Causes of maternal and child deaths

What causes the 8.8 million child deaths each year?

New estimates of child deaths for 2008 show that pneumonia, diarrhoea and malaria remain the highest causes worldwide, together accounting for 41% of deaths (figure 3). More than 40% of child deaths occur in the neonatal period, and progress in reducing deaths has been slower for newborn deaths than for deaths among children ages one month to five years. Undernutrition contributes to more than one-third of child deaths.[3] The majority of these deaths can and must be prevented by increasing coverage for known, affordable and effective interventions.

The country profiles highlight important regional and country variations in these causes. For example, estimates for Africa indicate that 29% of all child deaths occur in the neonatal period and that 49% of deaths after this period are due to pneumonia, diarrhoea or malaria.[4] In contrast, estimates for South East Asia indicate that about 54% of child deaths occur in the neonatal period and that about 26% of postneonatal deaths are due to pneumonia, diarrhoea or malaria.

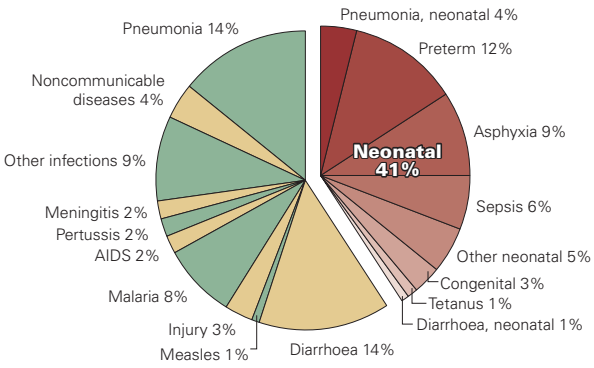
Global distribution of maternal causes of death

A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, regardless of the site or duration of pregnancy, from any cause related to or aggravated by the pregnancy or its management. New estimates show that the leading causes of maternal deaths are haemorrhage and hypertension, which together account for more than half of maternal deaths (figure 4). Indirect causes, which include deaths due to conditions such as malaria, HIV/AIDS and cardiac diseases, account for about one-fifth of maternal deaths. Regional estimates show that haemorrhage and hypertension are among the top three causes of deaths in both South Asia and Sub-Saharan Africa, where the

FIGURE 3

More than 40% of child deaths occur during the neonatal period

Global causes of death among children ages 0–59 months, 2008



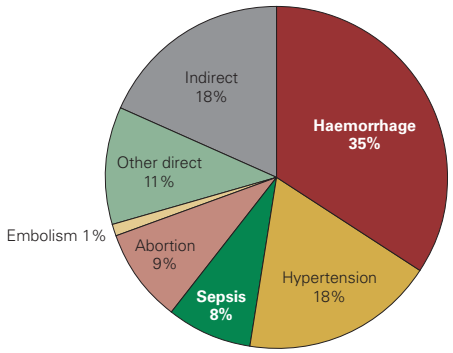
Undernutrition contributes to one-third of child deaths.

Source: Black and others forthcoming.

FIGURE 4

New estimates show that haemorrhage and hypertension account for more than half of maternal deaths

Global estimates of the causes of maternal deaths, 1997–2007



Source: Preliminary data from a WHO systematic review of causes of maternal deaths.

majority of maternal deaths occur. This is in contrast to developed countries, where other direct causes—for example, those related to complications of anaesthesia and caesarean sections—are the leading cause of death, reflecting global disparities in access to needed obstetrical care.

The categories of maternal deaths are based on a new classification system developed by WHO that considers obstructed labour and anaemia to be contributing conditions rather than direct causes. Deaths related to these two conditions are now classified within the categories of haemorrhage or sepsis.

Social determinants of maternal, newborn and child health

In the words of the WHO Commission for Social Determinants of Health (2008), social determinants of maternal, newborn and child health ". . . are the conditions in which people are born, grow, live, work and age, including the health system. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels, which are themselves influenced by policy choices. The social determinants of health are mostly responsible for health inequities—the unfair and avoidable differences in health status seen within and between countries."

Poverty and inequity are underlying contributors to many maternal, newborn and child deaths, and evidence shows that poor households have more than twice the risk of mortality of wealthy households.[5] Poverty affects maternal, newborn and child health through a range of mechanisms. Poor diets and food insecurity increase the risk of illness and undernutrition (box 3); poor environmental conditions contribute to inadequate housing, water and sanitation; and family poverty reduces care-seeking and access to information and health care services. Poverty and lack of access to care can be compounded by conflict,

BOX 3

Undernutrition: a risk for women and children

Undernutrition affects mortality and ill-health along the entire continuum of care from pre-pregnancy to early childhood.

Undernutrition, the result of poor dietary quality and inadequate intake of micronutrients as well as low energy intake, contributes to at least one-third of child deaths. Stunting, or low height for age, is a particularly important *Countdown* indicator because it reflects longer term nutritional deficiencies with implications for growth and development of children now and in future generations. Child undernutrition and infectious diseases are synergistic and cyclical, posing a major threat to child survival.

Maternal short stature and iron deficiency anaemia, which can increase the risk of death of the mother at delivery, contribute to at least 20% of maternal deaths. Maternal undernutrition also increases the probability of low birth weight, which in turn increases the probability of neonatal deaths due to infections and asphyxia. Measures of maternal undernutrition will be tracked by *Countdown* beginning in the 2011 report.

Two-thirds of the world's children affected by stunting live in just 10 *Countdown* countries

Country	Stunting prevalence (%)	Number of stunted children (thousands)	Share of developing country total (%)
India	48	60,788	31.2
China	22	12,685	6.5
Nigeria	41	10,158	5.2
Pakistan	42	9,868	5.1
Indonesia	37	7,688	3.9
Bangladesh	43	7,219	3.7
Ethiopia	51	6,768	3.5
Congo, Dem. Rep. of the	46	5,382	2.8
Philippines	34	6,317	1.9
Tanzania, U. Rep.	44	3,359	1.7
Total			65.5

Source: UNICEF 2009b.

Source: Stewart, Dewey, and Ashorn 2010; Victora and others 2008; Black and others 2008; UNICEF 2009b.

population displacement and emergencies such as floods and drought. Recent analyses indicate that maternal, newborn and child health can be negatively affected by high burdens of noncommunicable diseases that increase the likelihood of catastrophic expenditures at the household level. Maternal, newborn and child health is also influenced by gender discrimination, low levels of female education, few income-earning opportunities for women and other societal factors affecting women's empowerment. Further, the death of a mother increases the risk that her children will die.

A range of measures are available to address social determinants of health. Expanding educational programmes, introducing gender-based affirmative action policies and other programmes to achieve MDG3, implementing laws supportive of human rights and improving living and working conditions (for example, improving access to clean water and adequate sanitation) can all make a difference. Good governance and oversight of health systems can positively influence maternal, newborn and child health in difficult circumstances. In addition, tackling the inequitable distribution of power, money and resources should be a priority. Other successful approaches include addressing financial barriers to care by, for example, reducing or eliminating user fees or introducing targeted conditional cash transfer schemes. Women's support groups have been shown to contribute measurable improvements in maternal, newborn and child health as well as mental health, suggesting that such strategies can be employed synergistically with health sector reforms to improve women's empowerment and decision-making.

Coverage along the continuum of care

Countdown tracks coverage along a continuum of care from pre-pregnancy and childbirth through childhood up to age 5, highlighting missed opportunities for the delivery of lifesaving interventions. Median coverage levels for 20 *Countdown* interventions are summarized in figure 5 but they mask important variations in levels and progress at the country level.

Coverage gaps

The 2010 *Countdown* results show important gaps in coverage for three groups of interventions:

- Interventions immediately surrounding birth, such as the presence of a skilled attendant, ensuring the early initiation of breastfeeding and an early postnatal visit to check on the health of the mother and newborn.
- Interventions that require 24-hour access to a skilled health provider, such as treatment of childhood pneumonia, diarrhoea and malaria.
- Interventions introduced only recently, such as intermittent preventive treatment for malaria during pregnancy, or recently scaled-up interventions, such as the use of insecticide-treated nets.

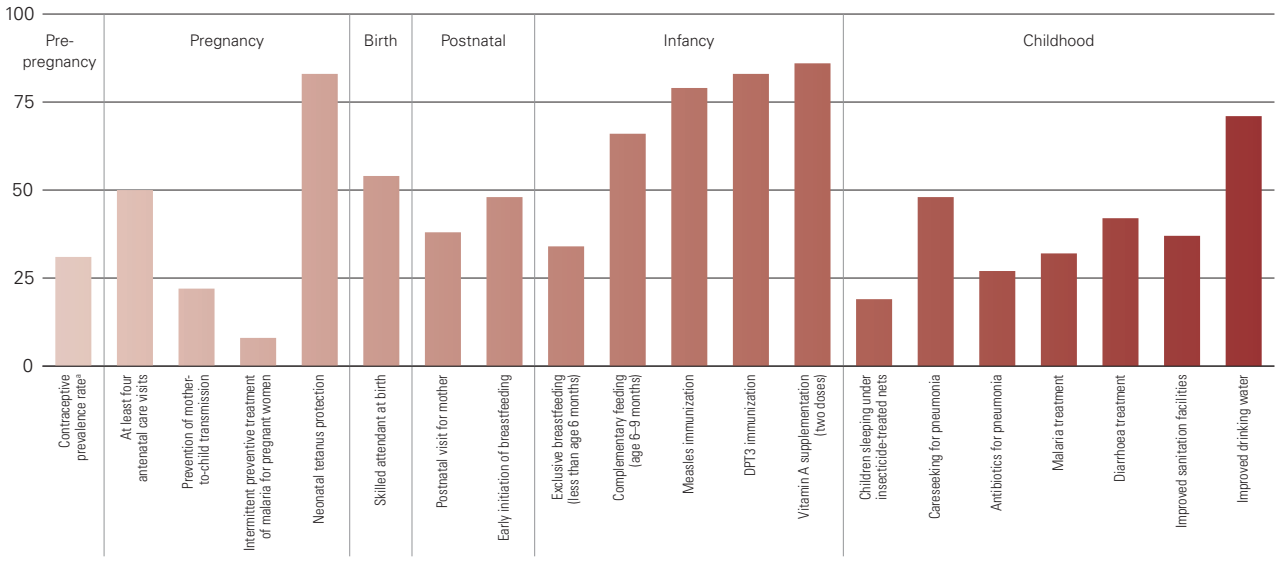
Equity gaps

Data on the disparities in coverage between the poorest and the least-poor, shown later, highlight the poor-rich gap in access to these essential

FIGURE 5

Coverage of interventions varies across the continuum of care

Median national coverage of interventions across the continuum of care for 20 *Countdown* interventions and approaches in *Countdown* countries, most recent year since 2000 (%)



a. Target coverage value is not 100%.

Source: Prevention of mother-to-child transmission of HIV/AIDS, UNICEF, Joint United Nations Programme on HIV/AIDS (UNAIDS) and WHO; immunization rates, WHO and UNICEF; postnatal visit for mother, Saving Newborn Lives analysis of Demographic and Health Surveys; improved water and sanitation, WHO and UNICEF Joint Monitoring Programme 2010; all other indicators, UNICEF Global Databases, November 2009, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

lifesaving interventions, including family planning services.

Quality gaps

Coverage estimates for service delivery contacts—such as antenatal care, skilled attendant at birth and postnatal visits for the mother—do not address the quality of that contact or whether it provided needed interventions such as active management of the third stage of labour or counselling on family planning. Quality assessments of such services are an essential part of sound programme management.

Data gaps

Countdown highlights data gaps that must be addressed to improve the ability of countries to make informed decisions on how to accelerate progress towards MDGs 4 and 5. For example, only 23 *Countdown* countries have data available on postnatal care for women, and six have data on postnatal care for newborns.

Every pregnancy wanted

Addressing adolescent reproductive health—an essential part of the continuum of care

Newly included in this *Countdown* update are estimates of the adolescent birth rate, defined as the annual number of births to women ages 15–19 per 1,000 women in that age group. This is a progress indicator for MDG target 5.B for achieving universal access to reproductive health. Adolescent fertility is high in many *Countdown* countries (figure 6), which means that many young women face an elevated risk of maternal death and disability. Newborns and infants of adolescent mothers are also at higher risk of low birth weight and mortality.

Analysis of 23 *Countdown* countries in Sub-Saharan Africa with two consecutive Demographic and Health Surveys since 2000 shows at least a 10% drop in the adolescent fertility rate in 18 of them. In the majority of these countries, the declines are primarily among women from wealthier households, those living in urban areas and those with higher education levels.

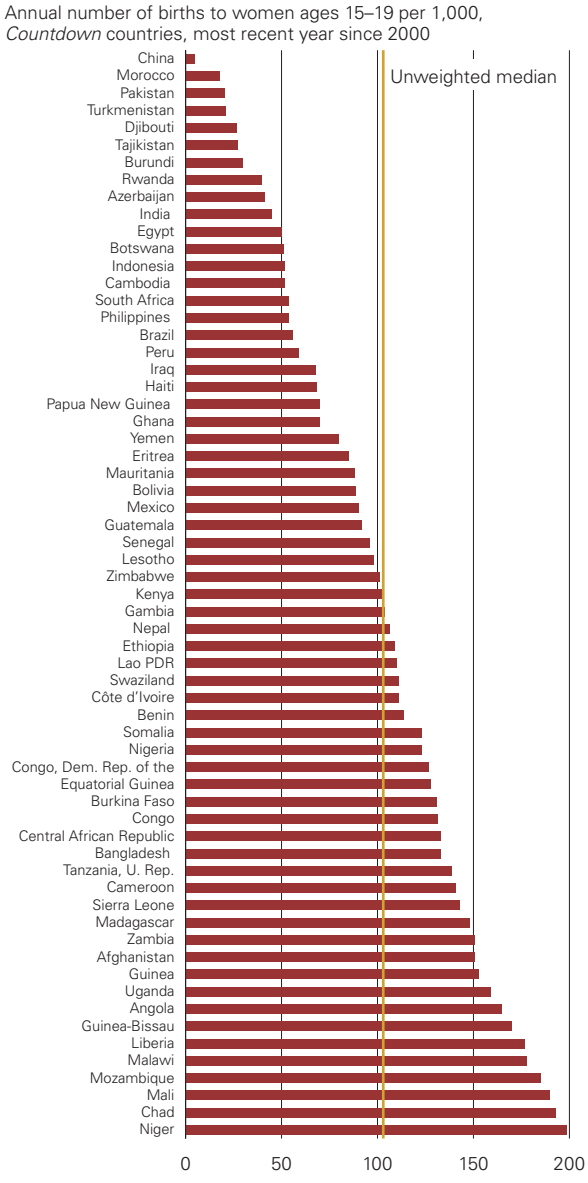
Increasing access to family planning

Reducing unwanted pregnancies reduces overall births, including those among adolescent women, and therefore reduces maternal deaths and unsafe abortions. The impact of birth spacing on newborn and child survival is also important.[6] *Countdown* tracks both the contraceptive prevalence rate—the percentage of women married or in union ages 15–49 who are practising, or whose sexual partners are practising, any form of contraception—and the unmet need for contraception—the percentage of married women who do not want a child or who want to postpone their next pregnancy but are not using any contraception (figure 7). Both are progress indicators for MDG target 5.B.

Trends in family planning coverage have been highly variable across countries. The small increase in the median coverage for the 42 countries with data on contraceptive prevalence from around 2000

FIGURE 6

Births to adolescent girls carry risks for mothers and newborns

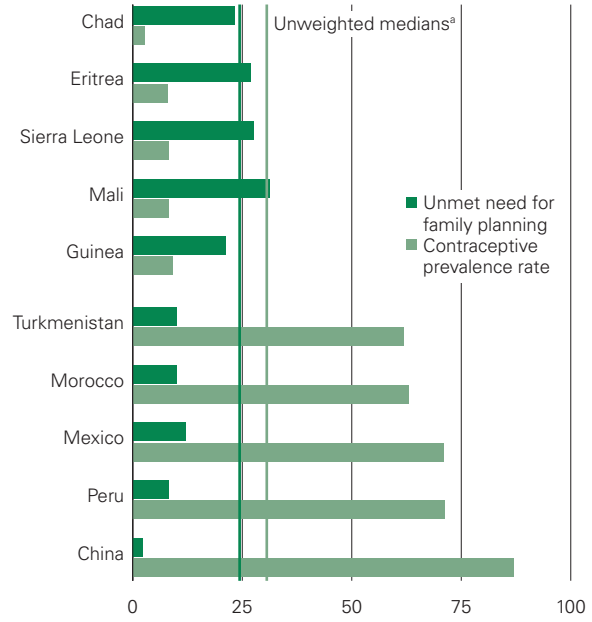


Source: United Nations Population Division.

FIGURE 7

Disparities in family planning coverage and need are wide

Unmet need for family planning, *Countdown* countries with the highest and lowest contraceptive prevalence rates, various years since 2000 (%)



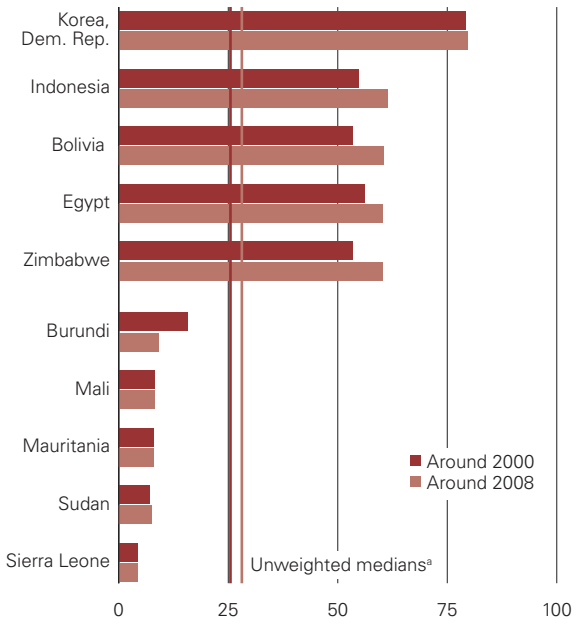
a. Refers to unweighted median of all *Countdown* countries with data available (49 countries for family planning and 66 countries for contraceptive prevalence rate).

Source: Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national household surveys.

FIGURE 8

Progress in coverage for family planning since 2000 has been mixed

Coverage for family planning, contraceptive prevalence rate and trends for *Countdown* countries with the highest and lowest contraceptive prevalence rates; 2008 (%)



a. Refers to unweighted median of 42 *Countdown* countries with data available for both time periods.

Source: Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national household surveys.

and around 2008 mask important increases and lack of progress in individual countries (figure 8). For example, Madagascar (box 4), Rwanda and Swaziland all increased coverage by more than 20 percentage points, but 12 other countries showed no change or a decrease in coverage, with Central African Republic and Togo seeing declines of 9 percentage points and Democratic Republic of Congo a decline of 11 percentage points. Decreased ODA to family planning from 1990 to 2007, among other factors, likely contributed to this lack of progress (see figure 22). There are also disparities in family planning coverage within countries, with lower coverage among women in poorer households and among adolescents relative to older women.

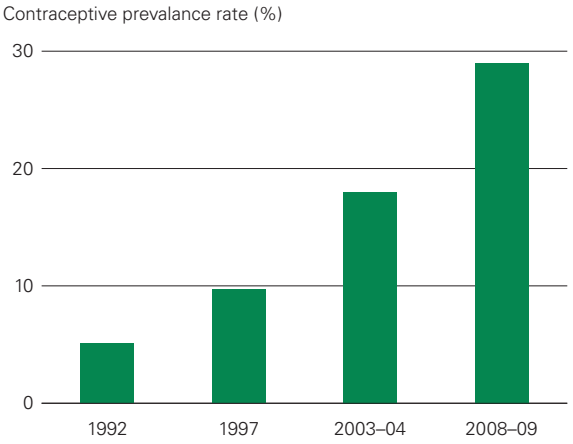
BOX 4

What can we learn from Madagascar's family planning success?

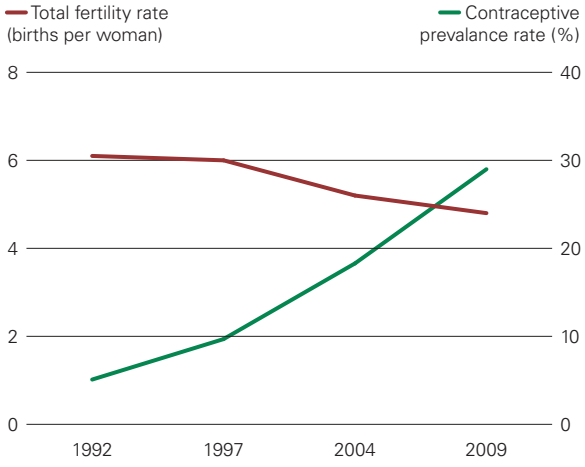
Contraceptive prevalence in Madagascar rose from 5.1% in 1992 to 29% in 2008–09, according to Demographic and Health Surveys (see figures). The Madagascar Family Planning Program attributes this success to three aspects of the programme:

- Leadership and policy
  - Strong leadership at the highest level (such as former President Marc Ravalomanana).
  - A target included at the highest level in the national development plan (Madagascar Action Plan target of 30% contraceptive prevalence in 2012).
  - Policy of providing contraceptives free in all public health facilities.
- Community involvement
  - Effective multisectoral collaboration with involvement of local authorities (17,433 Fokontany chiefs initiated and sensitized on family planning through a film and brochures).
  - National campaign of integrated activities for family planning, adolescent reproductive health and HIV/AIDS in 81% of public schools.
  - 3,000 women leaders initiated and sensitized on family planning.
  - Community health workers trained to provide family planning via injectable contraceptives.
- Programme management
  - Integration of family planning programme in all functional public health facilities, including 50 voluntary counselling and testing centres (all public and functional).
  - Family planning commodity security assured through coordination by a logistic committee, monitoring and periodic surveys.

The prevalence of modern contraception among married women in Madagascar has risen consistently since 1992



The number of women using family planning has accelerated since 1992



Source: Demographic and Health Surveys.

Every birth safe

All women and their newborns need skilled care at birth and access to emergency care when complications develop. Outcomes around birth are a sensitive marker of the strength of health systems, including the quality of available care (figure 9). Life-threatening complications at birth require rapid response. Postpartum haemorrhage can kill a mother in a few hours, and a newborn who is not breathing at birth will be dead within minutes.

Addressing current global gaps for care at birth is critical to achieving MDGs 4 and 5. When mothers die during childbirth, it is rare for the newborn to survive, and the risk of mortality increases for any young children left behind in the household.

Coverage gap for care at birth

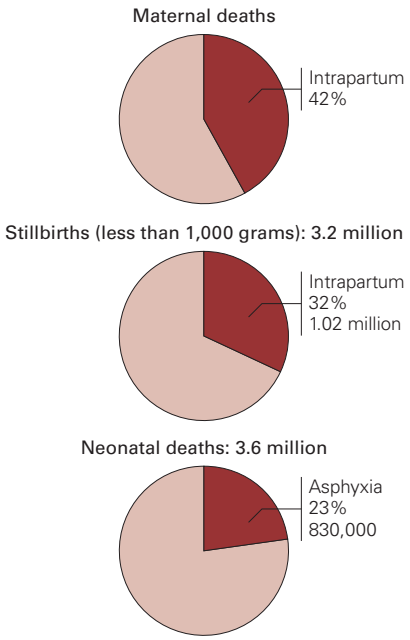
Some *Countdown* countries have made good progress in increasing the proportion of women attended by a skilled provider during childbirth, a progress indicator for MDG target 5.A. Three countries—Burkina Faso, Pakistan and Rwanda—had gains of more than 20 percentage points from around 2000 to around 2008, and 10 had gains of more than 10 percentage points since 1990 (figure 10). Gains were uneven, however, with 11 countries showing no progress. More effort is needed to ensure all pregnant women and newborns have access to a skilled provider.

Coverage gap for emergency obstetric care

Life-threatening complications during labour and delivery are often unpredictable and unpreventable. All pregnant women must have access to skilled care at birth (box 5) and a guarantee that basic or emergency obstetric care services are accessible when needed. Availability of such services is low in many *Countdown* countries (see page 29). Caesarean section coverage rates below 5% signal a lack of access to emergency obstetric care and indicate human resources and other health systems challenges[7]; 33 of the 51 *Countdown* countries with data since 2000 had rural rates below 5%, and 4—Burkina Faso, Chad, Ethiopia and Niger—had rural rates below 1%.

FIGURE 9

The period surrounding birth accounts for a high proportion of deaths



Source: Adapted from Lawn and others (2009) using data on stillbirths from Stanton and others (2006), data on intrapartum stillbirths from Lawn, Shibuya, and Stein (2005), data on neonatal deaths from Black and others (forthcoming) and data on maternal time of death from Li and others (1996).

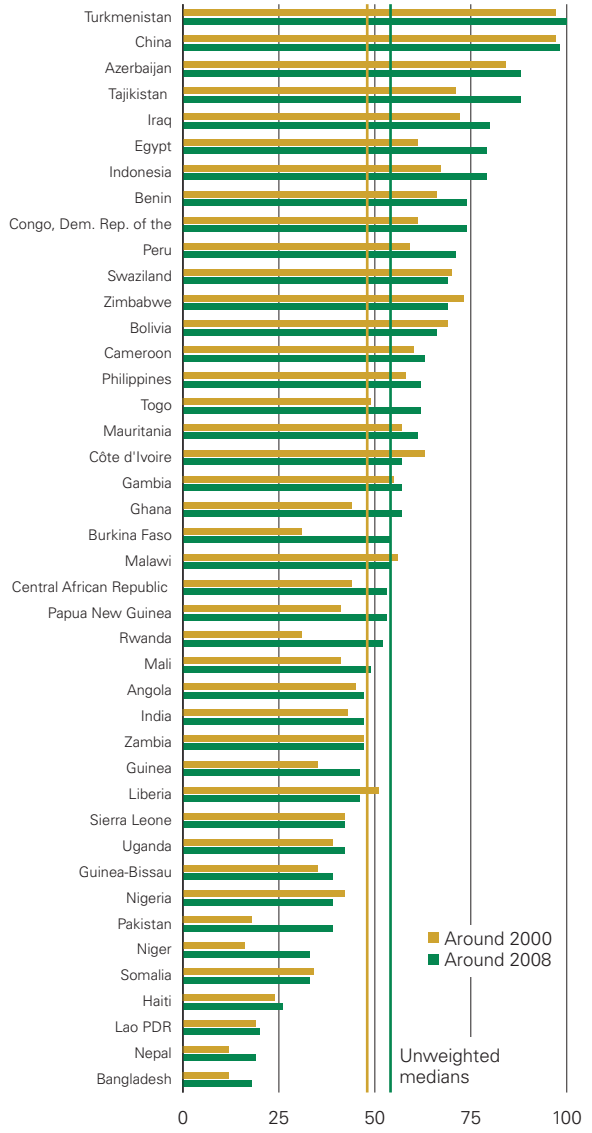
Quality gaps in care before, during and immediately after childbirth

Antenatal, delivery and postnatal care are service contact points and offer opportunities for the provision of effective interventions that can prevent illness and save lives. Median coverage for four or more antenatal care visits was 50% across the 51 *Countdown* countries with data since 2000, ranging from 6% in Somalia to 89% in Brazil. Contact with a trained service provider during pregnancy provides the opportunity for delivery of numerous proven interventions that improve outcomes for mother and newborn, including treatment of hypertension to prevent eclampsia, tetanus

FIGURE 10

Progress in increasing the proportion of women attended by a skilled provider at birth has varied

Coverage of live births attended by a skilled health worker, *Countdown* countries with data available, around 2000 and 2008 (%)



Source: UNICEF Global Databases, November 2009, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national household surveys.

BOX 5

Strategies for increasing coverage for skilled birth attendant at birth

Improving coverage of skilled attendant at birth requires strategies that address supply- and demand-side barriers to care and service quality. Some countries, such as Indonesia, are addressing supply-side barriers by training a new cadre of community midwives and bringing care into the home and local community. Other countries, such as Mozambique, are using task-shifting to enable midwives and other nonphysician clinicians to provide essential interventions, including caesarean sections. Subnational examples of progress in India include public-private partnerships to increase the number of private obstetricians delivering services to the rural poor in Gujarat, conditional cash transfers and a remuneration mechanism for community health workers.[1] These initiatives need to be assessed for impact and for the feasibility of being scaled up. On the demand side, reducing financial barriers is a common feature of success. Ghana recorded a rapid increase in facility births linked to the introduction of a national insurance scheme and new policies guaranteeing free care at birth.[2] Rwanda's "Paying for Performance" strategy increased institutional deliveries by providing financial incentives to providers to increase the use and quality of care.[3]

Notes

1. Mavalankar and others 2009; Lee and others 2009; India 2005; Devadasan 2008.
2. Witter, Armar-Klemsesu, and Graham 2009.
3. Basinga 2010.

immunization, intermittent preventive treatment for malaria and distribution of insecticide-treated nets, prevention of mother-to-child transmission of HIV, micronutrient supplementation, and counselling on family planning and birth preparedness. UNICEF, UNFPA and WHO recommend at least four antenatal care visits at key stages through pregnancy. The number of visits alone will not save lives, of course, unless high-quality, effective interventions are delivered during visits. Work is continuing on the measurement challenges associated with assessing coverage for individual interventions and service quality during antenatal care visits.

Not all women who have contact with a health provider during childbirth and in the immediate postnatal period receive the range of interventions that are needed (such as active management of the third stage of labour with the delivery of oxytocin to prevent post-partum haemorrhage). This quality gap is a missed opportunity to improve maternal and newborn health and reduce stillbirths. Postnatal care for mothers and newborns is another gap: data are lacking for many countries (45 of the 68 have no data), coverage is low in the 23 countries with data available (median coverage of 38%), and effective interventions are often not provided. Only six *Countdown* countries have data on postnatal care for the newborn, and the median coverage is low (4%).

Every newborn and child healthy

Solutions and innovations to save newborn lives

Risk of death is high for both mother and newborn in the first few days of life. There has been an explosion of interest and research in preventing newborn deaths,[8] but some newer interventions are not yet reflected in *Countdown* tracking. Two examples are antenatal steroids—a high-impact, evidence-based intervention delivered during preterm labour that has been associated with a 53% reduction of newborn deaths due to preterm birth complications[9]—and kangaroo mother care—a simple technique where the newborn is kept close to the mother's body in front, providing warmth, increased feeding, reduced infections and more rapid recognition of illness. New evidence shows that hospital-based kangaroo mother care can reduce deaths for newborns under 2,000 grams (almost all preterm) by 51%.[10]

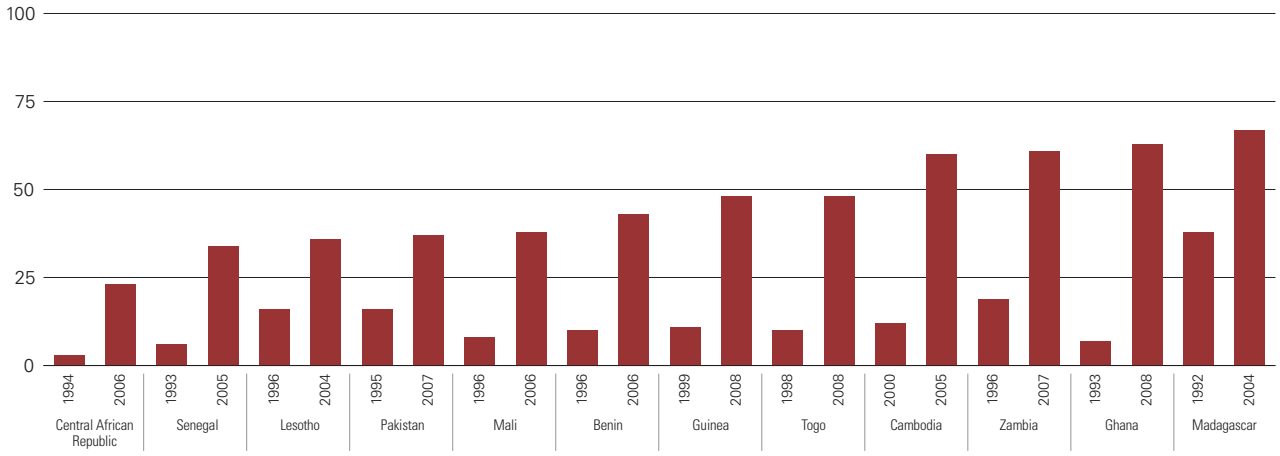
Evidence on the importance of providing postnatal care within two days of delivery has led to a joint WHO–UNICEF statement calling for broader implementation and scaling up.[11] Simple interventions such as early initiation and exclusive breastfeeding (figure 11), keeping the newborn warm, hygienic cord and skin care have the potential to reduce a large number of newborn deaths.

Other known, proven interventions to protect the lives of newborns and young infants are tracked by *Countdown* to determine progress in coverage at the country level. Rates in 2010 show some important gains, but many missed opportunities.

FIGURE 11

Exclusive breastfeeding is a major contributor to child survival

Share of infants under the age of six months who are exclusively breastfed, *Countdown* countries that have increased rates of exclusive breastfeeding among infants less than age 6 months 20 percentage points or more (%)



Source: UNICEF Global Databases, November 2009, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

Progress in preventing major childhood infectious diseases

Countdown results highlight progress on a country-by-country basis in preventing the infectious diseases responsible for the majority of child deaths. There has been important progress in combating malaria through increased use of insecticide-treated nets in malaria-endemic countries (figure 12) and in preventing mother-to-child transmission of HIV (box 6). More work needs to be done, however, for countries to reach the Roll Back Malaria target of 80% coverage of insecticide-treated nets by 2010 and universal coverage of prevention of mother-to-child transmission for HIV positive pregnant women.

Greater attention to improved water and sanitation can prevent diarrhoea

MDG target 7.C on environmental sustainability is to halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation. Median coverage in the 65 *Countdown* countries with data available since 2000 is 71% for use of an improved drinking water source and 41% for improved sanitation (figure 13). More efforts are needed to promote better hygiene and to ensure that adequate drinking water and sanitation are available to all in order to reduce child deaths from diarrhoea.

Improving infant and young child feeding practices will save lives

Available evidence demonstrates that child growth and development are optimized when:

- Breastfeeding is initiated within one hour of birth.
- Exclusive breastfeeding is continued up to age six months.
- Complementary feeding with safe and age-appropriate solid, semi-solid or soft foods is started at age six months.

BOX 6

Preventing mother-to-child transmission of HIV

HIV accounts for a relatively small proportion of deaths among children under age 5 across the *Countdown* countries as a whole. But in a subset of 15 high-HIV-burden *Countdown* countries (those with prevalence of 5% or higher), it continues to be a major threat to survival and child development (see table). Preventing HIV infection in women and children requires a strategy across the continuum of care, integrating:

- Interventions directed at reducing infection among young people with access to information and testing.
- Interventions to meet the family planning needs of women living with HIV.
- Antiretroviral therapy where needed.
- Safe practices during childbirth.
- Guidance for selecting safe and optimal infant-feeding options to prevent mother-to-child transmission of HIV.
- Provision of antiretroviral regimens for the prevention of mother-to-child transmission of HIV.
- Scaling up early infant diagnosis to ensure prompt and effective treatment of infections.

There have been dramatic increases in prevention of mother-to-child transmission coverage in 9 of the 15 high-HIV-burden *Countdown* countries. Cameroon and the Central African Republic saw more modest gains, and Botswana (already at 95% coverage) and Congo saw limited gains (Malawi and the United Republic of Tanzania do not have data for 2008). These results demonstrate what is possible when both commitment and resources are focused on reaching a target population with a specific intervention.

Share of HIV-infected women ages 15–49 who received antiretroviral regimens for prevention of mother-to-child transmission, high-HIV-burden *Countdown* countries, 2006 and 2008

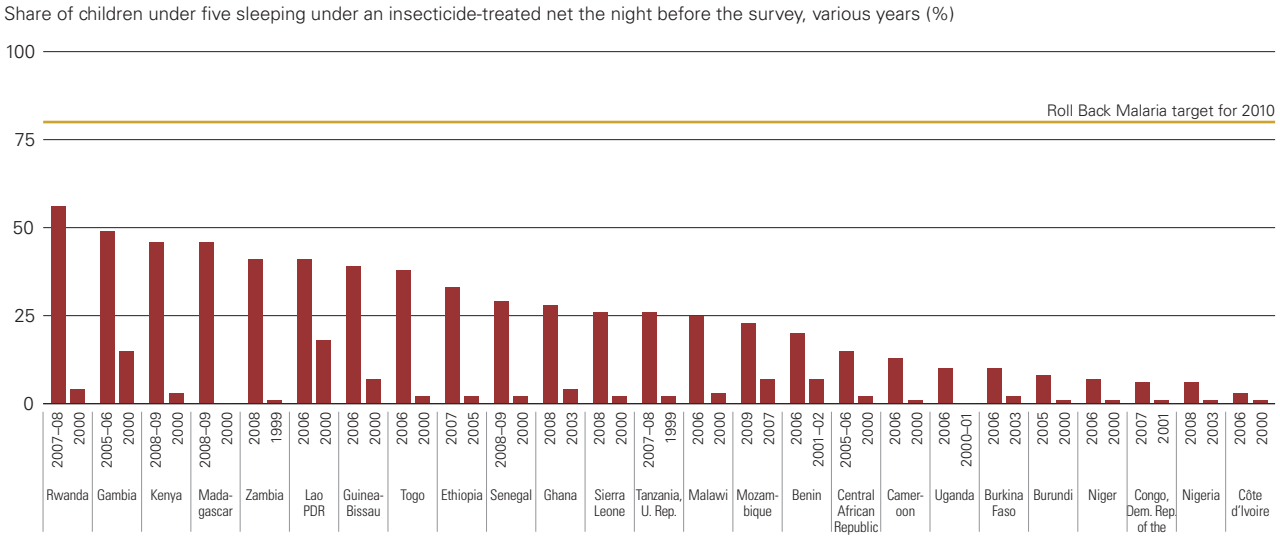
	2006		2008	
Country	Point estimate	Range estimate	Point estimate	Range estimate
Botswana	95	95–>95	>95	75–>95
Cameroon	22	18–30	28	20–53
Central African Republic	18	16–20	23	16–44
Gabon	4	3–5	35	22–70
Kenya	48	42–59	56	37–>95
Lesotho	17	15–18	57	43–>94
Malawi	14	12–16	—	41–>95
Mozambique	13	11–15	42	26–93
South Africa	50	43–60	73	53–>95
Swaziland	62	57–69	>95	87–>95
Tanzania, U. Rep.	15	14–16	—	53–>95
Uganda	25	22–28	50	36–95
Zambia	35	31–39	59	43–>95
Zimbabwe	17	16–19	36	26–64

— is not available.

Source: 2006 data, WHO and UNICEF (2007), with the denominators derived from unpublished UNAIDS-WHO estimates; 2008 data, UNICEF, UNAIDS, WHO, and UNFPA 2009.

FIGURE 12

Some *Countdown* countries show rapid progress in preventing malaria through insecticide-treated nets



Note: For each country, the left bar shows the most recent year with data on coverage values and the right bar shows data for a previous year.
Source: UNICEF Global Databases, November 2009, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

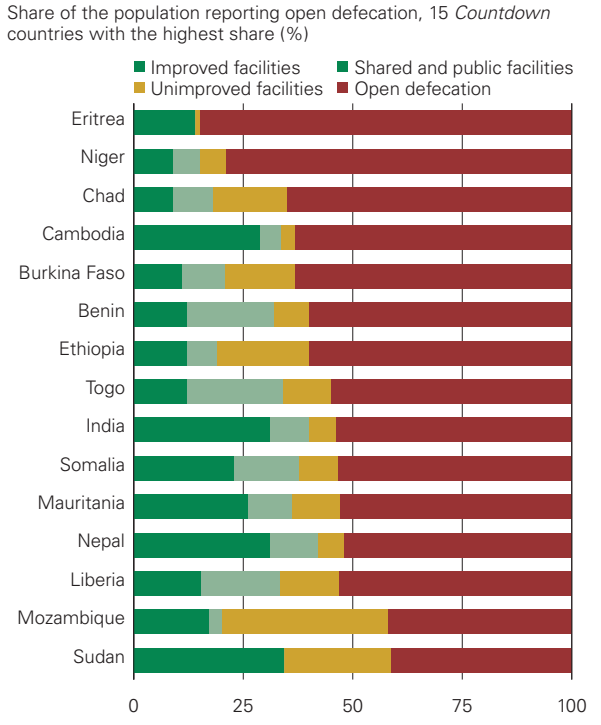
Some *Countdown* countries are progressing in these areas, and 12 have increased exclusive breastfeeding rates by 20 percentage points or more (see figure 11). But most *Countdown* countries have much room for improvement (figure 14). Current median coverage based on latest available estimates since 2000 are 48% (ranging from 20% to 78%) for early initiation of breastfeeding, 34% (ranging from 1% to 88%) for exclusive breastfeeding among infants less than age 6 months and 66% (ranging from 15% to 93%) for timely introduction of complementary feeding.

Vaccination and vitamin A

Vaccination coverage rates have generally remained high, with median 2008 coverage rates in *Countdown* countries of 79% for measles vaccination (ranging from 23% in Chad to 99% in Brazil and Turkmenistan) and 83% for diphtheria and tetanus with pertussis (DPT3) vaccination (ranging from 20% in Chad to 99% in Morocco and Peru). Vaccination rates for neonatal tetanus also remain high, with a median of 83% of newborn children considered protected at birth in 2008 (ranging from 47% in Lao PDR to 97% in Sierra Leone). New vaccines for pneumococcal pneumonia and diarrhoea due to rotavirus can build on these delivery successes as they are scaled up in the next few years. Vitamin A supplementation (two doses) estimates for 2008

FIGURE 13

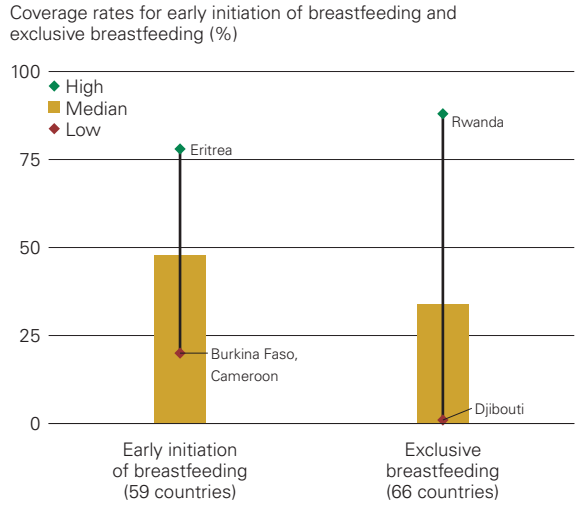
Open defecation, common in some Countdown countries, increases the risk of diarrhoeal disease



Source: WHO–UNICEF Joint Monitoring Programme for Water Supply and Sanitation 2010.

FIGURE 14

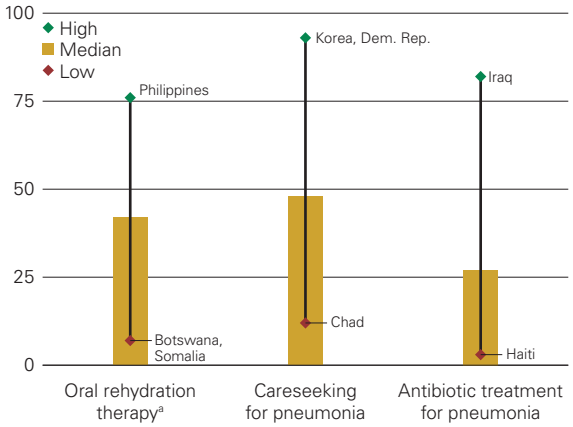
Early initiation of breastfeeding also contributes to child survival



Source: UNICEF Global Databases, November 2009, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

FIGURE 15

Too few children with diarrhoea or pneumonia receive correct treatment



a. Oral rehydration salts, recommended home fluids or increased fluids, and continued feeding.

Source: UNICEF Global Databases, November 2009, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

show a median of 86%, ranging from no vitamin A coverage in Chad and Gabon to 100% coverage in Burkina Faso and Somalia. Chad and Gabon faced major challenges to vitamin A delivery in 2008: Chad experienced a looting of supplies, and Gabon lacked the funding needed to carry out Child Health Days. These two examples are important reminders of the challenges many *Countdown* countries face in sustaining basic services.

Coverage of correct treatment for childhood illness remains too low

Progress in care-seeking and case management of common childhood diseases has been very slow. Scaling up case management requires families and communities to be aware of danger signs and to bring children for care. It also requires quality care to be available, which requires adequate human resources and commodities. Unless care is provided close to home, reducing mortality rates will be difficult (box 7).

Correct treatment of diarrhoea includes reducing susceptibility to severe diarrhoea and dehydration through improved nutrition and prompt treatment of watery diarrhoea with oral rehydration salts solution and zinc while continuing to feed the child.[12] Median coverage of correct treatment of diarrhoea in *Countdown* countries was only 42% (figure 15)—a figure that masks variability across countries and in some instances within countries. There has been rapid policy uptake of "new" low-osmolarity oral rehydration salts and zinc, with 46 *Countdown* countries reporting having adopted such a policy.

Correct treatment of childhood pneumonia and neonatal infections (sepsis and pneumonia) includes antibiotics. This requires a caregiver to recognize signs of illness and seek care from a trained provider. Median coverage of careseeking was only 48% for the 64 *Countdown* countries with data available, while the median coverage of children with suspected signs of pneumonia who actually received an antibiotic was 27% in 35 countries with data.

Correct treatment of childhood malaria requires administration of an effective antimalarial within 24 hours of onset of symptoms.[13] The current "gold standard" treatment in most malaria-endemic countries is artemisinin-based combination therapies, for which funding and procurement have rapidly increased. Beginning in 2010, *Countdown* will track coverage by type of antimalarial treatment because treatment with chloroquine and other antimalarials is no longer effective in most malaria-endemic countries. Figure 16 shows that tracking coverage by type of antimalarial is important for determining whether children are receiving effective treatment.

BOX 7

Bringing care for sick children closer to home

What evidence is there of the effect of community case management?

Community case management requires trained community health workers to deliver high-impact, curative interventions to children whose families lack access to facility-based care. Recent WHO–UNICEF joint statements summarize the evidence that community health workers can recognize and manage common life-threatening childhood illnesses.[1] The statements cover diarrhoea, pneumonia, malaria and uncomplicated severe acute malnutrition. Several studies report positive outcomes of community case management on pneumonia, including a recent review suggesting a 70% reduction in pneumonia deaths among children under age 5[2] and others showing the effectiveness of community health worker administration of oral antibiotics for neonatal pneumonia in the absence of referral. Community case management has also been used effectively for malaria (including with artemisinin-based combination therapies) and diarrhoea treatment.

Where is community case management working?

Since the 2008 *Countdown* report, 11 countries have changed policy to allow community-based management of pneumonia, increasing the total number of *Countdown* countries in support of community case management to 29. Nepal and Senegal have already scaled up community programmes for management of pneumonia with positive results. Ethiopia and Uganda recently adopted supportive policies and are ready to introduce and rapidly scale up integrated community case management. And India and Malawi now implement integrated management of childhood illness at the community level. Preliminary results from Malawi have shown that health surveillance assistants (government-paid, multipurpose extension health workers) can perform an integrated assessment and treat children appropriately. Families appreciated the proximity and quality of care, and service utilization increased.

What is next for community case management?

Few studies or programmes have systematically evaluated the process and effect of integrated community case management for a comprehensive range of neonatal and childhood illnesses. However, evaluations of the effect of community case management for multiple childhood illness conditions are under way. More work is also necessary to assess a recommended package of services and tasks that a community health worker can deliver reasonably well. For example, would a community health worker providing community case management also be able to provide home-based newborn care? Studies to develop simplified antibiotic regimens for the treatment of neonatal sepsis have commenced and will inform the future role of community health workers in the treatment of severe newborn illness. Two studies from South Asia, for example, present evidence that community health workers can correctly provide treatment for neonatal sepsis with injection gentamicin, but this intervention has not been widely implemented.[3] Community case management may be particularly effective in settings where populations are experiencing conflict or natural disasters, but data are lacking.

Countdown countries are tracking the evidence on community case management for newborns carefully, because standard inpatient treatment for seven days for newborn illnesses is not feasible for some families in many of these settings. Including the treatment of uncomplicated severe acute malnutrition in integrated community case management is a possibility.

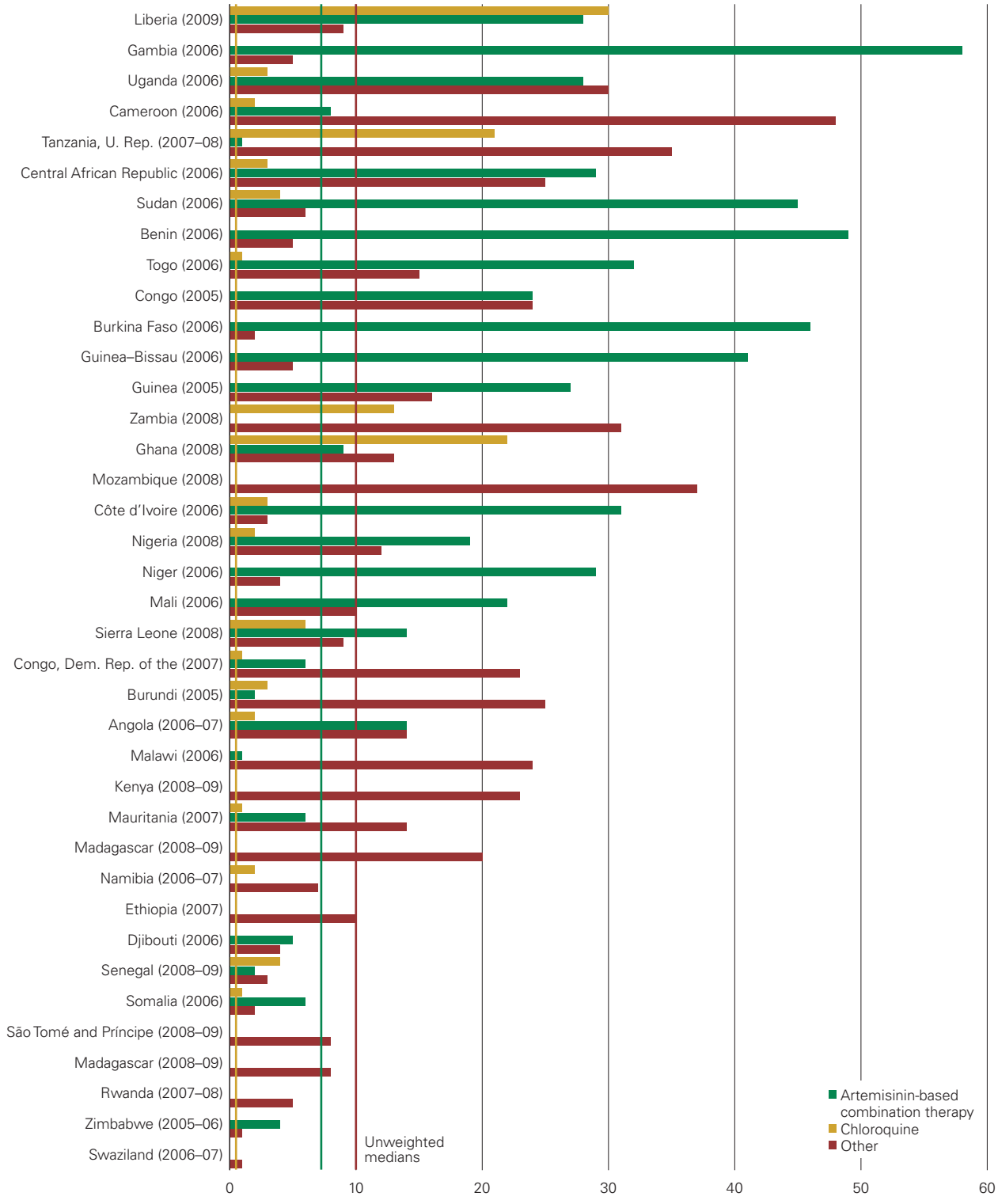
Notes

1. WHO and UNICEF 2004b.
2. Theodoratou and others 2010.
3. Bang and others 1999; Baqui and others 2009.

FIGURE 16

Saving lives from malaria requires the right medicine

Children with fever receiving antimalarial treatment, selected *Countdown* countries, various years (%)



Source: UNICEF Global Databases, November 2009, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

Errata: Countdown 2010 Decade Report

Page ii
Under the subheading, “Additional writing team,” Nancy Terreri’s affiliation should read “(FCI/PMNCH).”

Under the heading, “Acknowledgements,” the first line should read “UNICEF/Statistics and Monitoring Section for use of global databases, preparation of country profiles and review of report text.”

Page 24
In figure 12, note that for each country the left bar shows the most recent year with data on coverage values and the right bar shows data for a previous year.

Page 25
The last sentence in the third paragraph should read, “Median coverage of care-seeking was only 48% for the 64 *Countdown* countries with data available, while the median coverage of children with suspected signs of pneumonia who actually received an antibiotic was 27% in 35 countries with data.”

Page 32
In figure 17, the subtitle should read “Mean coverage index, poorest and richest wealth quintiles, selected *Countdown* countries, various years (%),” and the note should read “Mean coverage index is based on coverage rates of eight maternal, newborn and child health interventions: met need for family planning, at least one antenatal care visit, skilled attendant at birth, measles vaccination, DP T3 vaccination, BCG vaccination, oral rehydration and continued feeding, and care-seeking for pneumonia.”

After the printed report was produced, an error was detected in the formula used to calculate the average coverage by wealth quintile. For most countries and wealth quintiles, the errors were very small. Errors greater than five percentage points in one or more wealth quintiles were noted in the following countries: Azerbaijan, Democratic Republic of Congo, Egypt, India, Mali, Nepal, Pakistan and Rwanda. The country profiles available on the *Countdown* website have been corrected (http://www.countdown2015mnch.org).

Page 33
In figure 19, the subtitle should read “Average coverage levels of selected reproductive, maternal, newborn and child interventions, poorest and richest wealth quintile, 38 *Countdown* countries with data.

Page 37

In figure 21, the subtitle should read “Official Development Assistance to child health and to maternal and newborn health, all countries, 2007 (2005 $billions)

In figure 22, the subtitle should read “Official Development Assistance, all countries 2003-2007 (2005 $ billions)

Data specific to *Countdown* countries will be presented in the 2011 *Countdown* report.