur.

Although 67 per cent of women in West/Central Africa receive antenatal care at least once, this average masks wide variations in coverage, from 39 per cent of women in Chad to 99 per cent in Cape Verde. Only 44 per cent of women in the

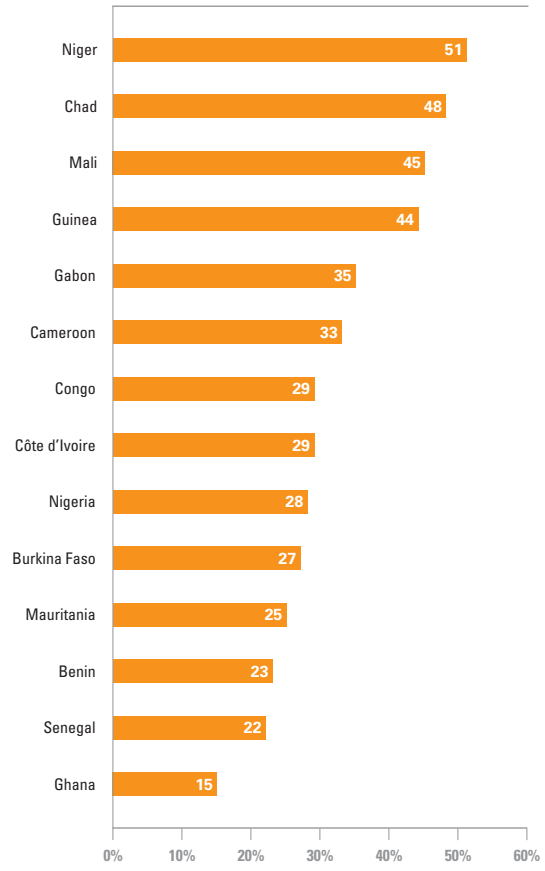
region receive antenatal care the recommended minimum of four times. The widest differential is in Burkina Faso, where 85 per cent of women are seen at least once, but only 18 per cent are seen four times or more.

Malaria is endemic in this region, and Africa as a whole is home to more than 60 per cent of the 50 million pregnant women who are exposed to malaria each year. In West/Central Africa, the percentage of pregnant women aged 15–49 who received intermittent preventive treatment against malaria during antenatal visits remains low. In countries reporting on this indicator through household surveys, coverage is less than 10 per cent, except in the Gambia (33 per cent), Ghana (27 per cent) and Togo (18 per cent).[26]

A 2007 survey found that at least five countries in the region – including Burkina Faso, the Congo, Ghana, Mali and Senegal – have adopted policies that include maternal death reviews as a means of improving the quality and accountability of maternal health care.[27]

High adolescent fertility means many young mothers are at high risk

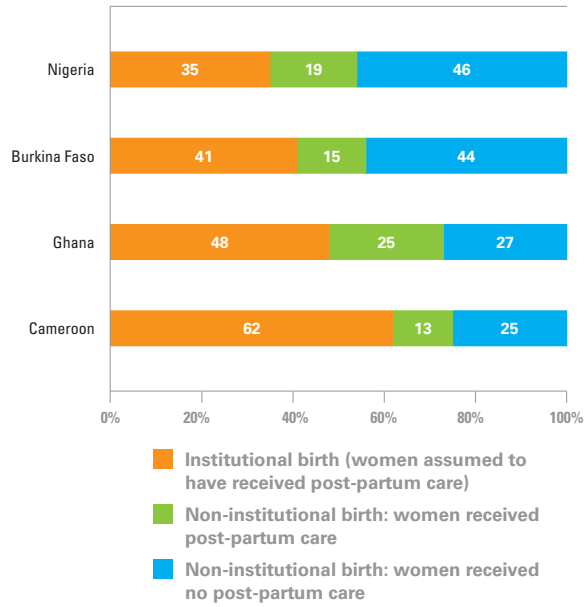
Percentage of women aged 20–24 who had given birth by age 18 (2000–2006)



Source: Selected Demographic and Health Surveys, <www.measuredhs.com>.

A substantial percentage of women receive no post-partum care

Percentage distribution of women aged 15–49 who gave birth by place of delivery, and post-partum care coverage where births took place outside a health facility (2003–2004)



Source: Fort, Alfredo L., et al., 'Post-partum Care: Levels and determinants in developing countries', *DHS Comparative Reports 15,* Macro International, Inc., Calverton (USA), December 2006, p. 11.

EASTERN AND SOUTHERN AFRICA: Minimal progress

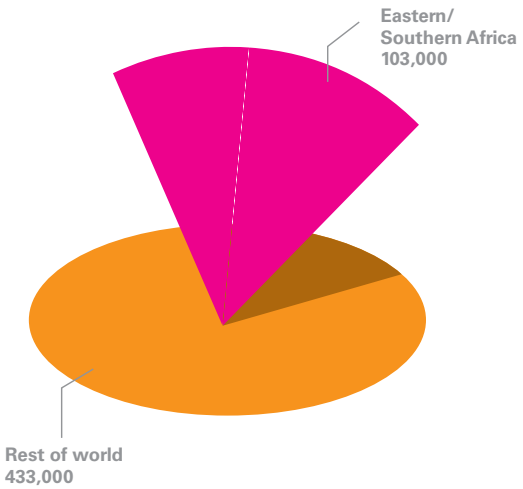
Eastern/Southern Africa accounts for one fifth of the world's maternal deaths and has the second highest maternal mortality ratio among all regions. Data suggest little change in MMR: 790 in 1990 versus 760 in 2005. In five of this region's countries the MMR is greater than 1,000: Angola and Somalia (both 1,400), Rwanda (1,300), Burundi and Malawi (both 1,100). Overall, the lifetime risk of maternal death is 1 in 29, and all but six countries in the region have lifetime risks that are greater than 1 in 50.

The highest lifetime risks are to women in Angola and Somalia (1 in 12), while Mauritius is unique in having a lifetime risk (1 in 3,300) that approaches the low end of the range in some industrialized countries. Lifetime risk combines the maternal mortality ratio and the total fertility rate; thus, the high levels of fertility in this region – a total fertility rate of 5.0 – contribute to the high lifetime risk of death.

Only 40 per cent of pregnant women in Eastern/Southern Africa as a whole deliver their babies with the assistance of a skilled professional, and there was no discernible increase in coverage between 1995 and 2005. Rwanda, South Africa and Swaziland have made recent progress. South Africa now has 92 per cent coverage, third in the region after Mauritius, with 98 per cent, and Botswana, with 94 per cent.

Women living in urban areas in the region overall are two and a half times as likely as women living in rural areas to have skilled health personnel in attendance during childbirth, with coverage rates of 73 per cent and 30 per cent, respectively.

Estimated annual number of maternal deaths in Eastern/Southern Africa (2005)

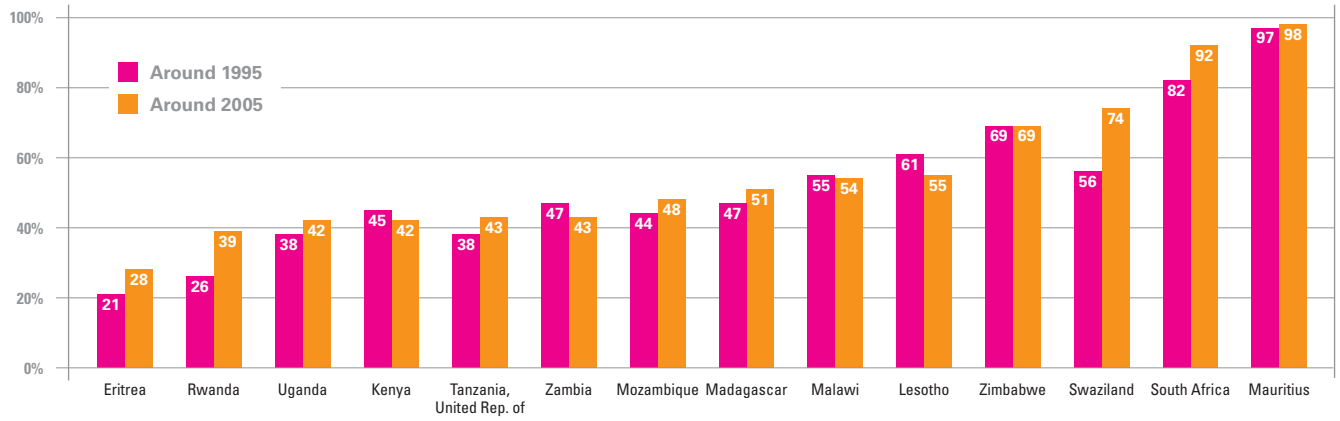


Source: WHO, UNICEF, UNFPA and World Bank; for details, see <www.childinfo.org>.

The region has the world's second-highest rates of maternal mortality and fertility

Several countries have improved coverage of skilled delivery attendance during the past decade

Trends in the percentage of births attended by skilled health personnel, in countries with comparable trend data (around 1995 and around 2005)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

Differentials by household wealth quintile are also large. Of the countries with these data, Eritrea, Kenya, Madagascar, Mozambique and Somalia have high coverage levels of more than 75 per cent for women from the richest fifth of households but low coverage for the poorest women, with the differential in Eritrea being a staggering 12 to 1.

South Africa is the only country of the region with a rural Caesarean-section rate of more than 5 per cent. This suggests that many rural women do not have access to emergency obstetric care. Recent facility surveys in Kenya and the United Republic of Tanzania show that emergency obstetric services are not available at the recommended levels and need to be expanded.[28]

Seventy-one per cent of women receive antenatal care at least once during their pregnancy. At least two thirds of women benefit from this basic level of antenatal care in every country but Ethiopia and Somalia, which are far behind, with coverage of only 28 per cent and 26 per cent, respectively. In most countries with available data, at least 40 per cent of all women receive the recommended minimum of four antenatal visits. In Rwanda, only 13 per cent of expecting women make four visits, although 94 per cent make at least one.

The total fertility rate, at 5.0, is the world's second highest, after West/Central Africa. There is considerable variation between countries, however, ranging from 1.9 in Mauritius to 6.8 in Burundi. Angola, Burundi, Rwanda, Somalia and Uganda have total fertility rates of 6.0 or more. The adolescent birth rate of 106 births per 1,000 girls and young women aged 15–19 is also second only to West/Central Africa.

Among women who are married or in union, 3 in 10 use a method of contraception. In Angola, Burundi and Eritrea fewer than 1 in 10 women are using contraception. Uganda has the highest unmet need for contraception, at 41 per cent, with most of these women stating that they wish to space their next birth.

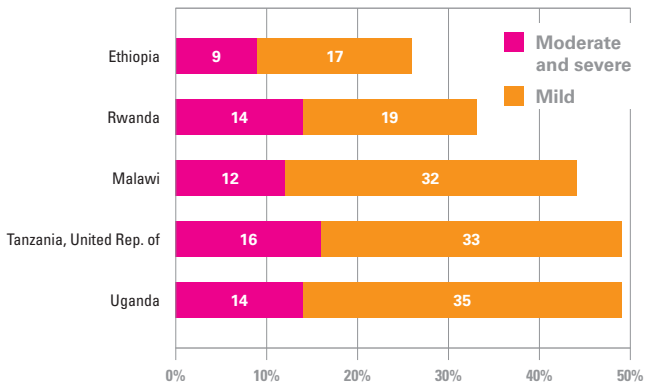
Another contributor to maternal mortality is anaemia. Recent household surveys in this region have measured haemoglobin to determine anaemia levels among women of reproductive age. Almost half of the women surveyed in Uganda and the United Republic of Tanzania had some form of anaemia, with 14 per cent and 16 per cent, respectively, suffering moderate or severe anaemia.

HIV and AIDS contribute to the high maternal mortality ratio in sub-Saharan Africa. Eastern/Southern Africa is the region with the highest HIV prevalence and the largest number of children under 15 infected with HIV, most of whom acquire it from their mothers during pregnancy and childbirth. Among pregnant women living in capital cities, 13.5 per cent are estimated to be infected. Among HIV-infected pregnant women in the region, coverage of antiretroviral prophylaxis for preventing mother-to-child transmission increased from 11 per cent in 2004 to 31 per cent in 2006.[29]

South Africa was the first country in sub-Saharan Africa to institutionalize the maternal death review in its health system, with its 1997 introduction of the Confidential Enquiry of Maternal Death. Botswana, Kenya, the United Republic of Tanzania and Zambia have now adopted policies including maternal death review.[30]

Half of women in Uganda and the United Republic of Tanzania are anaemic

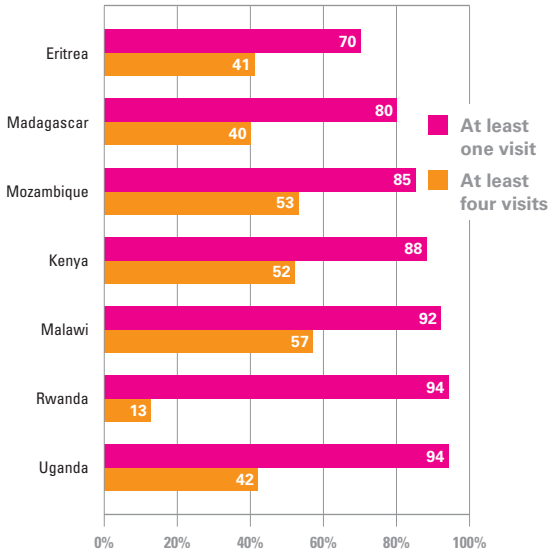
Anaemia prevalence among women aged 15–49, in countries with available data (2004–2006)



Source: Selected Demographic and Health Surveys, <www.measuredhs.com>.

In most countries where data are available, more than 40 per cent of women make the recommended four antenatal visits

Percentage of women aged 15–49 receiving antenatal care at least once during pregnancy and the percentage receiving antenatal care at least four times (2002–2006)



Source: DHS and MICS; for details, see <www.childinfo.org>.

SOUTH ASIA: Patchy progress

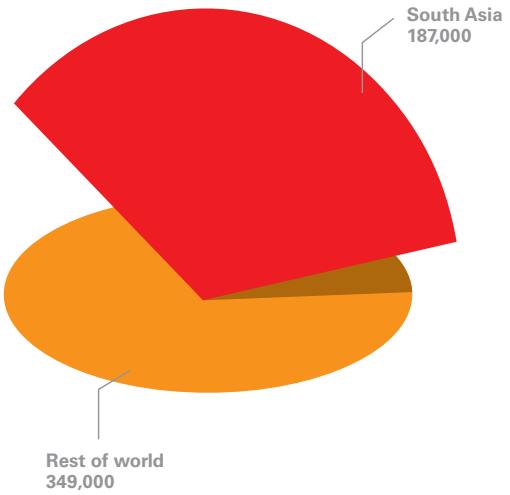
South Asia accounts for more than one third of the 536,000 women who died in 2005 from maternal causes – a higher proportion than any other region. India alone, with an estimated 117,000 deaths in 2005, accounted for about a fifth of the global total of maternal deaths. South Asia has a maternal mortality ratio of 500 per 100,000 live births. Overall, South Asian women have a 1 in 59 lifetime risk of maternal death. Although this risk is quite high in most countries, there is substantial variation throughout the region, from 1 in 8 in Afghanistan to 1 in 850 in Sri Lanka.

Nonetheless, the data suggest some reduction in maternal mortality ratios since 1990. According to the best estimates available, the MMR in South Asia was 650 in 1990 and 500 in 2005, a 22 per cent reduction.

South Asian women are among the least likely in the world to have a skilled health attendant at delivery. Just 41 per cent of all births are delivered by a health professional, and in India alone an estimated 14.4 million births per year are not attended by a skilled provider. Nonetheless, there has been a significant improvement in regional coverage, from 31 per cent around 1995 to 40 per cent around 2005.

Throughout the region, there have been notable gains in rural areas. The proportion of rural women in Nepal whose birth was attended by a skilled health professional rose from 8 per cent in 2001 to 14 per cent in 2006. In rural India, data also suggest a slight increase in coverage between 1999 and 2006.

Estimated annual number of maternal deaths in South Asia (2005)

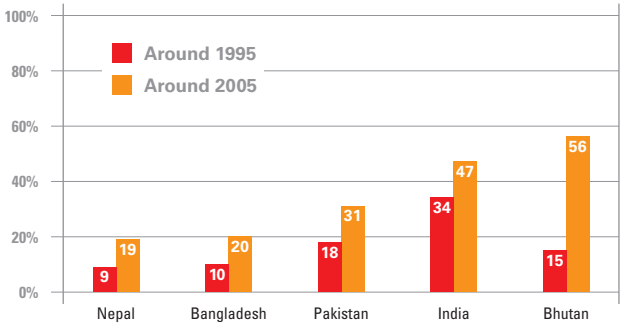


Source: WHO, UNICEF, UNFPA and World Bank; for details, see <www.childinfo.org>.

The region still has very high levels of maternal mortality, but there are some grounds for optimism

Many South Asian countries show an increase in skilled attendance at delivery...

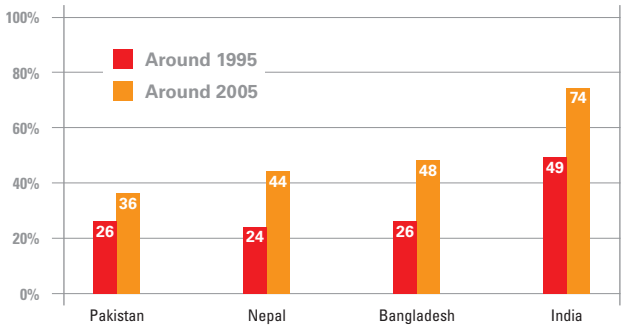
Trends in the percentage of births attended by skilled health personnel, in countries with comparable trend data (around 1995 and around 2005)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

... and in antenatal care coverage

Trends in the percentage of women aged 15–49 attended at least once during pregnancy by a skilled care provider (around 1995 and around 2005)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

Overall, however, urban women remain twice as likely as rural women to deliver with the assistance of a skilled attendant – and are five times as likely in Afghanistan. In rural areas in Bangladesh, Nepal and Pakistan, less than 5 per cent of births are by Caesarean section, suggesting a serious lack of access to emergency obstetric care.

Disparities based on household wealth are even greater. The wealthiest women are approximately 4 times as likely as the poorest women to have professionally attended births in India, 8 times as likely in Bangladesh and 11 times as likely in Nepal.

Most countries of the region have a critical shortage of doctors, nurses and midwives.[31] Personnel shortages and the absence of effective human resources policies and strategies in some countries will constrain progress towards MDG 5.

Barriers towards seeking emergency care may also be problematic. In a 2001 nationally representative survey conducted in Bangladesh, 61 per cent of women reported at least one complication associated with pregnancy, delivery or the post-partum period in the previous three years. Where these complications were perceived to be life-threatening, treatment was sought in just 62 per cent of cases. The major reason for not seeking care was cost.[32] However, an increase in the level of skilled attendance at birth during the past decade, widespread community treatment of maternal sepsis with antibiotics per anecdotal reports[33] and a contraceptive prevalence rate of 58 per cent represent encouraging progress in Bangladesh.

Antenatal care coverage in South Asia is the lowest in the world, but improvements are proceeding more rapidly than in any other region. While 46 per cent of women benefited from one antenatal visit during the mid-1990s, this figure rose to 65 per cent by around 2005. Bangladesh, India and Nepal have all made progress of 20 or more percentage points, with rural improvements surpassing urban.

Nonetheless, there are obstacles to continued progress. The latest India National Family Health Survey suggests that women are not often empowered to seek antenatal care: 40 per cent of husbands whose wives did not receive antenatal care reported that they did not think it was necessary, or they refused to allow a visit; an additional 15 per cent of husbands said someone else in the family did not think it was necessary or refused to allow a visit.[34]

South Asia has a total fertility rate of 3.0, but variations range from 1.9 in Sri Lanka to 7.2 in Afghanistan. The adolescent birth rate is similarly varied, stretching from 24 births per 1,000 girls and young women aged 15–19 in Maldives to 132 in Bangladesh, where 46 per cent of women aged 20–24 recently surveyed said they had given birth before their 18th birthday.[35]

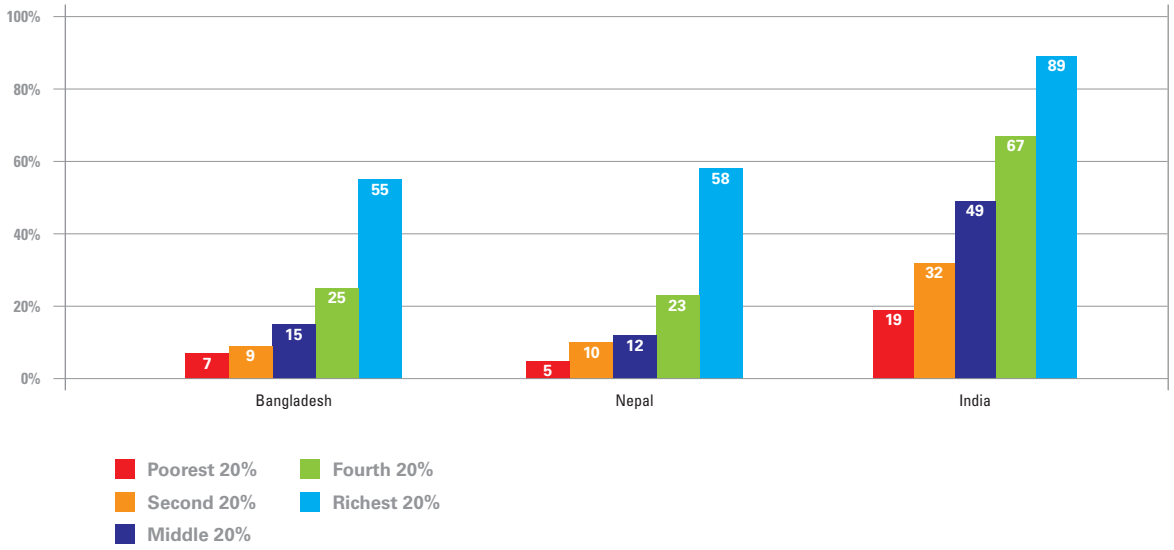
Contraceptive use varies greatly within the region, from 10 per cent of women who are married or in union in Afghanistan to 70 per cent in Sri Lanka. Overall, slightly more than half of South Asian women aged 15–49 who are married or in union use a method of contraception.

South Asia has some of the highest levels of maternal undernutrition in the world, a factor contributing to the risk of maternal mortality, as well as to the high proportion of infants with low birthweight. One in three adult women is underweight in India.[36]

Bangladesh, India and Nepal have introduced conditional cash transfers and other innovative schemes to overcome financial barriers to access to maternal health services, including making cash payments to cover women's costs of transportation to health facilities and contracting private clinics to provide obstetric care to the poorest women. Initial results are encouraging; meanwhile the schemes will be closely monitored to determine whether they offer a fundamental improvement of service quality and utilization.

Large disparities in access to skilled birth attendance in three countries with wealth data

Percentage of births attended by skilled health personnel, by household wealth quintile (2005–2006)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

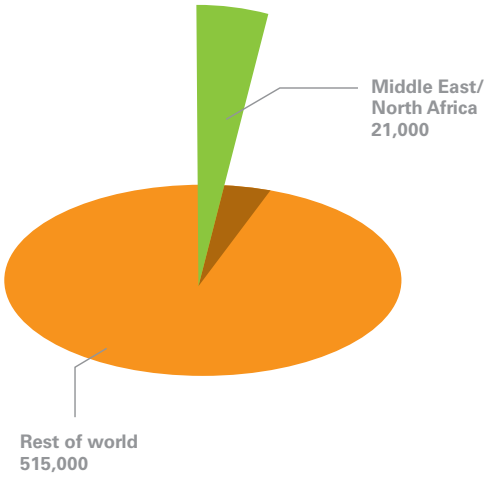
These wide variations are reflected in the lifetime risk of maternal death, which averages 1 in 140 for the region but ranges from 1 in 35 in Djibouti to 1 in 9,600 in Kuwait. Reducing maternal mortality in Djibouti, the Sudan and Yemen is a challenge of this region.

Sixty-eight per cent of deliveries occur in a health facility. Overall, 79 per cent of deliveries are attended by skilled medical personnel, and the Middle East/North Africa has made more progress on this indicator than any other region. Among a subset of countries with available data, the percentage of births attended by a skilled attendant increased from 55 per cent around 1995 to 74 per cent around 2005. A number of countries, including Algeria, Iraq and the Syrian Arab Republic, stand out as having high levels of coverage, achieved after recent gains.

MIDDLE EAST AND NORTH AFRICA: Steady progress

More than 20,000 women died of maternal causes in the Middle East/North Africa in 2005. The best estimates suggest the region's maternal mortality ratio has been reduced by 21 per cent, from 270 in 1990 to 210 in 2005. There is, however, extremely wide divergence among countries. Some of the Gulf Cooperation Council states, including Kuwait, Qatar and Saudi Arabia, have low levels of maternal mortality in the range of many countries in the industrialized world. At the opposite extreme, Djibouti, with 650 maternal deaths per 100,000 live births, the Sudan (450) and Yemen (430) have MMRs more akin to those of their neighbours in the Horn of Africa.

Estimated annual number of maternal deaths in the Middle East/North Africa (2005)

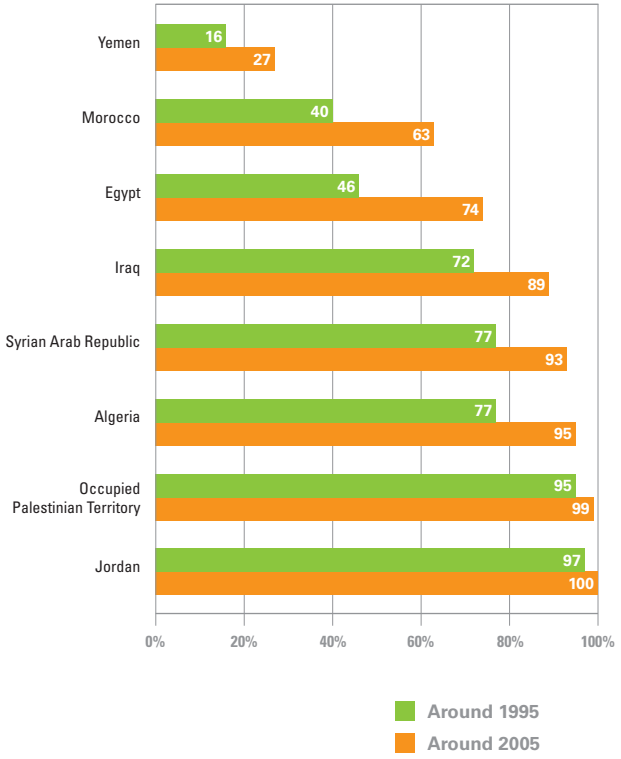


Source: WHO, UNICEF, UNFPA and World Bank; for details, see <www.childinfo.org>.

Two thirds of the region's births take place in health facilities, and there have been rapid improvements in skilled attendance at births and in antenatal care

Several countries show gains in coverage of skilled attendance at delivery

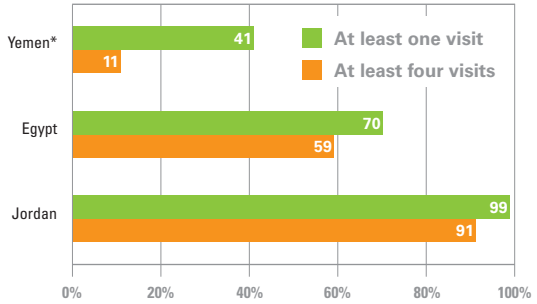
Trends in the percentage of births attended by skilled health personnel, in countries with comparable trend data (around 1995 and around 2005)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

Fewer than half of women in Yemen receive any antenatal care

Percentage of women aged 15–49 who received antenatal care at least once during pregnancy and the percentage who received antenatal care at least four times (2002–2005)



* Data on the percentage of women who received antenatal care at least four times refer to years other than 2000-2006.

Source: DHS and other national household surveys; for details, see <www.childinfo.org>.

In 14 of the region's 20 countries, at least 90 per cent of women deliver with a skilled health professional in attendance. Yemen, whose skilled attendance rate is just 27 per cent, is the only country with coverage of less than half. Disparities between urban and rural areas are generally smaller than in many other regions, except in Morocco and Yemen. Among the countries surveyed, in general, the lower the coverage of skilled birth attendance, the greater the disparity in terms of both residence and household wealth.

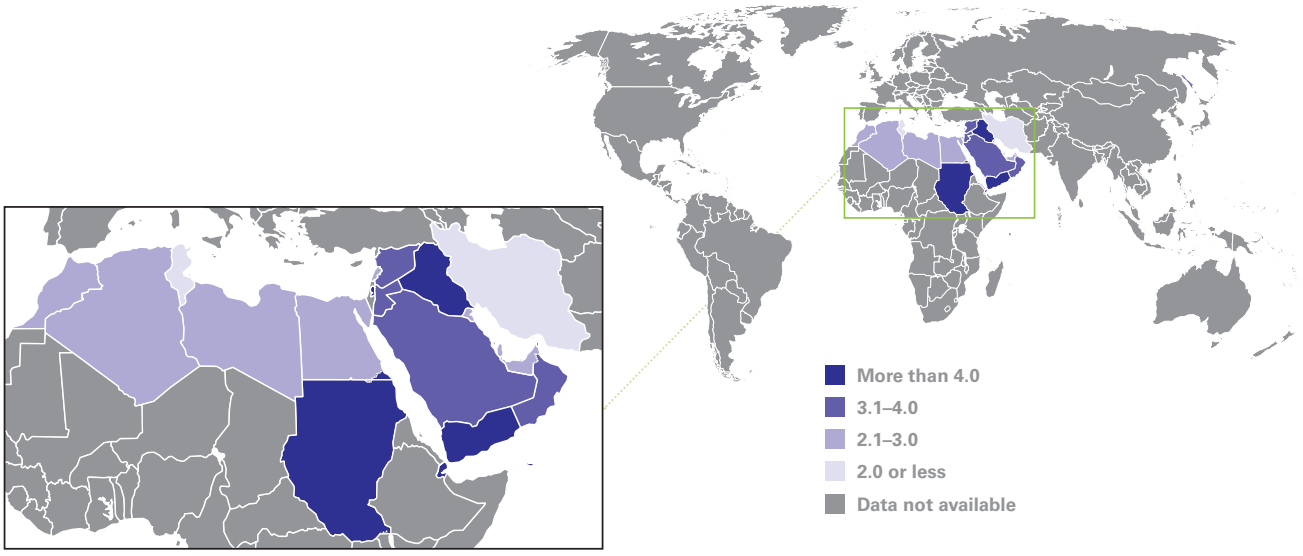
With the exception of Morocco and Yemen, rural rates of Caesarean section are at least 5 per cent in all countries with available data, suggesting there are adequate levels of emergency obstetric care.

Among all women in the Middle East/North Africa, 72 per cent benefit from antenatal care at least once during pregnancy. There have been impressive gains in the proportion of pregnant women benefiting from at least one antenatal visit, with a regional increase of 15 percentage points since the mid-1990s and improvements in all countries. Few countries have data on the percentage of women making four or more antenatal visits, but Yemen appears to have the most room for improvement. Indeed, fewer than half of pregnant women in Yemen receive any antenatal care.

Data on the number of antenatal visits, however, give no indication of the quality of care. Recent surveys among women who had received antenatal care in Egypt, Jordan and Morocco found that fewer than half of them had been informed about the signs of complications in pregnancy.[37]

Wide variations in fertility across the Middle East/North Africa region

Total fertility rate (2006)



Source: United Nations Population Division.

The total fertility rate in the Middle East/North Africa as a whole is 3.1 and ranges from 1.9 in Tunisia to 5.6 in Yemen. Of the 20 countries in the region, 5 have rates of more than 4.0. The adolescent birth rate throughout the region, at 34 births per 1,000 girls and young women aged 15–19, is substantially lower than global and developing country averages. With adolescent birth rates of less than 10 per 1,000 girls and young women aged 15–19, Libyan Arab Jamahiriya (3), Tunisia (7) and Algeria (8) are substantially better than some industrialized countries such as the United Kingdom (25) and the United States (43).

Fifty-five per cent of women aged 15–49 who are married or in union in the region use a method of contraception. The regional average, however, hides wide national variations, with the Islamic Republic of Iran (74 per cent) and the Sudan (7 per cent) at the extremes.

Recent research confirms the association of female genital mutilation/cutting with obstetric complications including post-partum haemorrhage and obstructed labour requiring Caesarean section.[38] Despite such adverse outcomes, at least 90 per cent of women aged 15–49 in Djibouti, Egypt and the Sudan have undergone FGM/C.

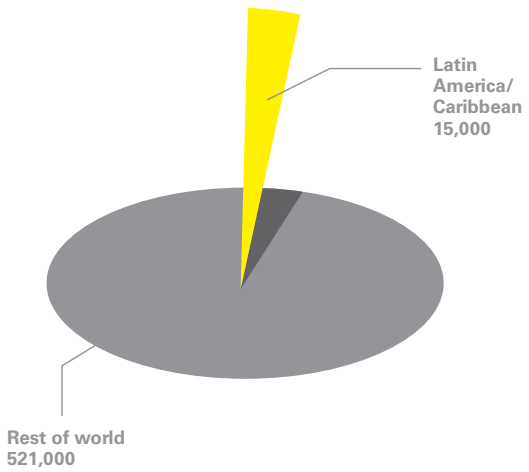
LATIN AMERICA AND THE CARIBBEAN: Moving forward

In Latin America/Caribbean, around 15,000 women died from maternal causes in 2005, 6,000 fewer than were estimated to have died in 1990. Current data suggest a 28 per cent reduction in the maternal mortality ratio since 1990 – now 130 per 100,000 live births – although this rate of progress would still be insufficient to meet the MDG target by 2015. The regional average masks extremely wide variations among countries. A maternal mortality ratio of 16 in the Bahamas, Barbados and Chile is among the lowest in the developing world, while Haiti's 670 is very high.

The same applies to the lifetime risk of dying from maternal causes. The regional average is 1 in 280, but women face the greatest risk in Haiti (1 in 44) and the least in Barbados (1 in 4,400). Hypertensive disorders are the leading cause of maternal death in the region; the risk of death due to hypertension can be reduced by monitoring a woman's blood pressure before and during pregnancy.

There is a lack of comparable trend data on births attended by skilled personnel in some of the largest countries in Latin America/Caribbean. The closest equivalent – the percentage of women delivering a baby in a clinic or hospital – excludes those home deliveries attended by a skilled professional. Overall, 86 per cent of women deliver in a health facility, a substantial increase from the mid-1990s rate of 73 per cent. In 10 of the 21 countries with available data, more than 90 per cent of women delivered in a health facility; only in Guatemala and Haiti do less than half of women give birth in a clinic or hospital. The quality of care is an issue in countries like Guyana, with a high level of skilled attendance at delivery amid a high MMR.

Estimated annual number of maternal deaths in Latin America/Caribbean (2005)



Source: WHO, UNICEF, UNFPA and World Bank; for details, see <www.childinfo.org>.

Maternal mortality shows signs of declining in the region, while levels of antenatal care are improving

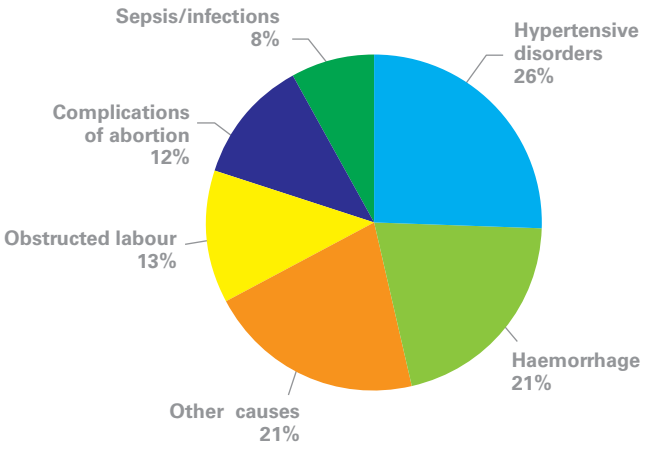
Despite the lack of comparable regional data on skilled attendance at birth, survey data from some countries revealed substantial disparities in this indicator. Urban women in Guatemala are more than twice as likely as rural women to have a professionally assisted delivery, and in Haiti urban women are three or more times as likely. In Bolivia, Honduras and Peru the poorest 20 per cent of women are particularly disadvantaged, and in Haiti the poorest 60 per cent of women are effectively excluded from skilled attendance at delivery. Targeting the poorest women and lowering geographic and financial barriers to access will help address these issues.

Whereas data from most other regions indicate that some rural women may lack access to necessary Caesarean sections, in Latin America/Caribbean the data suggest too many of these procedures occur. WHO advises that rates of delivery by Caesarean section exceeding 15 per cent may lack medical justification, and research has indicated that higher rates for this procedure have been associated with higher rates of maternal mortality and morbidity.[39] In half of the countries with available data, rural Caesarean section rates are at least 15 per cent. In Haiti, however, the rural rate is 1 per cent, suggesting insufficient access to emergency obstetric care.

Generally, levels of antenatal care are high, and 94 per cent of pregnant women receive antenatal care from a skilled provider at least once, the highest level of coverage in the developing world. Of 32 countries with data, just 8 have coverage levels of less than 90 per cent. Countries with available trend data show there has been substantial progress during recent years, from 82 per cent receiving antenatal care at least once around 1995 to 95 per cent around 2005. Fewer women receive antenatal care the recommended minimum of four times, but in all the

Hypertensive disorders are the leading cause of maternal death in Latin America/Caribbean

Causes of maternal death, estimates for Latin America/Caribbean (1997–2002)

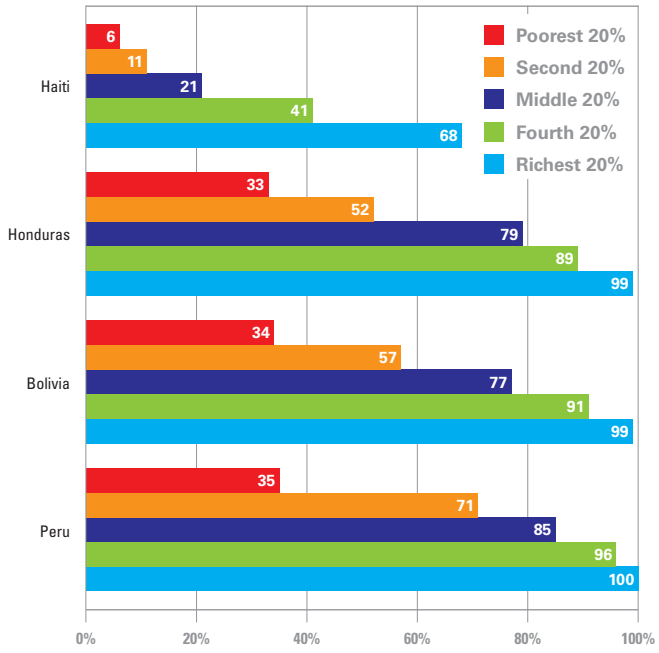


Note: Percentages do not total 100% because of rounding.

Source: Khan, Khalid S., et al., 'WHO Analysis of Causes of Maternal Death: A systematic review', *The Lancet*, vol. 367, p. 1069, 1 April 2006.

In Bolivia, Haiti, Honduras and Peru, the poorest women face the most obstacles in access to skilled attendance at delivery

Percentage of births attended by skilled health personnel, by household wealth quintile (2003–2006)



Source: Selected Demographic and Health Surveys, <www.measuredhs.com>

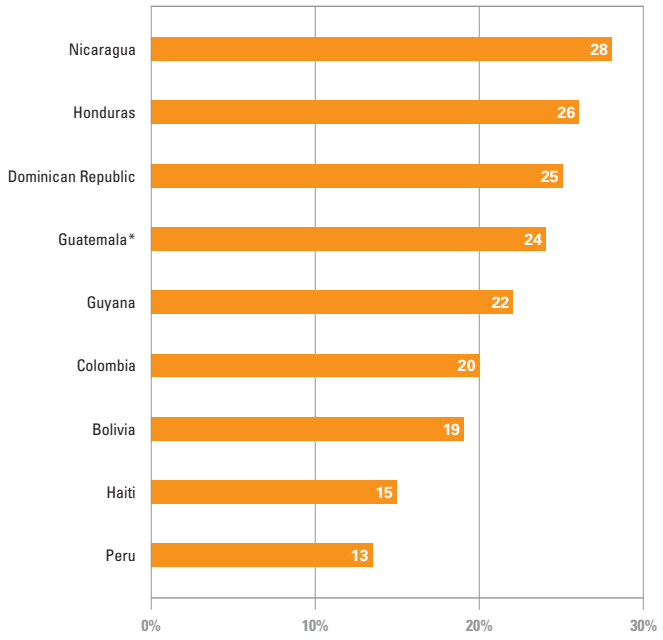
13 countries with data a majority of women benefit from such care. The quality of antenatal care, however, is an area that needs improvement.

Contraceptive use is high, at 70 per cent of women aged 15–49 who are married or in union. In just 7 of the 30 countries with data do fewer than half of women use a method of contraception. In Costa Rica, 96 per cent of women use contraception – the highest rate anywhere in the world. Data from a limited subset of countries indicate that contraceptive use in Latin America/Caribbean is more strongly associated with a woman's education than her household assets or where she lives.[40]

Fertility in the region is just above replacement level. The total fertility rate is 2.4, and in individual countries it ranges from 1.5 in Barbados and Cuba to 4.3 in Guatemala. Childbearing begins early; in six of the nine countries with available data, at least 20 per cent of women aged 15–49 report giving birth before they were 18. High adolescent birth rates contribute to maternal mortality in the region; universalizing access to contraception and family planning should help reduce these.

High adolescent fertility means many young mothers are at an elevated risk of maternal death

Percentage of women aged 20–24 who had given birth before age 18 (2001–2006)



* Data refer to years other than 2001–2006.

Source: Selected Demographic and Health Surveys, <www.measuredhs.com>.

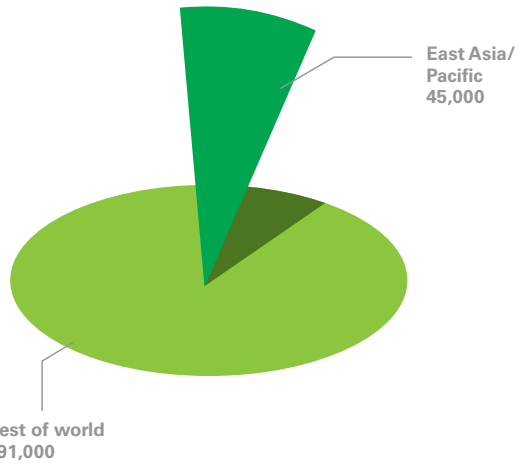
EAST ASIA AND THE PACIFIC: Forging ahead

In 2005, an estimated 45,000 women died because of complications from pregnancy and childbirth in the East Asia/Pacific region, suggesting a substantial decline from the estimate of 80,000 deaths in 1990. Data suggest that the maternal mortality ratio has been reduced by 30 per cent, to its current estimated level of 150 deaths per 100,000 live births. By current estimates, East Asia/Pacific has made faster progress on reducing its MMR than any other region, but improvements must still accelerate if the MDG target is to be achieved.

Of the 18 countries with estimates, 6 have low MMRs of below 100 per 100,000 live births: Brunei (13), Singapore and the Republic of Korea (both 14), China (45), Mongolia (46) and Malaysia (62). Four have ratios above 400: the Lao People's Democratic Republic (660), Cambodia (540), Papua New Guinea (470) and Indonesia (420).

Eighty-seven per cent of women deliver with a health professional in attendance. In the subset of countries with trend data, coverage levels increased from 81 per cent around 1995 to 89 per cent around 2005. Although coverage is high overall, disparities are stark in those countries where skilled attendance at delivery is less common. In both the Lao People's Democratic Republic and Timor-Leste urban women are at least five times as likely as rural women to give birth with a skilled professional in attendance. In Timor-Leste women in the wealthiest households are nearly seven times as likely as those in the poorest households to have a skilled attendant during delivery.

Estimated annual number of maternal deaths in East Asia/Pacific (2005)

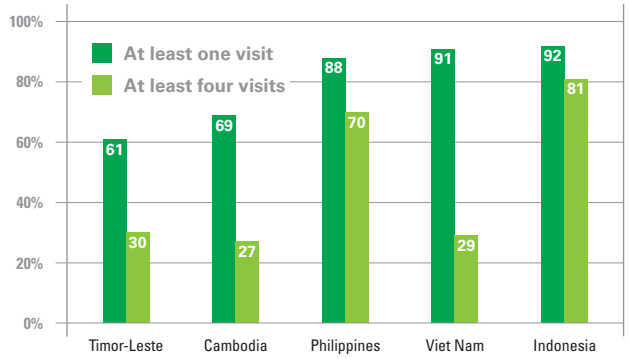


Source: WHO, UNICEF, UNFPA and World Bank; for details, see <www.childinfo.org>.

Maternal mortality is declining in the region, while levels of antenatal care are improving

Fewer women make the recommended four antenatal visits

Percentage of women aged 15–49 attended at least once during pregnancy by a skilled health care provider and the percentage attended at least four times, in countries with these data (2002–2006)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

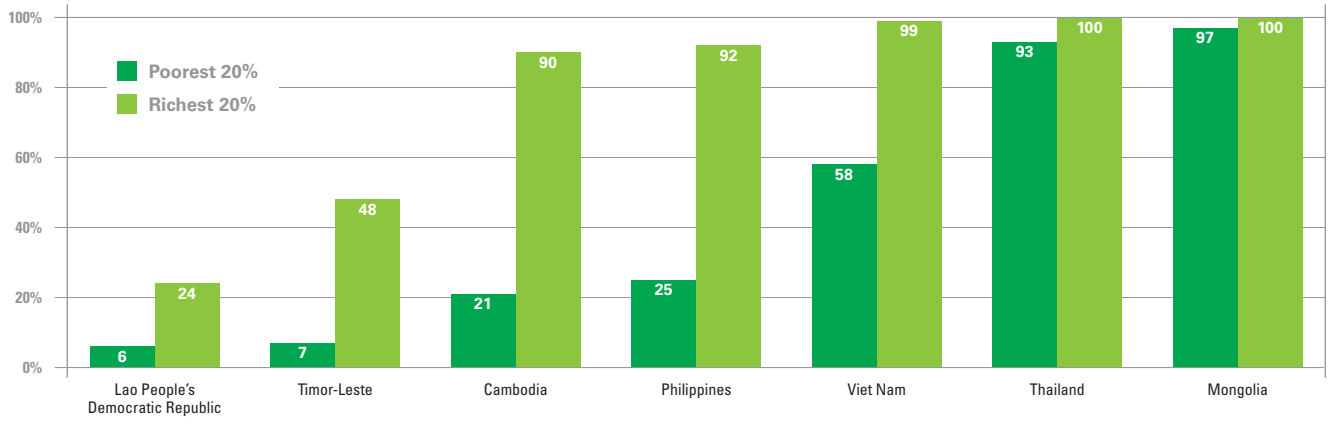
Few countries have data available on the prevalence of Caesarean section in rural areas, but in Cambodia and Indonesia the extremely low level – 2 per cent or less – indicates a serious shortage of emergency obstetric care.

Levels of antenatal care are high overall, with 89 per cent of women benefiting from skilled antenatal care at least once during pregnancy. East Asia/Pacific has made impressive gains in this respect over the past 10 years – based on a subset of countries with available data, coverage accelerated from 78 per cent around 1995 to 93 per cent around 2005. Yet, in the Lao People's Democratic Republic just 27 per cent of women receive antenatal care at least once.

Although few countries have data on antenatal care received four or more times, these data suggest a substantially lower proportion of women in many countries receive care the minimum recommended number of times.

Women in the wealthiest households are more likely to have a skilled attendant at delivery

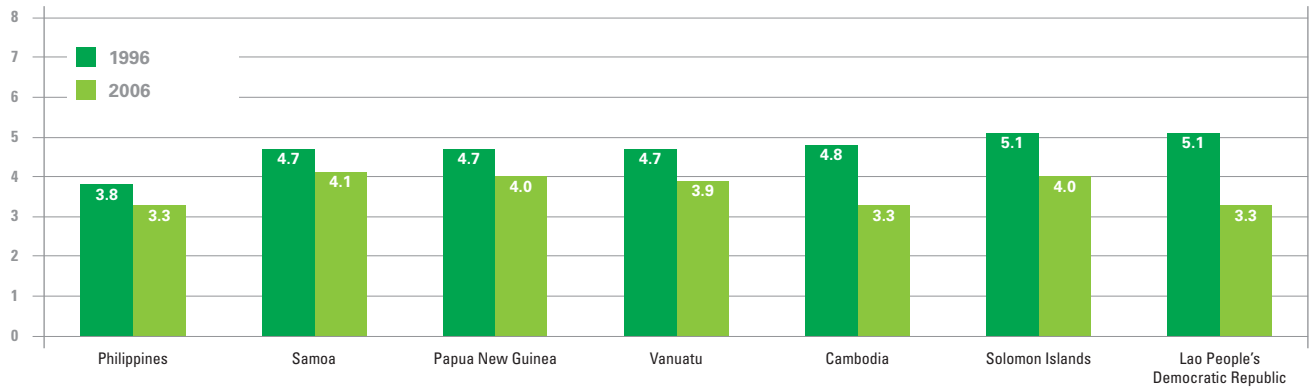
Percentage of births attended by skilled health personnel, by household wealth quintile (2000–2006)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

Most countries with high fertility have experienced some decline in the total fertility rate

Total fertility rate, in seven high-fertility countries with trend data (1996 and 2006)



Source: United Nations Population Division.

Contraceptive use by women aged 15–49 who are married or in union is high, at 79 per cent. However, this regional average is skewed by China, where 87 per cent of women use contraception – the second-highest rate in the world (after Costa Rica). In 17 of the 25 other countries in the region with data, fewer than half of women aged 15–49 who are married or in union use a method of contraception.

The total fertility rate in East Asia/Pacific is 1.9, below replacement level. This low regional average is again largely driven by China, which has a national rate of 1.7. Ten of the 22 countries with available estimates have total fertility rates over 3.0. Among the seven high-fertility countries with comparable trend data, fertility declined over the past decade – with a particularly pronounced reduction in the Lao People's Democratic Republic. The adolescent birth rate, at just 19 per 1,000 girls and young women aged 15–19, is lower than in any other region of the world, including industrialized countries.

Countries in the East Asia/Pacific region with high MMRs also tend to have high rates of maternal anaemia.[41] In Cambodia the 2005 Demographic and Health Survey found that 47 per cent of women aged 15–49 suffered from anaemia, and that women who were either pregnant or breastfeeding were more likely to be anaemic. For example, 34 per cent of pregnant women were moderately or severely anaemic compared with 9 per cent of women who were not pregnant.

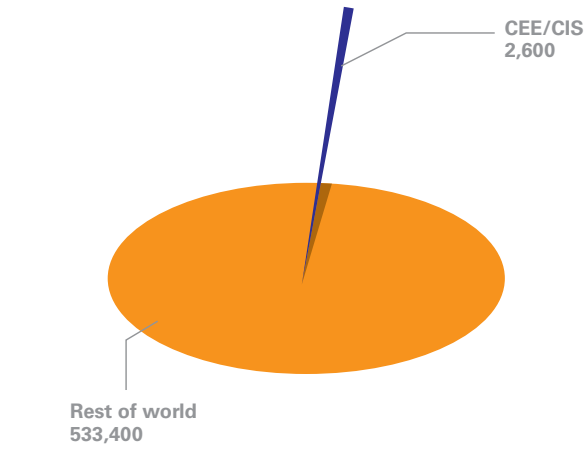
CEE/CIS: Low fertility, low lifetime risk

The CEE/CIS region has the lowest levels of maternal mortality in the developing world. The maternal mortality ratio now stands at 46 per 100,000 live births, with data suggesting a 28 per cent reduction since the 1990 ratio of 63. Although this rate of reduction is not sufficient to meet the MDG target of 75 per cent, the statistics are encouraging. On average, women in CEE/CIS have a 1 in 1,300 lifetime risk of dying because of complications during pregnancy and childbirth. While the low maternal mortality ratio and the low total fertility rate make the regional lifetime risk so small, it varies greatly among countries.

Women in Bosnia and Herzegovina have a smaller risk of dying from pregnancy- or birth-related causes than in any other country in the world except Ireland. The national lifetime risk of 1 in 29,000 derives from Bosnia and Herzegovina's extremely low MMR of 3 per 100,000 live births. In Tajikistan, by contrast, the much higher MMR of 170, together with a relatively high fertility rate of 3.5, leads to a risk of 1 in 160.

The region's generally low levels of maternal mortality are reflected in its high levels of skilled attendance at delivery. Eighty-nine per cent of deliveries take place in a health facility – the highest rate in the developing world – and, overall, 95 per cent of women are attended by a skilled professional when they give birth. Only in Tajikistan and Turkey does coverage fall below 90 per cent, in both cases to 83 per cent. The near-universal coverage elsewhere in CEE/CIS means that rural women are as well provided for as urban women, but in Tajikistan and particularly in Turkey, rural deliveries are less likely to be assisted by skilled health personnel. Moreover, skilled attendance data do not reflect the quality of maternal care.

Estimated annual number of maternal deaths in CEE/CIS (2005)



Source: WHO, UNICEF, UNFPA and World Bank; for details, see <www.childinfo.org>.

The region has the lowest levels of maternal mortality in the developing world, and those levels appear to be declining

Among the 10 countries with available data, Azerbaijan, Turkmenistan and Uzbekistan all have rural Caesarean-section rates below 3 per cent, suggesting that some women who need this potentially life-saving procedure may not have access to it.

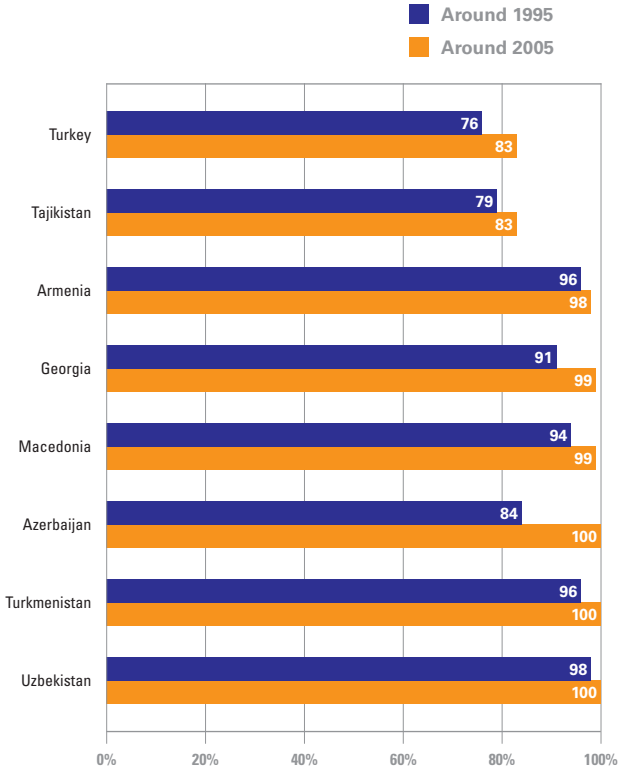
Overall, 90 per cent of women receive antenatal care from a skilled provider at least once during pregnancy, up from 77 per cent around 1995. Despite these high levels of coverage, progress needs to be made for all women to receive the minimum number of four antenatal visits. A subset of countries with available data on four visits suggests that rural women, in particular, are not receiving minimum antenatal care.

The majority of countries in the CEE/CIS region have total fertility rates that are below the replacement level; just seven meet or exceed replacement-level fertility with rates of 2.1 or higher. Belarus, Bosnia and Herzegovina, and the Ukraine are among the countries with the lowest total fertility rates in the world, at 1.2, and the rate in a number of other countries is 1.3.

Sixty-three per cent of women aged 15–49 in the region who are married or in union use a method of contraception, ranging from 36 per cent in Bosnia and Herzegovina to 86 per cent in Bulgaria. A large proportion of women in the countries of the Caucasus – Armenia, Azerbaijan and Georgia – rely on traditional methods, particularly withdrawal, to control their fertility. Partly as a result, these countries have high rates of abortion.[42]

Several countries offer universal access to skilled attendance at delivery

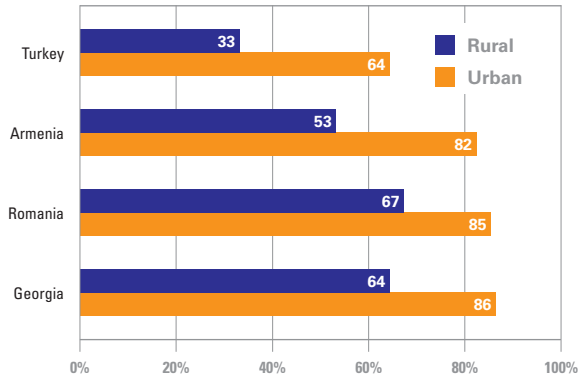
Trends in the percentage of births attended by skilled health personnel, in countries with trend data (around 1995 and around 2005)



Source: DHS, MICS and other national household surveys; for details, see <www.childinfo.org>.

Rural women are less likely than urban women to benefit from the recommended four antenatal visits

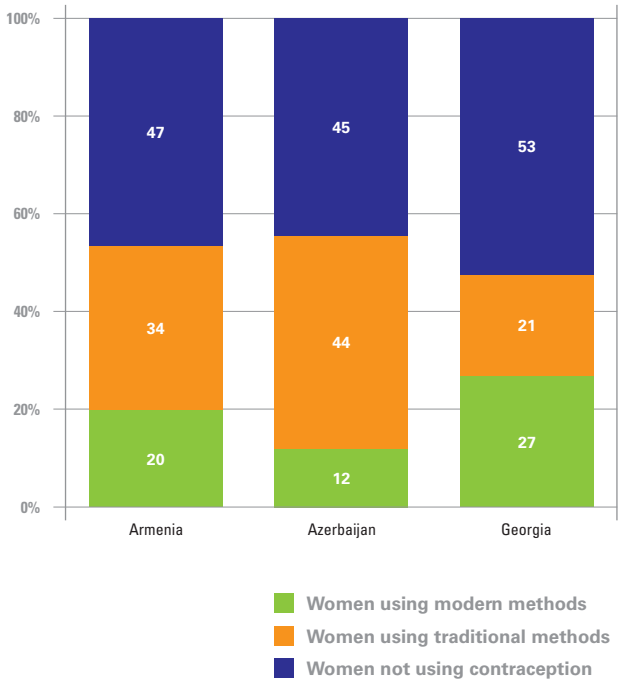
Percentage of women aged 15–49 receiving antenatal care at least four times during pregnancy, by place of residence (2003–2005)



Source: DHS and other national household surveys.

Substantial proportions of women in Armenia, Azerbaijan and Georgia rely on traditional methods of contraception

Percentage of women aged 15–49 married or in union using no method, traditional methods and modern methods of contraception, in countries with these data (2001–2005)



Source: Selected Demographic and Health Surveys, <www.measuredhs.com>.

Abortion was used in many countries of CEE/CIS as a primary method of birth control during the Soviet era.[43] The World Health Organization reported that 26 per cent of maternal deaths in 10 countries of Eastern Europe and the former Soviet Union in 2000 were abortion-related, compared to 13 per cent worldwide.[44] A recent analysis indicates, however, that abortion rates in 8 countries have declined, while contraceptive use has increased.[45]

Notwithstanding near universal coverage of skilled attendance at birth and institutional deliveries throughout the region, high rates of deaths related to abortion and relatively high maternal and neonatal mortality rates in some countries underscore the need in CEE/CIS to improve the quality of care in order to achieve MDG 5.

INDUSTRIALIZED COUNTRIES: Disparities in maternal care

Maternal mortality ratios in industrialized countries are at very low levels. The regional average in 2005 was 8 per 100,000 live births. All industrialized countries are estimated to have an MMR of 12 or less, except Estonia, where it is 25. The lowest MMR in the world – just 1 per 100,000 live births – is found in Ireland, where a woman's lifetime risk of maternal mortality is 1 in 47,600. Overall, maternal mortality ratios in the industrialized world have remained broadly static since 1990.

Among industrialized countries, the highest lifetime risk of maternal death after Estonia (1 in 2,900) is found in the United States, where it stands at 1 in 4,800 – well above the industrialized average of 1 in 8,000. The MMR among African American women (31 per 100,000 live births) is nearly four times the rate among non-Hispanic white women (9).[46]

The generally low levels of maternal mortality in the industrialized world have been accompanied by nearly universal access to skilled care during delivery and to emergency obstetric care when necessary. No industrialized country with data has coverage of skilled attendance of less than 98 per cent, and the vast majority have universal coverage.

Childbirth by Caesarean section may actually be excessive in many industrialized countries. Of 60 medium- and high-income countries reviewed in a recent study, most (62 per cent) had rates of Caesarean section above 15 per cent.[47] Data for 2005 indicate 30 per cent of all live births in the US were by Caesarean section.[48] Research is needed to understand the rising trends and to test interventions that will reduce unnecessary Caesarean sections.

Of concern in industrialized countries is maternal death associated with cardiac disease, reflecting less healthy diets, smoking, alcohol use and increasing levels of obesity. Cardiac disease, for example, is the most common cause of maternal death in the United Kingdom.[49] There is evidence of a causal relationship between overweight or obesity and risks of adverse pregnancy outcomes.[50]

Contraceptive prevalence among women of reproductive age is generally high in industrialized countries. Of the countries for which there are data, only Latvia, Lithuania and Poland show contraceptive use below 50 per cent.

The total fertility rate of 1.7 for industrialized countries as a group is well below replacement level. At 1.2, the Czech Republic, Poland and Slovakia are among countries with the lowest in the world. The only industrialized country with a total fertility rate above the replacement level is Israel, with 2.8; the US is at the replacement level of 2.1. Given generally low fertility rates, high adolescent birth rates in some industrialized countries are surprising. The United States has the highest, at 43 per 1,000 girls and young women aged 15–19, but Estonia, New Zealand, Poland and the UK all have adolescent birth rates above 20.

THE WAY FORWARD

There is no greater health divide between the industrialized world and many developing countries than that in relation to maternal mortality. More than 99 per cent of maternal deaths occur in the developing world, and 84 per cent are in sub-Saharan Africa and South Asia. The data suggest there has been progress towards the MDG 5 target of cutting the maternal mortality ratio by three quarters between 1990 and 2015. But in a world committed to greater equity and human development, the rate of progress is unacceptably slow.

Each year, more than half a million women die from preventable causes. If the MDG 5 target is not met, or only partially met, women will continue to die unnecessarily – infants will not survive, children will have lost their mothers and communities will have lost their citizens.

But millions of maternal lives can still be saved. That is because the methods for reducing maternal deaths are well established and understood. There need be no waiting for scientific advances or for more trials – it is almost as simple as recognizing that women need better health care, particularly during pregnancy, at delivery and in the post-partum period. Women also need services that help prevent unplanned pregnancies. And they need the benefit of care that begins when they are young girls and adolescents, well before they conceive, and continues through pregnancy, delivery and the first week post-partum into their child's early years, that integrates home, community, outreach and facility-based care in a dynamic health care system.

If every baby's birth, all over the world, were attended by skilled health personnel and supported by an adequately staffed and equipped referral system to manage emergencies that may arise and if there were appropriate follow-up after birth, the number of maternal deaths – little changed for decades – would tumble.

Achieving MDG 5 targets will require scale-up at the country level of nine key programme components for maternal and newborn health:

- Promotion of access to family planning, based on individual countries' policies.
- Quality antenatal care – at least four visits during pregnancy – offered in every facility, with all pregnant women screened for hypertension and treated as needed, immunized against tetanus and given micronutrient supplementation and, if warranted, iron for anaemia, nutritional supplements and intermittent preventive treatment for malaria.
- Prevention of mother-to-child transmission of HIV, with services including testing, counselling and antiretroviral prophylaxis, as well as antiretroviral treatment for women in need, in every antenatal and delivery facility, according to each country's HIV prevalence rate.

- Access to skilled personnel – a doctor, nurse or midwife – for every birth.
- Basic emergency obstetric and newborn care, adapted to each country's circumstances, in every facility where deliveries take place.
- Comprehensive emergency obstetric and newborn care provided at a minimum of one facility in every district or one per 500,000 population.
- A post-partum visit for every mother and newborn as soon as possible after delivery, ideally within 24 hours, with additional visits towards the end of the first week and at four to six weeks.
- Each pregnant woman and her family with knowledge of the maternal and newborn danger signs and knowledge of the referral system.
- Integrated Management of Neonatal and Childhood Illnesses, or the equivalent, available in each facility that provides health care to children.

Approaches must be in keeping with national policies and approved procedures already in place.

Given that the road to reduced maternal deaths is so well understood, why has progress been insufficient? Maternal mortality is a litmus test for health systems. There are major constraints within current health systems, particularly in sub-Saharan Africa. Not enough resources have been dedicated to maternal health; clinics and hospitals are relatively inaccessible to the poor, especially in rural areas; and there are insufficient numbers of skilled medical staff who can be deployed to cover the gaps.

It is essential, moreover, to consider the quality of care provided. The availability and distribution of trained midwives and medical staff is a significant problem even in countries with well developed medical training systems. Low salaries may provide a disincentive for health workers, who have migrated to industrialized countries in increasing numbers during recent years. And in some regions, systems are stressed because of AIDS-related death and illness.

Ultimately, while the underlying causes of maternal mortality and birth-related injuries entail practical problems, they also reflect women's fundamental disadvantage in society. Maternal mortality tends to be inversely proportional to women's status in countries with similar levels of economic development.[51] A human rights-based approach to reducing maternal mortality provides a framework for strengthened intervention – especially for delivering resources to the poorest and most socially excluded people. Existing human rights treaties and national constitutions should be applied to ensure safe motherhood and guarantee a continuum of care for both mother and child. A human rights approach also means focusing on women's low status relative to men in society through social, cultural and behavioural change, among other means.

In countries where the MMR is high, the availability to all of emergency obstetric care within a two-hour radius will not be achieved overnight; nor will it be easy to recruit and train enough birth attendants. But even in the most deprived circumstances there are immediate measures that can be taken to make an impact on maternal health: making contraception more readily available; preventing anaemia by providing adolescents and young women with weekly iron or folate tablets; focusing on malaria and tuberculosis prevention for pregnant women; training community-based health workers in home visits during pregnancy and as soon as possible after delivery to discuss birth planning with families, to advise women of the danger signs of pregnancy and childbirth and where to go if something goes wrong, and to promote such healthy practices as improved nutrition and exclusive breastfeeding.

Work on the long-term issues must begin now if it is to pay dividends three, four or five years down the line – and sufficient resources must be allocated to this purpose both by national governments and by the international community if MDG 5 is to be attained.

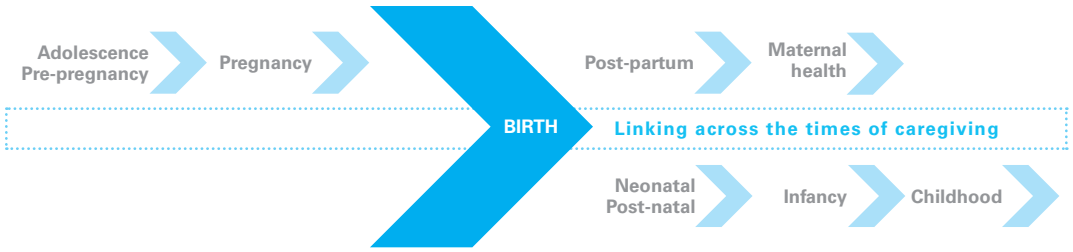
Rapid scale-up of essential services is possible, and it has been achieved in a wide range of countries. The priorities must be to:

- **Scale up services** to give every woman access to family planning, focused antenatal care that includes PMTCT services, a skilled birth attendant linked with a functioning referral system for emergency obstetric care, knowledge of danger signs, and post-natal care.

- **Assess and address the local causes of maternal mortality and morbidity.** As part of national health systems, maternal death reviews provide evidence and analysis that can inform programme actions to improve the quality of maternal care.
- **Report every maternal death.** Estimates of maternal deaths at country, regional and global levels would be vastly improved if national civil registration systems were improved.
- **Build human resource capacity.** Ensure that health-care providers receive competency-based training and supervision. Professional organizations, as well, can show leadership as stewards of human resources for maternal and reproductive health care.
- **Support efforts to lower financial barriers.** Low utilization of maternal care services often reflects their high costs. Incentives including conditional cash transfers and private sector schemes can help place these services within reach of the poor.
- **Engage the private sector.** Encourage public-private partnerships to improve access to maternal care. Better regulation of private sector services can help ensure standards.
- **Invest in maternal health.** Donors will need to increase their financial contributions for maternal health in low-income countries. Global development assistance to maternal and neonatal health in the 68 priority countries that are part of the Countdown to 2015 initiative stood at more than $1.17 billion in 2006 – about $12 per live birth in these countries. The figure represents about a two-thirds increase over 2003 funding, but it still is not nearly enough.[52]
- **Use budgets more efficiently.** Governments need to be more flexible and less narrowly focused on individual diseases in using existing funds. Economies of scale can be achieved, for example, when HIV prevention services and intermittent preventive treatment for malaria are integrated in antenatal care programmes.
- **Educate every child.** An educated mother is less likely to die during childbirth; every extra year of schooling a girl achieves improves her own life chances and those of her children. Education for all should therefore be an essential part of any strategy to reduce maternal mortality.
- **Empower women.** Progress to improve maternal health as expressed in MDG 5 will come about when women's overall status in society is improved. The health sector needs to better acknowledge issues of gender and social norms. If women have greater autonomy and decision-making power, they will be more able to access available services and to take charge of their own health and that of their children.

High rates of maternal mortality do not have to be with us forever. They can be drastically reduced in the next few years, and the MDG 5 target can still be met.

A continuum for maternal, newborn and child health



Source: Partnership for Maternal, Newborn & Child Health, <www.who.int/pmnch/about/continuum_of_care/en/index.html>, accessed 30 September 2007.

REFERENCES

[1] WHO Regional Office for Africa, *The Health of the People: The African regional health report*, WHO Press, Geneva, 2006, p. 19.

[2] Nanda, Geeta, Kimberly Switlick and Elizabeth Lule, *Accelerating Progress towards Achieving the MDG to Improve Maternal Health: A collection of promising approaches,* World Bank, Washington, D.C., April 2005, p. 4.

[3] Ibid.

[4] United Nations Population Fund and Family Care International, *Living Testimony: Obstetric fistula and inequities in maternal health,* UNFPA and FCI, New York, 2007, p. 1.

[5] World Health Organization, *Adolescent Pregnancy: Unmet needs and undone deeds – A review of literature and programmes,* WHO, Geneva, 2007, pp. 19–20.

[6] Black, Robert E., et al., 'Maternal and Child Undernutrition: Global and regional exposures and health consequences', *The Lancet*, vol. 371, no. 9608, 19–25 January 2008, pp. 243–244.

[7] World Health Organization, *The World Health Report 2005: Make every mother and child count,* WHO, Geneva, 2005, p. 44.

[8] United Nations Children's Fund, Joint United Nations Programme on HIV/AIDS and World Health Organization, *Children and AIDS: Second stocktaking report,* UNICEF, New York, April 2008, p. 6.

[9] McIntyre, James, 'Mothers Infected with HIV: Reducing maternal death and disability', *British Medical Bulletin,* vol. 67, 2003, pp. 127, 128.

[10] UNICEF estimate, based on unpublished national programme data.

[11] World Health Organization, Joint United Nations Programme on HIV/AIDS and United Nations Children's Fund, Towards Universal Access: Scaling up priority HIV/AIDS interventions in the health sector, Progress report 2008, WHO, Geneva, 2008, p. 88.

[12] Paxton, A., et al., 'The United Nations Process Indicators for Emergency Obstetric Care: Reflections based on a decade of experience', *International Journal of Gynecology and Obstetrics,* vol. 95, 2006, p. 201.

[13] Olsen, Øystein Evjen, Sidney Ndeki and Ole Frithjof Norheim, 'Availability, Distribution and Use of Emergency Obstetric Care in Northern Tanzania', Oxford University Press, 2005, p. 167.

[14] Countdown Coverage Writing Group, 'Countdown to 2015 for Maternal, Newborn and Child Survival: The 2008 report on tracking coverage of interventions', *The Lancet*, vol. 371, no. 9260, 12–18 April 2008, pp. 1247–1258.

[15] Cleland, John, et al., 'Family Planning: The unfinished agenda', *The Lancet,* vol. 368, no. 9549, 18–24 November 2006, pp. 1810–1827.

[16] World Health Organization, *The World Health Report 2005: Make every mother and child count,* WHO, Geneva, 2005, p. 50.

[17] UN Millennium Project, *Public Choices, Private Decisions: Sexual and reproductive health and the Millennium Development Goals,* United Nations Development Programme, New York, 2006, p. 38.

[18] World Health Organization, *The World Health Report 2005: Make every mother and child count,* WHO, Geneva, 2005, p. 50.

[19] World Health Organization and United Nations Population Fund, *Pregnant Adolescents: Delivering on global promises of hope,* WHO, Geneva, 2006, p. 4.

[20] United Nations Children's Fund, *Progress for Children: A World Fit for Children statistical review, Number 6,* UNICEF, New York, 2007, p. 45.

[21] WHO Study Group on Female Genital Mutilation and Obstetric Outcome, 'Female Genital Mutilation and Obstetric Outcome: WHO collaborative prospective study in six African countries', *The Lancet,* vol. 367, no. 9525, 3–9 June 2006, pp. 1835–1841.

[22] Ibid.

[23] United Nations Children's Fund, *Progress for Children: A World Fit for Children statistical review, Number 6,* UNICEF, New York, 2007, p. 44.

[24] World Bank, 'Education and Development', Education Advisory Service, World Bank, Washington, D.C., 2002, p. 20.

[25] United Nations Children's Fund, *The State of the World's Children 2004: Girls, education and development,* UNICEF, New York, December 2003, p. 20.

[26] United Nations Children's Fund and Roll Back Malaria Partnership (RBM), *Malaria and Children: Progress in intervention coverage,* UNICEF, New York, and RBM, Geneva, 2007, pp. 5, 68.

[27] Pearson, Luwei, et al., 'Review of progress in Maternal Death Review in Africa' (internal document).

[28] National Coordinating Agency for Population and Development (NCAPD) et al., *Kenya Service Provision Assessment Survey 2004,* NCAPD, Ministry of Health, Central Bureau of Statistics and ORC Macro, Nairobi, 2005, p. 148; and National Bureau of Statistics (NBS) and Macro International Inc., *Tanzania Service Provision Assessment Survey 2006,* NBS and Macro International Inc., Dar es Salaam, 2007, p. 149.

[29] United Nations Children's Fund, Joint United Nations Programme on HIV/AIDS and World Health Organization, *Children and AIDS: Second stocktaking report,* UNICEF, New York, April 2008, p. 5.

[30] Pearson, Luwei, et al., op. cit.

[31] World Health Organization, *Working Together for Health: The World Health Report 2006,* WHO, Geneva, 2005, p. 12.

[32] National Institute of Population Research and Training (NIPORT) et al., *Bangladesh Maternal Health Services and Maternal Mortality Survey 2001,* NIPORT, ORC Macro, Johns Hopkins University and International Centre for Diarrhoeal Disease Research, Bangladesh, Dhaka and Calverton (USA), 2003, pp. 67, 80.

[33] Costello, Anthony, Kishwar Azad and Sarah Barnett, 'An Alternative Strategy to Reduce Maternal Mortality', *The Lancet,* vol. 368, no. 9546, 28 October–3 November 2006, pp. 1477–1479.

[34] International Institute for Population Sciences (IIPS) and Macro International, *National Family Health Survey (NFHS-3), 2005–06: India: Volume I,* IIPS, Mumbai, 2007, p. 203.

[35] National Institute of Population Research and Training (NIPORT) et al., *Bangladesh Demographic and Health Survey 2004,* NIPORT, Mitra and Associates, and ORC Macro, Dhaka and Calverton (USA), 2005, p. 59.

[36] United Nations Children's Fund, *Progress for Children: A report card on nutrition,* Number 4, UNICEF, New York, May 2006, p. 12.

[37] El-Zanaty, Fatma, and Ann Way, *Egypt Demographic and Health Survey 2005,* Ministry of Health and Population [Egypt], National Population Council, El-Zanaty and Associates, and ORC Macro, Cairo, 2006, p. 124; Department of Statistics [Jordan] and ORC Macro, *Jordan Population and Family Health Survey 2002,* Department of Statistics and ORC Macro, Calverton (USA), 2003, p. 98; Ministère de la Santé [Maroc], ORC Macro et Ligue des États Arabes, *Enquête sur la population et la santé familiale 2003–2004,* Ministère de la Santé and ORC Macro, Calverton (USA), 2005, p. 110.

[38] WHO Study Group on Female Genital Mutilation and Obstetric Outcome, 'Female Genital Mutilation and Obstetric Outcome: WHO collaborative prospective study in six African countries', *The Lancet,* vol. 367, no. 9525, 3–9 June 2006, pp. 1835–1841.

[39] See, for example, Deneux-Tharaux, Catherine, et al., 'Postpartum Maternal Mortality and Cesarean Delivery', *Obstetrics & Gynecology,* vol. 108, no. 3, September 2006, pp. 541–548.

[40] Instituto Nacional de Estadística (INE) et al., *Encuesta Nacional de Demografía y Salud 2003,* INE and Ministerio de Salud y Deportes, Miraflores (Bolivia), 2004, p. 80; Asociación Probienestar de la Familia Colombiana (Profamilia) et al., *Salud Sexual y Reproductiva: Resultados, Encuesta Nacional de Demografía y Salud 2005,* Profamilia, Bogota, Nov. 2005, p. 117; Secretaría de Salud [Honduras], Instituto Nacional de Estadística (INE) and Macro International, *Encuesta Nacional de Salud y Demografía 2005–2006,* Secretaría de Salud, INE and Macro International, Tegucigalpa, 2006, p. 76; Instituto Nacional de Estadística e Informática (INEI) et al., *Perú: Encuesta Demográfica y de Salud Familiar, Informe Principal,* INEI, US Agency for International Development and Measure DHS+, Lima, Nov. 2005, p. 76.

[41] UNICEF East Asia and Pacific Regional Office, *Strategy to Reduce Maternal Deaths,* UNICEF EAPRO, Bangkok, 2003, pp. 4–5.

[42] Westoff, Charles F., 'Recent Trends in Abortion and Contraception in 12 Countries', *DHS Analytical Studies,* no. 8, ORC Macro, Calverton (USA), February 2005, p. xi.

[43] Ibid., p. 10, and Ajadjanian, Victor, 'Is Abortion Culture Fading in the Former Soviet Union? Views about abortion and contraception in Kazakhstan', *Studies in Family Planning,* vol. 33, no. 3, September 2002, pp. 237–248; Sedgh, Gilda, et al., 'Induced abortion: Estimated rates and trends worldwide', *The Lancet,* vol. 370, 13 October 2007, pp. 1338–1146.

[44] World Health Organization, *Unsafe Abortion: Global and regional estimates of the incidence of unsafe abortion and associated mortality in 2000,* 4th ed., WHO, Geneva, 2004, pp. 13, 30.

[45] Westoff, Charles F., op. cit.

[46] Hoyert, D.L., *Maternal Mortality and Related Concepts,* National Center for Health Statistics, Vital and Health Statistics, Series 3, Number 33, Feb. 2007, p. 8.

[47] Belizán, José M., Fernando Althabe and Maria Luisa Cafferata, 'Health Consequences of the Increasing Caesarean Section Rates', *Epidemiology,* vol. 18, no. 4, July 2007, pp. 485–486.

[48] Centers for Disease Control and Prevention, 'QuickStats: Percentage of all live births by cesarean delivery – National Vital Statistics System, United States, 2005', *Morbidity and Mortality Weekly Report,* vol. 56, no. 15, 20 April 2007, <www.cdc.gov/mmwr/preview/mmwrhtml/mm5615a8.htm>, accessed 21 May 2008.

[49] Confidential Enquiry into Maternal and Child Health, *Saving Mothers' Lives: Reviewing maternal deaths to make motherhood safer, 2003–2005,* CEMACH, London, December 2007, p. 1.

[50] Villamor, Eduardo, and Sven Cnattingius, 'Interpregnancy Weight Change and Risk of Adverse Pregnancy Outcomes: A population-based study', *The Lancet,* vol. 368, no. 9542, 30 September–6 October 2006, p. 1164.

[51] Filippi, Véronique, et al., 'Maternal Health in Poor Countries: The broader context and a call for action', *The Lancet,* vol. 368, no. 9546, 28 October–3 November 2006, pp. 1535–1541.

[52] Greco, Giulia, et al., 'Countdown to 2015: Assessment of donor assistance to maternal, newborn, and child health between 2003 and 2006', *The Lancet,* vol. 371, no. 9260, 12–18 April 2008, pp. 1268–1275.

STATISTICAL TABLES

Table 1: Millennium Development Goal 5 indicators

Countries and territories	Maternal mortality ratio†				Lifetime risk of maternal death. 1 in:	Total fertility rate 2006	Adolescent birth rate 2006	Contraceptive prevalence (%) 2000–2006*	Unmet need for family planning (%) 2000–2006*	Skilled attendant at delivery (%) 2000–2006*	Antenatal care coverage (%) 2000–2006*		Rural C–section rate (%) 2000–2006*
	Reported 2000–2006*	Adjusted 2005	Lower bound 2005	Upper bound 2005							at least once	at least four times	
EASTERN/SOUTHERN AFRICA													
Angola	–	1,400	560	2,600	12	6.5	139	6	–	45	66	–	–
Botswana	330 x	380	120	1,000	130	3.0	55	48	27 x	94	97	–	–
Burundi	620	1,100	480	1,900	16	6.8	55	9	29	34	92	–	–
Comoros	380	400	150	840	52	4.5	52	26	35 x	62	75	52 x	4
Eritrea	1,000 x	450	180	850	44	5.2	76	8	27	28	70	41	1
Ethiopia	670	720	460	980	27	5.4	99	15	34	6	28	12	0
Kenya	410	560	340	800	39	5.0	104	39	25	42	88	52	3
Lesotho	760	960	570	1,400	45	3.5	78	37	31	55	90	70	5
Madagascar	470	510	290	740	38	4.9	138	27	24	51	80	40	1
Malawi	980	1,100	720	1,500	18	5.7	142	42	28	54	92	57	3
Mauritius	22	15	15	30	3,300	1.9	40	76	4	98	–	–	–
Mozambique	410	520	360	680	45	5.2	157	17	18	48	85	53	1
Namibia	270	210	110	300	170	3.3	62	44	22	76	91	69	–
Rwanda	750	1,300	770	1,800	16	6.0	42	17	38	39	94	13	2
Seychelles	57	–	–	–	–	–	–	–	–	–	–	–	–
Somalia	1,000	1,400	550	2,700	12	6.2	68	15	–	33	26	–	–
South Africa	150 x	400	270	530	110	2.7	64	60	15 x	92	92	73 x	12
Swaziland	230 x	390	130	980	120	3.6	35	48	–	74	90	–	–
Uganda	510	550	350	770	25	6.6	158	24	41	42	94	42	2
United Republic of Tanzania	580	950	620	1,300	24	5.3	124	26	22	43	78	62	2
Zambia	730	830	520	1,200	27	5.3	132	34	27	43	93	72	1
Zimbabwe	560	880	300	2,000	43	3.3	63	60	13	69	94	64 x	3
WEST/CENTRAL AFRICA													
Benin	500 x	840	330	1,600	20	5.6	125	17	30	78	88	62	2
Burkina Faso	480 x	700	390	1,000	22	6.1	131	17	29	54	85	18	0
Cameroon	670	1,000	670	1,400	24	4.5	123	29	20	63	82	60	1
Cape Verde	76	210	68	530	120	3.5	86	53 x	14 x	89 x	99	64 x	–
Central African Republic	540	980	380	1,900	25	4.7	120	19	16 x	53	69	40 x	2
Chad	1,100	1,500	930	2,000	11	6.3	172	3	23	14	39	18	0
Congo	780	740	450	1,100	22	4.6	119	44	16	83	86	75	2
Côte d'Ivoire	540	810	310	1,600	27	4.6	115	13	28 x	57	85	45	6
Democratic Republic of the Congo	1,300	1,100	480	1,900	13	6.7	225	31	–	61	68	–	–
Equatorial Guinea	–	680	210	1,600	28	5.4	125	–	–	65	86	–	–
Gabon	520	520	290	760	53	3.1	86	33	28	86	94	63	4
Gambia	730	690	250	1,500	32	4.8	107	18	–	57	98	–	–
Ghana	210 x	560	200	1,300	45	4.0	59	17	34	50	92	69	2
Guinea	980	910	590	1,200	19	5.6	155	9	21	38	82	49	1
Guinea–Bissau	410	1,100	500	1,800	13	7.1	191	10	–	39	78	–	–
Liberia	580 x	1,200	520	2,100	12	6.8	221	10	33 x	51	85	–	–
Mali	580	970	620	1,300	15	6.6	185	8	29	41	57	30	0
Mauritania	750	820	480	1,200	22	4.5	89	8	32	57	64	16	1
Niger	650	1,800	840	2,900	7	7.3	204	11	16	33	46	15	0
Nigeria	–	1,100	440	2,000	18	5.5	134	13	17	35	58	47	1
Sao Tome and Principe	150	–	–	–	–	4.0	70	30	–	81	97	–	–
Senegal	430	980	590	1,400	21	4.9	92	12	32	52	87	40	1
Sierra Leone	1,800	2,100	880	3,700	8	6.5	169	5	–	43	81	–	–
Togo	480 x	510	290	750	38	5.0	94	17	32 x	62	84	46 x	1
MIDDLE EAST/NORTH AFRICA													
Algeria	120 x	180	55	520	220	2.4	8	61	–	95	89	–	–
Bahrain	46 x	32	21	42	1,300	2.4	17	62 x	–	98 x	97 x	–	–
Djibouti	74 x	650	240	1,400	35	4.1	25	9	–	61	67	–	–
Egypt	84	130	84	170	230	3.0	42	59	10	74	70	59	15
Iran (Islamic Republic of)	37 x	140	95	190	300	2.0	22	74	–	90	77 x	–	–
Iraq	290 x	300	110	600	72	4.4	39	50	–	89	84	–	–
Jordan	41 x	62	41	82	450	3.2	25	56	11	100	99	91	15
Kuwait	5 x	4	4	8	9,600	2.2	13	50 x	–	98 x	95 x	–	–
Lebanon	100 x	150	41	500	290	2.2	26	58	–	98 x	96	–	–
Libyan Arab Jamahiriya	77 x	97	28	300	350	2.8	3	45 x	–	94 x	81 x	–	5
Morocco	230	240	140	350	150	2.4	19	63	10	63	68	31	2
Occupied Palestinian Territory	–	–	–	–	–	5.3	83	50	–	99	99	–	–
Oman	15	64	18	200	420	3.1	11	32	–	95	100	–	5
Qatar	10 x	12	8	16	2,700	2.7	18	43 x	–	99 x	–	–	–
Saudi Arabia	–	18	12	24	1,400	3.5	29	32 x	–	91 x	90 x	–	5
Sudan	550 x	450	160	1,000	53	4.4	61	7	26 x	87	60	–	24
Syrian Arab Republic	65	130	40	370	210	3.2	39	58	–	93	84	–	–
Tunisia	69 x	100	27	380	500	1.9	7	66	12	90	92	–	–
United Arab Emirates	3 x	37	10	130	1,000	2.3	20	28 x	–	99 x	97 x	–	8
Yemen	370	430	150	900	39	5.6	74	23	39 x	27	41	11 x	1

Countries and territories	Maternal mortality ratio† Reported 2000–2006*	Adjusted 2005	Lower bound 2005	Upper bound 2005	Lifetime risk of maternal death. 1 in:	Total fertility rate 2006	Adolescent birth rate 2006	Contraceptive prevalence (%) 2000–2006*	Unmet need for family planning (%) 2000–2006*	Skilled attendant at delivery (%) 2000–2006*	Antenatal care coverage (%) 2000–2006* at least once	at least four times	Rural C–section rate (%) 2000–2006*
SOUTH ASIA													
Afghanistan	1,600	1,800	730	3,200	8	7.2	119	10	–	14	16	–	–
Bangladesh	320	570	380	760	51	2.9	132	58	11	20	48	16	2
Bhutan	260	440	160	970	55	2.3	41	31	–	56	51	–	–
India	300	450	300	600	70	2.9	64	56	13	47	74	51	6
Maldives	140	120	42	260	200	2.6	24	39	–	84	81	–	–
Nepal	280	830	290	1,900	31	3.4	117	48	25	19	44	29	2
Pakistan	530 x	320	99	810	74	3.6	32	28	33	31	36	14 x	1
Sri Lanka	43	58	39	77	850	1.9	26	70	18	96	95	–	–
EAST ASIA/PACIFIC													
Brunei Darussalam	0 x	13	3	47	2,900	2.4	28	–	–	99 x	100 x	–	–
Cambodia	470	540	370	720	48	3.3	44	40	25	44	69	27	1
China	48	45	30	60	1,300	1.7	6	87	–	98	90	–	–
Cook Islands	6 x	–	–	–	–	–	–	44	–	98	–	–	–
Democratic People's Republic of Korea	110 x	370	110	1,200	140	1.9	1	62 x	–	97	–	–	–
Fiji	38 x	210	55	720	160	2.8	35	44	–	99	–	–	–
Indonesia	310	420	240	600	97	2.2	77	57	9	72	92	81	2
Kiribati	56	–	–	–	–	–	–	21 x	–	85 x	88 x	–	–
Lao People's Democratic Republic	410	660	190	1,600	33	3.3	13	32	40	19	27	–	–
Malaysia	28	62	41	82	560	2.7	17	55 x	–	98	79	–	–
Marshall Islands	74	–	–	–	–	–	–	34	–	95 x	–	–	–
Micronesia (Federated States of)	270 x	–	–	–	–	3.9	29	45 x	–	88	–	–	–
Mongolia	93	46	46	93	840	1.9	46	66	5	99	99	–	–
Myanmar	320	380	260	510	110	2.1	48	34	19	57	76	–	–
Nauru	–	–	–	–	–	–	–	–	–	–	–	–	–
Niue	–	–	–	–	–	–	–	–	–	100	–	–	–
Palau	0 x	–	–	–	–	–	–	17	–	100	–	–	–
Papua New Guinea	370 x	470	130	1,300	55	4.0	57	26 x	–	41	78 x	–	–
Philippines	170 x	230	60	700	140	3.3	5	49	17	60	88	70	5
Republic of Korea	20 x	14	14	27	6,100	1.2	4	81 x	–	100 x	–	–	–
Samoa	29	–	–	–	–	4.1	30	43 x	–	100 x	–	–	–
Singapore	6 x	14	14	27	6,200	1.3	42	62 x	–	100 x	–	–	–
Solomon Islands	140 x	220	65	580	100	4.0	44	7	–	85 x	–	–	–
Thailand	24	110	70	140	500	1.8	57	77	11 x	97	98	–	–
Timor–Leste	–	380	150	700	35	6.7	42	10	4	18	61	30	–
Tonga	78	–	–	–	–	3.8	18	33	–	95	–	–	–
Tuvalu	–	–	–	–	–	–	–	32	–	100	–	–	–
Vanuatu	68 x	–	–	–	–	3.9	47	28	–	88 x	–	–	–
Viet Nam	160	150	40	510	280	2.2	19	76	5	88	91	29	7
LATIN AMERICA/CARIBBEAN													
Antigua and Barbuda	0	–	–	–	–	–	–	53 x	–	100	100	–	–
Argentina	39	77	51	100	530	2.3	58	–	–	99	99	–	–
Bahamas	–	16	16	33	2,700	2.0	54	–	–	99	–	–	–
Barbados	0 x	16	16	31	4,400	1.5	42	55 x	–	100	100	–	–
Belize	130	52	52	100	560	3.0	82	56 x	21 x	84 x	96	76 x	8
Bolivia	230	290	160	430	89	3.6	80	58	23	67	79	58	6
Brazil	76	110	74	150	370	2.3	89	77 x	7 x	88 x	97	76 x	20
Chile	17	16	16	32	3,200	1.9	60	56 x	–	100	95 x	–	–
Colombia	78	130	38	370	290	2.3	68	78	6	96	94	83	16
Costa Rica	36	30	30	60	1,400	2.1	73	96	5 x	99	92	–	18
Cuba	37	45	45	90	1,400	1.5	48	77	–	100	100	–	–
Dominica	0	–	–	–	–	–	–	50 x	–	100	100	–	–
Dominican Republic	92	150	90	210	230	2.9	110	61	11	96	99	94	25
Ecuador	110	210	65	560	170	2.6	83	73	7	99 x	84	58	16
El Salvador	71	170	55	460	190	2.7	83	67	9	92	86	71	15
Grenada	0	–	–	–	–	2.3	45	54	–	100	100	–	–
Guatemala	150	290	100	650	71	4.3	110	43	28	41	84	–	8
Guyana	120	470	140	1,600	90	2.4	65	35	–	94	90	–	–
Haiti	630	670	390	960	44	3.7	48	32	38	26	85	54	1
Honduras	110 x	280	190	380	93	3.4	96	65	17	67	92	81	8
Jamaica	95	170	51	510	240	2.5	81	69	12	97	91	87 x	–
Mexico	62	60	60	120	670	2.3	66	74	12	86 x	86 x	–	–
Nicaragua	87	170	120	230	150	2.8	115	69	15	67	86	72	7
Panama	40	130	39	410	270	2.6	85	–	16 x	93	72	–	–
Paraguay	170	150	99	200	170	3.2	75	73	7	77	94	79	16
Peru	190	240	170	310	140	2.5	61	71	9	73	92	87	6
Saint Kitts and Nevis	0	–	–	–	–	–	–	54	–	100	100	–	–
Saint Lucia	35	–	–	–	–	2.2	61	47 x	–	100	99	–	–
Saint Vincent and the Grenadines	0	–	–	–	–	2.2	65	48	–	100	95	–	–
Suriname	150	72	72	140	530	2.5	41	42	–	85	91	–	–
Trinidad and Tobago	45 x	45	45	89	1,400	1.6	35	43	16 x	98	96	–	–
Uruguay	26 x	20	20	40	2,100	2.1	62	84 x	–	100 x	94 x	–	–
Venezuela (Bolivarian Republic of)	60	57	57	110	610	2.6	91	77 x	19 x	95	94	–	–

Table 1: Millennium Development Goal 5 indicators (cont'd)

Countries and territories	Maternal mortality ratio†					Total fertility rate 2006	Adolescent birth rate 2006	Contraceptive prevalence (%) 2000–2006*	Unmet need for family planning (%) 2000–2006*	Skilled attendant at delivery (%) 2000–2006*	Antenatal care coverage (%) 2000–2006*		Rural C–section rate (%) 2000–2006*
	Reported 2000–2006*	Adjusted 2005	Lower bound 2005	Upper bound 2005	Lifetime risk of maternal death. 1 in:						at least once	at least four times	
CEE/CIS													
Albania	17	92	26	300	490	2.1	16	60	1	100	97	–	11
Armenia	27	76	23	250	980	1.3	30	53	13	98	93	71	6
Azerbaijan	26	82	21	290	670	1.7	29	55	12	100	70	30	1
Belarus	10	18	18	35	4,800	1.2	22	73	–	100	99	–	–
Bosnia and Herzegovina	3	3	3	6	29,000	1.2	21	36	–	100	99	–	–
Bulgaria	10	11	11	22	7,400	1.3	41	86 x	30 x	99	–	–	–
Croatia	7	7	7	15	10,500	1.3	14	–	–	100	–	–	–
Georgia	23	66	18	230	1,100	1.4	32	47	16	99	94	75	12
Kazakhstan	70	140	40	500	360	2.2	30	51	9 x	100	100	70 x	8
Kyrgyzstan	100	150	43	460	240	2.5	31	48	12 x	98	97	81 x	6
Moldova	19	22	22	44	3,700	1.4	14	68	7	100	98	89	7
Montenegro	–	–	–	–	–	1.8	17	39	–	99	97	–	–
Romania	17	24	24	49	3,200	1.3	33	70	12	99	94	76	12
Russian Federation	23	28	28	55	2,700	1.3	28	–	–	99	–	–	–
Serbia	–	–	–	–	–	1.8	25	41	–	99	98	–	–
Tajikistan	97	170	53	460	160	3.5	29	38	–	83	77	–	–
The former Yugoslav Republic of Macedonia	13	10	10	20	6,500	1.5	22	–	–	99	81	–	–
Turkey	29	44	29	58	880	2.2	40	71	6	83	81	54	13
Turkmenistan	14	130	37	400	290	2.6	16	48	10	100	99	83	2
Ukraine	13	18	18	36	5,200	1.2	29	66	18 x	100	99	–	–
Uzbekistan	28	24	24	49	1,400	2.6	35	65	14 x	100	99	79 x	2
INDUSTRIALIZED COUNTRIES													
Andorra	–	–	–	–	–	–	–	–	–	–	–	–	–
Australia	–	4	4	9	13,300	1.8	15	–	–	100 x	100 x	–	–
Austria	–	4	4	7	21,500	1.4	12	51 x	–	100 x	100 x	–	–
Belgium	–	8	8	16	7,800	1.6	8	78 x	3 x	–	–	–	–
Canada	–	7	7	13	11,000	1.5	14	75 x	–	98	–	–	–
Cyprus	0 x	10	10	20	6,400	1.6	8	–	–	–	–	–	–
Czech Republic	5	4	4	9	18,100	1.2	11	69 x	11 x	100	99 x	97 x	–
Denmark	10 x	3	3	6	17,800	1.8	6	–	–	–	–	–	–
Estonia	29	25	25	50	2,900	1.5	22	70 x	–	100	–	–	–
Finland	6 x	7	7	15	8,500	1.8	10	–	–	100 x	100 x	–	–
France	10 x	8	8	16	6,900	1.9	7	75 x	7 x	99 x	99 x	–	–
Germany	8 x	4	4	9	19,200	1.4	10	75 x	–	–	–	–	–
Greece	1 x	3	2	4	25,900	1.3	9	–	–	–	–	–	–
Holy See	–	–	–	–	–	–	–	–	–	–	–	–	–
Hungary	4	6	6	11	13,300	1.3	20	77 x	7 x	100	–	–	–
Iceland	–	4	4	8	12,700	2.0	15	–	–	–	–	–	–
Ireland	6 x	1	1	2	47,600	2.0	17	–	–	100	–	–	–
Israel	5 x	4	4	9	7,800	2.8	15	–	–	–	–	–	–
Italy	7 x	3	3	6	26,600	1.4	7	60 x	12 x	–	–	–	–
Japan	8 x	6	6	12	11,600	1.3	3	56	–	100 x	–	–	–
Latvia	10	10	10	19	8,500	1.3	15	48 x	17 x	100	–	–	–
Liechtenstein	–	–	–	–	–	–	–	–	–	–	–	–	–
Lithuania	16	11	11	22	7,800	1.3	19	47 x	18 x	100	–	–	–
Luxembourg	0 x	12	12	23	5,000	1.7	10	–	–	100	–	–	–
Malta	–	8	8	17	8,300	1.4	14	–	–	98 x	–	–	–
Monaco	–	–	–	–	–	–	–	–	–	–	–	–	–
Netherlands	7 x	6	6	12	10,200	1.7	5	79 x	–	100 x	–	–	–
New Zealand	15 x	9	9	18	5,900	2.0	24	75 x	–	100 x	95 x	–	–
Norway	6 x	7	7	15	7,700	1.8	9	–	–	–	–	–	–
Poland	4	8	5	10	10,600	1.2	33	49 x	–	100	–	–	–
Portugal	8 x	11	7	14	6,400	1.5	14	–	–	100	–	–	–
San Marino	–	–	–	–	–	–	–	–	–	–	–	–	–
Slovakia	6	6	6	12	13,800	1.2	20	74 x	–	100	–	–	–
Slovenia	17 x	6	6	12	14,200	1.3	7	74 x	9 x	100	98 x	–	–
Spain	6 x	4	4	9	16,400	1.4	10	81 x	12 x	–	–	–	–
Sweden	5 x	3	3	7	17,400	1.8	5	–	–	–	–	–	–
Switzerland	5 x	5	5	11	13,800	1.4	4	82 x	–	–	–	–	–
United Kingdom	7 x	8	8	15	8,200	1.8	25	84	–	99 x	–	–	–
United States	8 x	11	11	21	4,800	2.1	43	76 x	4 x	99 x	–	–	–
SUMMARY INDICATORS													
Sub–Saharan Africa	–	920	470	1,500	22	5.3	126	23	24	43	69	42	2
Eastern/Southern Africa	–	760	440	1,100	29	5.0	106	30	26	40	71	40	2
West/Central Africa	–	1,100	490	1,800	17	5.6	146	17	22	46	67	44	1
Middle East/North Africa	–	210	93	430	140	3.1	34	55	–	79	72	–	12
South Asia	–	500	300	770	59	3.0	69	53	15	41	65	46	5
East Asia/Pacific	–	150	80	270	350	1.9	19	79	11 y	87	89	–	4 y
Latin America/Caribbean	–	130	81	230	280	2.4	78	70	11	–	94	–	13
CEE/CIS	–	46	27	110	1,300	1.7	31	63	11	95	90	–	8
Industrialized countries	–	8	8	15	8,000	1.7	23	–	–	99	–	–	–
Developing countries	–	450	240	720	76	2.8	58	61	15 y	59	75	49	4
Least developed countries	–	870	460	1,400	24	4.7	121	30	24	38	61	31	2
World	–	400	220	650	92	2.6	54	61	14 y	63	75	49	4

† The maternal mortality data in the column headed 'reported' are those reported by national authorities. Periodically, UNICEF, WHO, UNFPA and the World Bank evaluate these data and make adjustments to account for the well-documented problems of under-reporting and misclassification of maternal deaths and to develop estimates for countries with no data. The column with 'adjusted' estimates for the year 2005 reflects the most recent of these reviews. * Data refer to the most recent year available during the period specified in the column heading. x Data refer to years or periods other than those specified in the column heading, differ from the standard definition or refer to only part of a country. Such data are not included in the calculation of regional and global averages. y Excludes China because of a lack of comparable data.

Table 2: Comparison of maternal mortality by UNICEF region, 1990–2005

Region	Maternal mortality ratio			Number of maternal deaths	
	1990	2005	Percentage reduction between 1990 and 2005	1990	2005
Sub-Saharan Africa	940	920	1.5	206,000	265,000
Eastern/Southern Africa	790	760	3.9	85,000	103,000
West/Central Africa	1,100	1,100	0.7	121,000	162,000
Middle East/North Africa	270	210	21.1	26,000	21,000
South Asia	650	500	22.0	238,000	187,000
East Asia/Pacific	220	150	30.3	80,000	45,000
Latin America/Caribbean	180	130	26.0	21,000	15,000
CEE/CIS	63	46	27.5	4,400	2,600
Industrialized countries	8	8	8.3	960	830
Developing countries	480	450	6.3	574,000	534,000
Least developed countries	900	870	2.5	201,000	247,000
World	430	400	5.4	576,000	536,000

DEFINITIONS OF THE INDICATORS

Maternal mortality ratio – Annual number of deaths of women from pregnancy-related causes per 100,000 live births.
Lifetime risk of maternal death – Lifetime risk of maternal death takes into account both the probability of becoming pregnant and the probability of dying as a result of that pregnancy accumulated across a woman's reproductive years.
Total fertility rate – Number of children who would be born per woman if she lived to the end of her childbearing years and bore children at each age in accordance with prevailing age-specific fertility rates.
Adolescent birth rate – Annual number of births to women aged 15–19 per 1,000 women in that age group. Alternatively, it is also referred to as the age-specific fertility rate for women aged 15–19.
Contraceptive prevalence – Percentage of women in union aged 15–49 currently using contraception.
Unmet need for family planning – Refers to women who are fecund and sexually active but are not using any method of contraception and report not wanting any more children or wanting to delay the birth of the next child.
Skilled attendant at delivery – Percentage of births attended by skilled health personnel (doctors, nurses or midwives).
Antenatal care coverage – Percentage of women 15–49 years old attended at least once during pregnancy by skilled health personnel (doctors, nurses or midwives) and the percentage attended by any provider at least four times.
C-section rate – Percentage of live births delivered by Caesarean section.

MAIN DATA SOURCES

Maternal mortality – WHO, UNICEF, UNFPA and World Bank.
Lifetime risk – WHO, UNICEF, UNFPA and World Bank.
Total fertility rate – United Nations Population Division.
Adolescent birth rate – United Nations Population Division.
Contraceptive prevalence – DHS, MICS and other national household surveys.
Unmet need for family planning – DHS, MICS and other national household surveys.
Skilled attendant at delivery – DHS, MICS and other national household surveys.
Antenatal care coverage – DHS, MICS and other national household surveys.
C-section rate – DHS and other national household surveys.

ESTIMATING MATERNAL MORTALITY

Several UN agencies are working to establish more accurate measurements of maternal mortality levels worldwide and to assess progress towards MDG 5. A Maternal Mortality Working Group comprising WHO, UNICEF and UNFPA developed internationally comparable estimates of maternal mortality for 1990, 1995 and 2000, with each exercise building on the previous methodology.

In 2006, the Maternal Mortality Working Group was expanded to include the World Bank and the United Nations Population Division. This working group developed a new set of maternal mortality estimates for 2005 based on refined methodology and new data, and it estimated maternal mortality trends.[1] The process generates estimates for countries with no national data and adjusted available country data to correct for under-reporting and misclassification. Of 171 countries reviewed by the Inter-Agency Maternal Mortality Working Group for the latest round of maternal mortality estimates, there were no appropriate national-level data for 61 countries, representing one quarter of global births. For these countries, models were used to estimate maternal mortality.

Researchers have developed methods to gather information on maternal mortality in societies without routine registration. Because a maternal death is a relatively rare event (which is why the maternal mortality ratio is measured per 100,000 births), it is difficult to obtain a large enough sample size for reasonably accurate measurement using household survey data. One such tool developed to increase the number of events captured in survey samples is the 'sisterhood method', in which respondents are interviewed about the survival of all their adult sisters. This can generate an overall estimate of maternal mortality for a point centred up to 12 years before the survey. The method can provide useful data, but analysis has shown that sisterhood studies systematically underestimate mortality levels.[2]

Due to these difficulties, the use of process indicators is an essential tool for tracking progress towards MDG 5. The proportion of births attended by skilled health personnel is a process indicator for the target on maternal mortality; contraceptive prevalence, and antenatal and post-natal care coverage are process indicators for the target on universal access to reproductive health. Along with being easier to measure, process indicators have the advantage of tracking coverage of interventions rather than just impact and thus provide useful information for policymakers.

[1] World Health Organization, United Nations Children's Fund, United Nations Population Fund and the World Bank, *Maternal Mortality in 2005: Estimates developed by WHO, UNICEF, UNFPA and the World Bank*, WHO, Geneva, 2007.

[2] World Health Organization and United Nations Children's Fund, 'The Sisterhood Method for Estimating Maternal Mortality: Guidance notes for potential users: WHO/RHT/97.28, UNICEF/EPP/97.1', WHO/UNICEF, 1997, pp. 5, 6, 11.

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