Countdown to 2015

Maternal, Newborn & Child Survival

TRACKING PROGRESS IN MATERNAL, NEWBORN & CHILD SURVIVAL

The 2008 Report

Tracking Progress in Maternal, Newborn & Child Survival
The 2008 Report, V2.

ISBN: 978-92-806-4284-1

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Abbreviations

AARP	Average annual rate of reduction
ARV	Anti-retroviral treatment
CHERG	Child Health Epidemiology Reference Group
DHS	Demographic and Health Surveys
GAVI	Global Alliance for Vaccines Initiative
GFATM	Global Fund for AIDS, TB and Malaria
Hib	Haemophilus influenzae type B
ILO	International Labour Organization
IMCI	Integrated management of childhood illness
ISCO	International Standard Classification of Occupations
ITNs	Insecticide-treated nets
LSHTM	London School of Hygiene and Tropical Medicine
JMP WHO/UNICEF	Joint Monitoring Programme on Water Supply and Sanitation
MDGs	Millennium Development Goals
MERG	Roll Back Malaria Monitoring and Evaluation Reference Group
MICS	Multiple Indicator Cluster Surveys
NMR	Neonatal Mortality Rate
OECD	Organisation for Economic Co-operation and Development
PMNCH	Partnership for Maternal, Newborn and Child Health
SWAps	Sector-Wide Approaches
U5MR	Under-five mortality rate
UNFPA	United Nations Population Fund
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fund
WFFC	World Fit for Children
WHO	World Health Organization

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Special Recognition
Tessa Wardlaw, Archana Dwivedi, Holly Newby of UNICEF, for technical support and substantial contribution to all phases of report preparation and production

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Acknowledgements

The *Countdown* Group would like to thank the following:

UNICEF/Strategic Information Section for use of global databases, preparation of country profiles, and review of report text. Particular recognition goes to Xiaodong Cai, Khin Wityee Oo, and Me Me Khine for their input and review of country profiles. Irene Deineko for administrative support and convening of review meetings.

WHO regional offices and headquarters staff who contributed to data collection: Christopher Drasbek, Susan Farhoud, Olivier Fontaine, Phanuel Habimana, Ardi Kaptinisingh, Aigul Kuttumaratova, Ramez Mahaini, Sudhansh Malhotra, Shameen Qazi and Mariana Trias.

The *Countdown* communications team for their inputs in shaping the key messages, media strategy and *Countdown* Executive Summary: Genine Babakian, Flavia Bustreo, Marie Agnes Heine, Olivia Lawe-Davies, Kate Kerber, Ruth Landy, Jessica Malter, Tunga Namjilsuren, George Ngwa, Jennifer Requejo, Jacqueline Toupin, Michelle Zelsman.

Christa Fischer-Walker and Jeremy Schiefen of Johns Hopkins University, USA for preparing maps.

The DevInfo initiative for the development of the database and the production of the Country Profiles.

UN Country Team in South Africa, particularly the UNICEF Sub-Office in Cape Town for administrative and logistics support.

The PMNCH Secretariat for convening meetings for *Countdown* Core Groups and PMNCH colleague Tigest Yilma Desta for providing administrative support.

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Summary

The last few years have seen enormous and welcome developments in global public health and nutrition. There is growing recognition – increasingly backed by resources – that achieving the Millennium Development Goals (box 1) will demand radical changes to the scale and scope of effective strategies. The *Countdown* to 2015 responds to these calls for change.

The Millennium Development Goals

Goal 1: Eradicate extreme poverty and hunger.
Goal 2: Achieve universal primary education.
Goal 3: Promote gender equality and empower women.
Goal 4: Reduce child mortality.
Goal 5: Improve maternal health.
Goal 6: Combat HIV/AIDS, malaria and other diseases.
Goal 7: Ensure environmental sustainability.
Goal 8: Develop a global partnership for development.

Box 1: The Millennium Development Goals

A collaboration among individuals and institutions established in 2005, the *Countdown* aims to stimulate country action by tracking coverage for interventions needed to attain Millennium Development Goals 4 and 5 – and, in addition, parts of Millennium Development Goals 1, 6 and 7. Through this unified effort national and international policy makers, programme implementers, development and media partners and researchers are working together to:

- Summarise, synthesise and disseminate the best and most recent information on country-level progress towards high, sustained and equitable coverage with health interventions to save women and children.
- Take stock of progress in maternal, newborn and child survival.
- Call on governments, development partners and the broader community to be accountable if rates of progress are not satisfactory.
- Identify knowledge gaps that are hindering progress.
- Propose new actions to achieve the health-related Millennium Development Goals, in particular Millennium Development Goals 4 and 5.

The *Countdown* pursues these objectives through conferences, publications and follow-up regional and country activities, focusing attention on progress towards national-level coverage of proven interventions in countries with the highest levels of maternal and child mortality. The activities of the *Countdown* are guided by four principles (box 2).

Countdown Principles

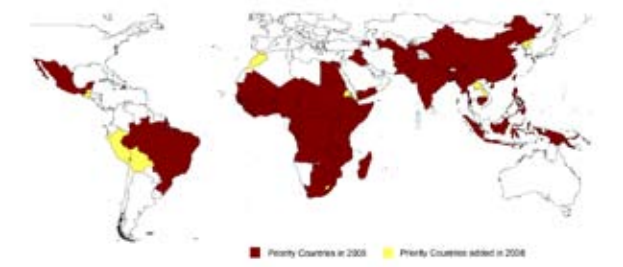
Focus on coverage
Focus on effective interventions
Maintain a country orientation
Build on existing goals and monitoring efforts

Box 2: Countdown principles

Countdown priority countries

The 68 priority countries for the *Countdown* to 2015 bear the world's highest burdens of maternal and child mortality (figure 1). Together these countries account for 97 per cent of maternal and child deaths. Included among the priority countries are 34 of the 36 countries in the world with the highest prevalence of child undernutrition.

The 68 *Countdown* Priority Countries



Source: Authors' compilation based on information supplied in text

Figure 1: The 60 priority countries in 2005 (red). The 8 priority countries added in 2008 (yellow): Bolivia, Eritrea, Guatemala, Democratic People's Republic of Korea, Lao People's Democratic Republic, Lesotho, Morocco, Peru.

Interventions and indicators

All interventions tracked through the *Countdown* are empirically proven to reduce mortality among mothers, newborns or children. Coverage with broader approaches, such as antenatal and postnatal care, delivery and reproductive health services also need to be tracked, as they provide the basic platform for delivery of multiple effective interventions to reduce maternal and newborn mortality.

The *Countdown* tracks only interventions and approaches that are feasible for universal implementation in poor countries. In addition, to be tracked, an intervention or approach must be associated with a valid coverage indicator that is reliable and comparable across countries and time. The *Countdown* recognizes the limitations of some coverage indicators now used and is doing technical work to improve them. Finally, the 68 *Countdown* country profiles present other information helpful for interpreting coverage levels, including:

- Country-specific estimates of maternal and child mortality and child nutritional status,
- The status of policies related to maternal, newborn and child health,
- Indicators of health system strength,
- Measures of equity in coverage,
- Estimates of financial flows to maternal, newborn and child health and nutrition.

Country Profiles

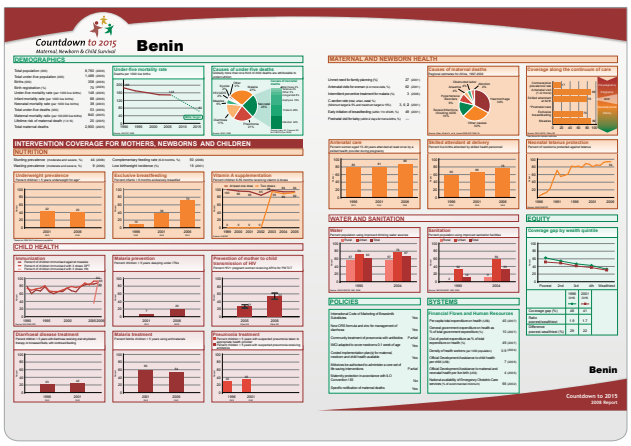
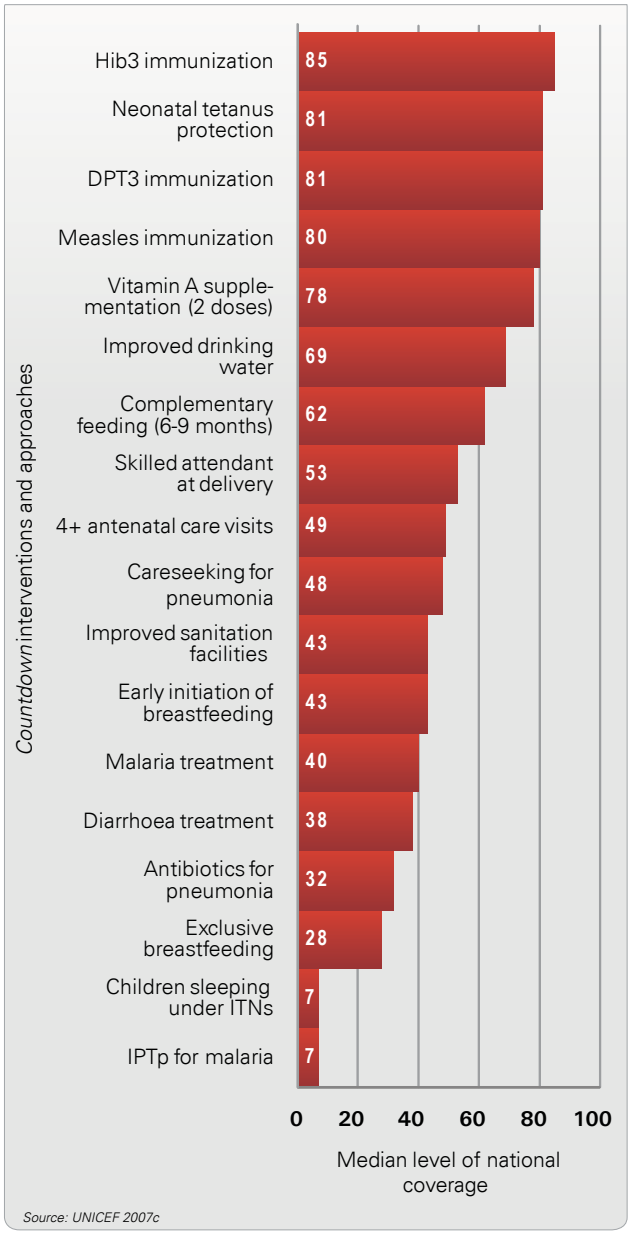


Figure 2. Country profile example of Benin

Key findings of the 2008 *Countdown*

The report contains profiles for each of the 68 *Countdown* priority countries. Benin is shown as an example in figure 2. Benin was selected because it is the first country profile (in alphabetical order) where data were available for all major indicator categories. Figure 3 presents median national level coverage for

Coverage Levels



Source: UNICEF 2007c

Figure 3. Median coverage levels for selected Countdown interventions and approaches

selected *Countdown* interventions and approaches based on the most recent data available.

Seven key conclusions

Seven key conclusions emerge from an analysis of the profile data:

Countries, while rapidly increasing coverage for some interventions, are making little or no progress with others. Most *Countdown* countries have high or increasing coverage for preventive interventions such as vaccinations, vitamin A supplementation and insecticide-treated bed nets to prevent malaria (figure 3). But very few are making progress reaching women and children with clinical care services, such as skilled attendants at delivery or treatment for pneumonia, diarrhoea and malaria. Postnatal care is an especially important gap in the first week of life when mothers and newborns are at the highest risk. Prevalence rates for the nutritional indicators that require social and behavioural changes in order to improve, such as early initiation of breastfeeding, exclusive breastfeeding, and complementary feeding, are also low.

The continuum of care for maternal, newborn and child health requires multiple delivery approaches. Progress towards the Millennium Development Goals will require a range of interventions to be delivered in different points during the life-cycle. Services that contribute to the achievement of one Millennium Development Goal will not necessarily advance progress towards another. Of particular concern today is a serious breakdown in the continuum of care at several points in the pre-pregnancy to two-year postnatal period when opportunities to deliver essential services are being lost.

Undernutrition is an area of little or no progress. More than one-third of deaths in children under age five are attributable to undernutrition – the underlying cause of 3.5 million child deaths annually. Maternal undernutrition increases the mother's risk of death at delivery, accounting for at least 20 per cent of such deaths. In 33 of the 68 priority countries, at least 20 percent of children are moderately or severely underweight, and 62 countries have stunting prevalence rates exceeding 20 per cent.

Weak health systems and broader contextual factors obstruct progress. Health systems in many countries cannot now deliver essential interventions and approaches widely or well enough to reduce mortality nationwide. Indicators of health financing and health worker density are useful markers of health system strength. Of the 68 *Countdown* priority countries, 54 – or 80 percent – have workforce densities below the critical threshold for improved prospects for achieving the health-related Millennium Development Goals. It has been estimated that annual per capita total health expenditures of less than $45 are insufficient to ensure access to a very basic set of needed services. Of the 68 priority countries, 21 had annual per capita health expenditures below this amount.

Many Countdown priority countries face additional challenges to progress. For example, in the 26 countries with no or reversed progress towards Millennium Development Goal 4, contextual challenges, such as armed conflict, natural disasters, high HIV burdens and low adult female literacy rates, contribute to stagnating or deteriorating coverage.

Challenges to Progress

Over one-third of the priority *Countdown* countries were affected by violent, high-intensity conflict between 2002 and 2006.

Box 3: Many Countdown priority countries face additional challenges to progress

Inequities obstruct progress. Mortality in children under age five is now concentrated in sub-Saharan Africa (almost 50 per cent) and South Asia (30 per cent). Maternal and newborn mortality are similarly concentrated in those regions. Meanwhile, within countries, the richest quintile is gaining access to key interventions more quickly than the poorest. Reducing both types of inequity – between regions and within countries – is crucial for achieving the health-related Millennium Development Goals.

Aid needs to increase and become more predictable. Official development assistance to child, newborn and maternal health increased by 28 percent from 2004 to 2005, including increases of 49 per cent to child health and 21 per cent to maternal and newborn health. Such aid for maternal, newborn and child health and nutrition has increased in most *Countdown* priority countries, but has decreased in others. Of the 68 countries, 38 received more per capita official development assistance to child health in 2005 than in 2004, while 39 received more to maternal and newborn health per live birth in 2005 than in 2004. Although maternal, newborn, and child health programmes within the priority countries have benefited from these increases in official development assistance, such programmes are still grossly underfunded and much more needs to be done.

Countries need more and better coverage estimates and research on programme implementation. Since the first *Countdown* report in 2005, an unprecedented amount of household surveys have been conducted and include new MICS data from 54 countries and new DHS data for 35 countries. However, many countries are still determining coverage levels for essential interventions using data that is 5, 10 or even 15 years old. In consequence, the knowledge gained through current and ongoing efforts to promote maternal, newborn and child health and nutrition has not been adequately disseminated. Data collection and dissemination processes need improvement to make timely data more readily available, which is crucial for planning and implementation purposes.

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The *Countdown* Call to Action

All institutions and individuals involved in the *Countdown* should use the information it provides – in combination with their diverse skills and resources – to promote the following immediate actions:

- Sustain and expand successful efforts to achieve high and equitable coverage for priority interventions. Recent areas of progress – especially immunizations, vitamin A supplementation and insecticide-treated bed nets – represent a major success for governments and their development partners. Such efforts should continue. But comparable efforts and investments are required for the case management of childhood illnesses, family planning services, and antenatal, childbirth, and postnatal care.
- Focus on the priority period within the continuum of care, from pre-pregnancy through 24 months – especially around the time of birth. To reduce mortality during childbirth and in the immediate days afterwards, programming efforts must focus on the effective and integrated delivery of interventions and approaches associated with this crucial period (e.g., antenatal, delivery, and postnatal care). Contraceptive services and efforts to improve infant feeding practices also need to be given high priority.
- Within increased efforts to achieve the health-related Millennium Development Goals, make improving maternal and child nutrition a priority. Nutrition must be central to both national and subnational development strategies.
- Strengthen health systems, focusing on measurable results. Health systems need to deliver on demand, creating a functional continuum of care over time and across places of service delivery. All new initiatives must focus on outcomes that measurably advance this aim.
- Set geographic and population priorities, and stick to them. The health-related Millennium Development Goals cannot be met globally without faster progress in sub-Saharan Africa and South Asia. Development efforts and official development assistance must increasingly target countries in these regions with large populations and poor performance.
- Prioritize a programme for equity. Describing inequities, though an important first step, is not enough. Programmatic efforts to address inequities must be supported by strong monitoring and evaluation activities.
- Do even more to ensure predictable long-term aid flows for maternal, newborn and child health. Governments and their development partners cannot meet the health-related Millennium Development Goals unless assistance is adequate, predictable and targeted to those goals.
- Monitor. Evaluate. Conduct locally driven implementation research. And act on the results. The 'community of practice' for maternal, newborn and child health must lead the change by improving monitoring and evaluation activities, and supporting efforts to rapidly disseminate and build-on important findings.
- Lead the change for maternal, newborn and child survival. It is time for all to work together as partners to improve the lives of women, newborns and children.

Box 4: The Countdown Call to Action

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Tracking intervention coverage for maternal, newborn and child survival

The last few years have seen enormous and welcome developments in global public health and nutrition. There is growing recognition, increasingly backed by resources, that achieving the health-related Millennium Development Goals will demand radical changes to the scale and scope of effective strategies. The *Countdown* to 2015, a movement of governments, individuals and institutions, is responding to these calls for change.

In 2003 the Bellagio Lancet Child Survival Series helped raise global awareness of more than 10 million deaths occurring each year in children under age five, mainly from preventable conditions that rarely affect children in wealthy countries.[1] In 2005 a second Lancet series focused on the approximately 4 million annual deaths among newborns.[2] Later series focused on maternal survival[3] and broader issues of child development in developing countries,[4] sexual and reproductive health,[5] maternal and child health and nutrition[6] and health systems.[7] Finally, a special issue of the Lancet on "Women Deliver" highlighted the importance of the continuum of care for maternal, newborn and child health.[8]

The Millennium Development Goals

Goal 1: Eradicate extreme poverty and hunger.
Goal 2: Achieve universal primary education.
Goal 3: Promote gender equality and empower women.
Goal 4: Reduce child mortality.
Goal 5: Improve maternal health.
Goal 6: Combat HIV/AIDS, malaria and other diseases.
Goal 7: Ensure environmental sustainability.
Goal 8: Develop a global partnership for development.

Box 1.1. The Millennium Development Goals

A common theme in these Lancet series was the call for a systematic mechanism to track progress in achieving high, sustainable and equitable coverage with interventions proven to reduce maternal, newborn and child mortality – 'coverage' being defined as the proportion of those needing an intervention who receive it.[9] The response to this call is reflected broadly in global efforts to track progress towards the Millennium Development Goals (box 1.1), and is the specific focus of the *Countdown* to 2015.

Supported through contributions of time and money and governed by a Core Group, the *Countdown* aims to stimulate country action by tracking coverage for interventions needed to attain Millennium Development Goals 4 and 5, together with parts of Millennium Development Goals 1, 6 and 7. The *Countdown* tracks coverage within populations targeted by specific interventions and usually measures coverage at the population level (rather than in health facilities, for example). Through the *Countdown*, national and international policy makers, programme implementers, development and media partners and researchers are working together to:

- Summarise, synthesise and disseminate the best and most recent information on country-level progress towards high, sustained and equitable coverage with health interventions to save women and children.
- Take stock of progress in maternal, newborn and child survival.
- Call on governments, development partners and the broader community to be accountable if rates of progress are not satisfactory.
- Identify knowledge gaps that are hindering progress.
- Propose new actions to achieve the health-related Millennium Development Goals, in particular Millennium Development Goals 4 and 5.

The *Countdown* has planned a series of conferences to be held every two to three years until 2015. Focusing attention on national coverage levels for high-impact interventions in countries with the highest burden

of maternal and child mortality, the *Countdown* conferences will catalyse greater action and increase accountability for country and partner commitment to the Millennium Development Goals – in particular, to rapid reductions in maternal and child mortality.[10] In addition, *Countdown* publications report on major determinants of coverage, including policies, health system performance measures and financial flows to maternal, newborn and child health.

The first international *Countdown* conference, focusing on child survival, was hosted in London in December 2005 by 12 organisations.[11] Coverage reports were available for 60 countries, accounting for 94 per cent of child deaths worldwide.[12] More information on the conference and the 2005 report can be found online (http://www.countdown2015mnch.org/).

Success for the *Countdown*, however, will be measured by country-level results. In 2006 Senegal was the first country to hold a national *Countdown* conference, bringing together government leaders, private and public partners and the research community to review progress in child survival. The second international *Countdown* conference is scheduled for 17–19 April 2008 in Cape Town, South Africa. Covering maternal, newborn and child survival, it will be held in tandem with an Inter-Parliamentary Union meeting, providing government leaders with opportunities for greater involvement in efforts to save women's and children's lives.

Participants in the 2005 international *Countdown* conference had already recognized the importance of working within a broader continuum of care – one that "promotes care for mothers and children from pre-pregnancy to delivery, the immediate postnatal period, and early childhood, recognising that safe childbirth is critical to the health of both the woman and the newborn child."[13] Such a continuum should also link service provision across various settings, from households to community-based care to primary care services to hospitals. The *Countdown* has explicitly adopted a continuum of care approach. In this report it tracks coverage across the continuum for the first time.

The *Countdown* has always made nutrition central to its efforts. Improving coverage for proven maternal and child nutrition interventions will contribute to Millennium Development Goal 1.[14] At this time, however, only child nutritional status and nutrition interventions are tracked through the *Countdown*.

The *Countdown* also recognises the importance of reproductive health services. The target added to Millennium Development Goal 5 to achieve universal access to reproductive health is an indication of its importance to maternal and newborn survival. Contraceptive prevalence and unmet need are tracked in the present *Countdown* cycle, and in the next cycle of technical work the Core Group will thoroughly review this area. The 2008 report is complimented by a corresponding Lancet special series on the major findings of the *Countdown.*

Countdown Principles

The activities of the *Countdown* are guided by four principles:

1. Focus on coverage
2. Build on existing goals and monitoring efforts
3. Promote effective interventions
4. Maintain a country orientation

Box 1.2. The Countdown principles

Countdown principles

1. Focus on coverage

Timely data on intervention coverage are essential for good programme management. Governments and their partners need up-to-date information on whether their programmes are reaching targeted groups. Such coverage information must be supplemented, of course, with measures of intervention quality and effectiveness.

For interventions proven to reduce mortality, coverage is a useful indicator of progress. Increases in coverage show that policies and delivery strategies are reaching women and children. Failures to increase coverage – assuming that resources have been adequate and that planning has been good – are a cause for urgent concern. District, regional and national managers and their partners should address low coverage rates by examining how interventions are delivered and removing bottlenecks or revising service delivery plans.

This report, which provides the best and most recent information on country-level progress in achieving intervention coverage, is a central part of the *Countdown* effort. It offers a basis for documenting accomplishments and revitalising efforts where needed.

2. Build on existing goals and monitoring efforts

The *Countdown* aims to sharpen and reinforce efforts already under way to support countries in meeting their commitments to global goals, and to further the effective use of information collected through existing monitoring mechanisms. *Countdown* indicators and measurement approaches build on efforts started in the 1990s to monitor progress towards the World Summit for Children goals, which evolved into monitoring strategies for the Millennium Development Goals.[15]

Emphasis on measuring progress towards international goals and targets has rapidly increased the availability of intervention coverage data. Today's maternal and child survival indicators reflect a united effort to define and measure indicators consistently, permitting the assessment of trends over time. In some cases, however – notably the definition and measurement of indicators for oral rehydration therapy to prevent diarrhoea dehydration[16] – changing public health recommendations made changes in definition and measurement unavoidable.

Tracking through the *Countdown* complements and promotes country-level monitoring of maternal, newborn and child health programmes. Country-level monitoring focuses on ensuring that policies, plans and resources are in place and that programmes and strategies are implemented fully and adequately; key outcomes for assessing programme implementation include access, quality, coverage and equity. Methods and indicators for monitoring purposes must provide timely information and must reflect country-level needs and decisions. The *Countdown* aims to build on country-level data, attracting attention and resources for addressing service delivery barriers and to further speed up progress towards the health-related Millennium Development Goals.

The *Countdown* complements country-level monitoring efforts by focusing on indicators that are closer to impact and that can be measured in ways that permit cross-country comparisons and the estimation of global trends. Coverage indicators meet these criteria, as do many indicators of the impact of programme activities on the nutrition and health status of women, newborns and children. Efforts to identify and define indicators of policies, financial flows and human resources that are sufficiently valid and reliable for global monitoring began in 2005 and are continuing.

The coverage information presented by the *Countdown* in this report required no new data collection. But the information on policies, health systems and financial flows – here and in future *Countdown* reports – combines existing data with those collected specifically for the *Countdown*. The primary purpose of this report is to bring available data on the priority countries together in one place to facilitate evidence-based review and planning efforts designed to accelerate country-level actions in maternal, newborn and child health.

3. Promote effective interventions

The *Countdown* monitors coverage for interventions and approaches feasible for universal implementation in poor countries and with proven effectiveness in improving maternal and child survival and nutrition. (The next chapter describes how the *Countdown* selects these interventions and approaches and explains the coverage indicators used.)

4. Maintain a country orientation

The *Countdown* aims to help countries and their development partners achieve the Millennium Development Goals and the World Fit for Children goals and targets.[17] While the *Countdown* will not and should not supplant governments and their partners in their roles as policy makers and service providers, its role extends beyond monitoring – making public health science a basis for public health action. By bringing together diverse individuals with complementary experience, *Countdown* participants hope to spark and support new insights and concrete directions for improving the health and survival of women and children. So far the *Countdown* has not taken strong follow-up action in countries, but is a central element of the work scheduled to begin immediately after the April Conference.

Links to other monitoring efforts

As part of a much larger effort to track progress towards the Millennium Development Goals, the *Countdown* aims to complement the work of others – not replace it. Annex A lists resources and initiatives related to Millennium Development Goal monitoring for mothers, newborns and children at the international level. Box 1.3 highlights the *Countdown*'s added value compared with other international monitoring efforts.

How the *Countdown* Adds Value

- By maintaining a country focus. Individual country profiles offer selected information about demographic and epidemiological contexts and key coverage determinants.
- By tracking progress in 68 priority countries. Sharing the highest burden of maternal and child mortality, these countries represented more than 97 per cent of all such deaths (deaths in children under 5 in 2006, and maternal deaths in 2005).
- By maintaining continuity through 2015. The *Countdown* will continue reporting on progress through 2015, the target date for achieving the Millennium Development Goals.
- By remaining a supra-institutional effort. The *Countdown* brings together representatives from United Nations agencies, civil society, governments, and the donor and development communities.
- By promoting country-level action. The *Countdown* presents information needed to assess progress and to speed up country-level actions in pursuit of Millennium Development Goals 4 and 5, together with parts of Millennium Development Goals 1, 6 and 7.

Box 1.3. How the Countdown adds value compared with other Millennium Development Goal Monitoring efforts

Country-level program monitoring

Country-level programme monitoring is the most important part of monitoring progress towards the Millennium Development Goals. The *Countdown* seeks to enhance such monitoring whenever possible. Yet countries bear the main responsibility for interpreting the *Countdown* results and using them to improve programming. (Quality monitoring and service provision monitoring are the responsibility of governments and their partners and are not addressed here.)

The *Countdown* as an evolving effort

The *Countdown* is a process, and will continue to expand and improve over time to address additional elements of the continuum of care. For example, although family planning is included as an essential intervention in the 2008 report, special health risks, vulnerabilities and barriers to access for adolescents are not addressed explicitly, nor is the full range of potential interventions to address undernutrition. We present this report recognising its limitations, and accept the need to expand the range of interventions that can be tracked effectively in each *Countdown* cycle while preserving the quality of the effort, especially as new evidence about the impact of interventions becomes available

Overview of this report

This report is intended to help policy makers and their partners assess progress and prioritise actions to reduce maternal, newborn and child mortality. Almost all the data presented here can be found elsewhere. The *Countdown* adds value by collecting in one place the basic information needed to decide whether maternal and child mortality reductions can be expected in countries with the highest ratios/rates or numbers of such deaths. It adds further value by creating a context – the *Countdown* conferences – that can make policy makers, development agencies and donors more likely to notice challenges to progress and to respond to them with sound decisions.

Chapter 2 explains how and why the Countdown priority countries were selected, and summarises the selection of Countdown indicators and the data sources and methods used to track progress.

Chapter 3 summarises the findings of the 2008 Report. Specific note is taken of countries with demonstrated progress in raising coverage levels, and areas where intensified effort is needed within and across the priority countries. This preliminary discussion provides a starting point for more in-depth review, discussion and action planning that will take place at the Countdown conference scheduled for April 2008 in Cape Town, South Africa and subsequent regional- and country-level Countdown conferences.

Chapter 4 introduces the individual country profiles. These profiles represent the basic information to be analysed at Countdown conferences, and evidence for assessing progress since the first Countdown Report in 2005. Each profile presents the most recent available information on selected demographic measures of maternal, newborn and child survival and nutritional status, coverage rates for priority interventions, and selected indicators of equity, policy support, human resources and financial flows.

Because the *Countdown* is an ongoing process that represents an informal affiliation of individuals and agencies committed to accelerating progress toward the health MDGs, we encourage readers to engage with this material critically and to make suggestions about how its utility in promoting and guiding

action can be improved. Comments, critiques and suggestions can be proposed through communication with any of the many *Countdown* co-sponsors, or sent directly to *www.countdown2015mnch.org*.

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Notes

[1] Black, Morris and Bryce 2003; Jones, Steketee, Black and others 2003; Bryce, Arifeen, Pariyo, and others 2003; Victora, Wagstaff, Armstrong-Schellenberg and others 2003; The Bellagio Study Group on Child Survival 2003.

[2] Lawn, Cousens and Zupan 2005; Darmstadt, Bhutto, Cousens and others 2005; Knippenberg, Lawn, Darmstadt and others 2005; Martines, Paul, Bhutta and others 2005.

[3] Ronsmans and Graham 2006; Campbell and Graham 2006.

[4] Grantham-McGregor, Cheung, Cueto and others 2007; Walker, Wachs, Gardner and others 2007; Engle, Black, Behrman and others 2007.

[5] Glasier, Gülmezoglu, Schmid and others 2006; Wellings, Collumbien, Slaymaker and others 2006; Cleland, Bernstein, Ezeh and others 2006; Cleland, Bernstein, Ezeh and others 2006; Grimes, Benson, Singh and others 2006; Low, Broutet, Adu-Sarkodie and others 2006.

[6] Black, Allen, Bhutta and others 2008; Victora, Adair, Fall and others 2008; Bhutta, Ahmed, Black and others 2008; Bryce, Coitinho, Darnton-Hill and others 2008; Morris, Cogill and Uauy 2008.

[7] Haines and Victora 2004; Gwatkin, Bhuiya and Victora 2004; Palmer, Mueller, Gilson and others 2004; Hongoro and McPake 2004; Victora, Hanson, Bryce and others 2004; Lavis, Posada, Haines and others 2004.

[8] Starrs 2007; Kerber, de Graft-Johnson, Bhutta and others 2007; Freedman, Graham, Brazier and others 2007.

[9] Bryce, Arifeen, Pariyo and others 2003, p. 1068.

[10] Bryce, Terreri, Victora and others 2006.

[11] The hosting organisations were the London School of Hygiene & Tropical Medicine, the Bellagio Child Survival Group, UNICEF, World Health Organization, Lancet, Save the Children, United States Agency for International Development (USAID), USAID's Basic Support for Institutionalizing Child Survival (BASICS), the UK's Department for International Development (DFID), the World Bank, the International Paediatric Association and the Partnership for Maternal, Newborn and Child Health.

[12] Bryce, Terreri, Victora and others 2006.

[13] Tinker, ten Hoope-Bender, Azfar and others 2005, p. 823.

[14] World Bank 2006.

[15] The World Summit for Children goals can be found at UNICEF's website (http://www.unicef.org/wsc/). Committed to by heads of state and government in 2002, they cover vital areas of children's well-being and development and serve as stepping stones towards the Millennium Development Goals (UNICEF 2007b).

[16] Victora, Bryce, Fontaine and others 2000.

[17] The World Fit for Children goals and targets can be found at UNICEF's website (http://www.unicef.org/specialsession/wffc/).

Tracking indicators and methods

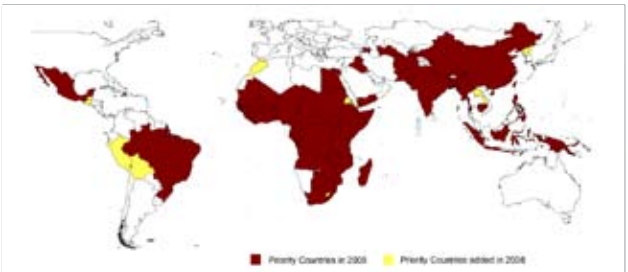
2

This chapter begins with an overview of how the priority *Countdown* countries were selected. In the second section we introduce the interventions and approaches within the continuum of care for maternal, newborn and child health that are tracked through the *Countdown* and the coverage indicators associated with each. The third section discusses determinants of coverage at the country level, such as policies, health system strength and financial flows, followed by a description of how equity is tracked through the *Countdown*. In the final section of the chapter we describe the data sources and methods used for the *Countdown* tracking effort.

Selecting the *Countdown* priority countries

The *Countdown* tracks coverage for the 68 countries with the highest burden of maternal and child mortality, shown in figure 2.1. Country selection took place in two phases – the first in 2004, when the *Countdown* Core Group defined countries with the highest numbers or rates of under-five mortality, and the second in 2007, when the list was expanded to include those with the highest numbers of maternal deaths or maternal mortality ratios. Each phase is described below.

The 68 *Countdown* Priority Countries



Source: Authors' compilation based on information supplied in text

Figure 2.1. The 60 priority countries in 2005 (red). The 8 priority countries added in 2008 (yellow): Bolivia, Eritrea, Guatemala, Democratic People's Republic of Korea, Lao People's Democratic Republic, Lesotho, Morocco, Peru.

Phase 1: Selecting priority countries based on deaths among children under age five

In 2005 the *Countdown* did not yet address maternal survival. It therefore drew its priority countries from two lists of all developing countries. The first list rank-ordered countries by the total number of child deaths in 2004, the most recent year for which data were available.[1] All countries with at least 50,000 child deaths were selected from this list for inclusion in the *Countdown*. The second list rank-ordered countries by under-five mortality rate. Any country that had a rate of at least 90 under-five deaths per 1,000 live births – and that had not already been selected from the first list – was selected from the second list for inclusion in the *Countdown*. The addition of the second list ensured that countries with small populations but high mortality rates, most of them in sub-Saharan Africa, were included.

Together, the 60 *Countdown* priority countries selected in 2005 represented almost 500 million children under age five – over 75 per cent of all such children then living. They also represented 94 per cent of all deaths among children under age five in 2004.[2]

Phase 2: Expanding the priority countries based on maternal deaths

For this report the *Countdown* expanded to include maternal deaths. We relied on procedures like those used for the first *Countdown* report to determine whether additional priority countries should be included. We again developed two lists of all developing countries. The first list rank-ordered countries by the maternal mortality ratio estimates from the year 2005, the most recent year for which this information was available.[3] All countries with a maternal mortality ratio greater than 550 were retained at this stage. The second list rank-ordered countries by the total number of maternal deaths in 2005. Using both lists, we selected for inclusion in the *Countdown* – if they had not already been included for having a high burden of under-five mortality – all countries with a maternal mortality ratio greater than 550 and all countries with both a maternal morality ratio greater

than 200 and at least 750 maternal deaths in 2005. Countries with high under-five mortality overlapped significantly with those that had high maternal mortality. This exercise led to the inclusion of just eight additional *Countdown* priority countries: Bolivia, the Democratic Republic of Korea, Eritrea, Guatemala, Lao People's Democratic Republic, Lesotho, Morocco and Peru.

Table 2.1 shows the proportion of *Countdown* priority countries in each region and their share of each region's population. Priority countries account for a vast majority of people in sub-Saharan Africa and South Asia, and smaller but still substantial proportions of those in the East Asia and the Pacific, Latin America and the Caribbean, and Middle East and North Africa regions.

The 68 priority countries represent 97 per cent of maternal and child deaths worldwide and in developing countries. Therefore, the *Countdown*'s findings are indicative of global progress towards the Millennium Development Goals – although countries with small populations may be underrepresented, and care must be taken when generalizing the results to those settings.

Numerous factors not directly related to health service coverage can have an important impact on health outcomes. Though beyond the scope of the *Countdown*, such factors should be kept in mind when using the findings. For example, important intermediate determinants of health outcomes include women's education and nutritional status, household wealth and cultural factors that affect health seeking behaviours.[4] In addition, the root causes of poor health include disruptions in a country's social fabric and economic infrastructure. This is evident in conflict and post-conflict situations[5] and in countries characterised by severe governance problems. Finally, natural and environmental disasters also contribute to the death toll and strain the capacity of already weak public health systems.[6] Many *Countdown* priority countries are affected by these and other important contextual factors. For example:

- In 32 per cent (17 of 53) of priority countries with data on adult female literacy, the rate is 50 per cent or less.[7]
- In 93 per cent (62 of 67) of priority countries with data on stunting prevalence among children under five years of age, the rate is at least 20 per cent.[8]
- In 23 per cent (15 of 64) of priority countries with data on HIV prevalence among adults age 15–49, the rate is estimated at 5 per cent or greater.[9]
- In 98 per cent (49 of 50) of priority countries with data on the World Bank's international poverty indicators, there are populations living on less than $1 USD per day (range 3 to 85 per cent).[10]
- In 2006, 66 per cent of all *Countdown* priority countries (45 of 68) were low-income countries – defined as countries with less than $905 of gross national income per capita per year.[11]
- Between 2002 and 2006, 35 per cent of all *Countdown* priority countries (24 of 68) were affected by violent, high-intensity conflict.[12]
- Between 2000 and 2007, 88 per cent of all *Countdown* priority countries (60 of 68) were struck by a natural disaster killing at least 100 people or affecting more than 10,000 people.[13]

Achieving the health-related Millennium Development Goals in the 68 *Countdown* priority countries will require extraordinary investments and efforts on many fronts. Given the magnitude of the challenge, a special effort is needed to enlist parliamentary champions and harness national commitments at the highest levels of government. Achieving the goals for mothers, newborns and children is a shared responsibility of national governments and their United Nations and non-governmental partners at both international and national levels, together with academic and research institutions, religious and community groups and dedicated individuals.

Countdown Countries Compared by Region

Region	***Countdown* priority countries (n=68)**		
	Compared with number of countries in region		**Percentage of region's population (2006)**
	Number of *Countdown* countries	**Number of countries in region**	
South Asia	5	8	99
Eastern and Southern Africa	18	22	99
West and Central Africa	22	24	100
Middle East and North Africa	6	20	51
East Asia and Pacific	8	29	88
Latin America and Caribbean	6	33	63
Central and Eastern Europe and the Commonwealth of Independent States	3	21	5
Industrialized countries	0	39	0

Source: UNICEF 2007c

Table 2.1. Countdown priority countries compared with the number of countries in each region and as a percentage of each region's population, 2006, by region

Priority interventions and coverage indicators

Chapter 1 described the principles that guide the *Countdown*, including its focus on tracking population coverage for effective interventions and approaches that are feasible for universal implementation in poor countries. In this section we describe how the *Countdown* interventions and approaches were chosen, how indicators of coverage were selected for each and how we arrived at the coverage estimates in this report.

Inclusion criteria for interventions and approaches

The *Countdown*'s most important criterion for including an intervention is the availability of internationally accepted (peer-reviewed) evidence demonstrating that it can reduce mortality among mothers, newborns or children under age five. The first *Countdown*, in 2005, was able to draw on the 2003 and 2005 Lancet series on child and neonatal survival, respectively, which used systematic literature reviews to identify such interventions.[14]

As the *Countdown* expanded to include maternal survival, and in light of new thinking about the continuum of care,[15] the Core Group recognized that the focus on single interventions was too narrow. Coverage with broader approaches such as antenatal and postnatal care, delivery care and reproductive health services – as basic platforms for delivering multiple interventions proven to reduce maternal and newborn mortality – also needed to be tracked. Beginning with this report, the *Countdown* will track both interventions and approaches, provided that at least one effective intervention is supported by each approach.

For this report a *Countdown* Working Group on Indicators and Coverage Data was convened and charged with reviewing new evidence on interventions included in the 2005 *Countdown*, as well as determining whether additional interventions or delivery platforms should be included in 2008. A full report of the Working Group's deliberations and decisions is at the *Countdown* website (*www.countdown2015mnch.org*).

Among proven interventions, the *Countdown* includes only those judged feasible for delivery with universal coverage in low-income countries. Because intervention costs and delivery strategies can change, this criterion must be reassessed in each *Countdown* cycle.

The *Countdown* does not aim to be comprehensive and does not necessarily include all interventions and approaches meeting the criteria described above. For example, as explained below, interventions have been excluded if no appropriate coverage indicator is available. In addition, the *Countdown* strives to limit the total number of interventions and indicators to keep the effort manageable and focused.

The criteria used to assess potential coverage indicators were based on the normative principle that a 'good' coverage indicator should provide a valid measure of whether the target population for a given intervention receives it when it is needed and when it is clinically effective. In addition, though, indicators used for the *Countdown* must produce results that are:

- Nationally representative.
- Reliable and comparable across countries and time
- Clear and easily interpreted by policy makers and program managers.
- Available regularly in most of the *Countdown* priority countries.

None of the 68 priority countries has a health information system that can now produce coverage estimates meeting the standards described above for all indicators.[11] Fortunately, most of the *Countdown* coverage indicators tracked in 2005 have since been included in the protocols for the major population-based surveys used in the 68 priority countries – usually either the UNICEF-supported Multiple Indicator Cluster Surveys[16] or the Demographic and Health Surveys supported by the United States Agency for International Development.[17] Exceptions include interventions for which data collection and the analysis of coverage indicators are not yet routine or harmonised, such as unmet need for family planning or a postnatal visit for the newborn within two days of birth. In addition, coverage estimates for vaccinations, vitamin A supplementation and the prevention of mother-to-child transmission of HIV/AIDS reflect the synthesis of routine program data and data from household surveys. Annex B lists the data sources for all indicators included in the 2008 *Countdown* cycle.

The 2008 *Countdown* coverage indicators

The *Countdown* builds on the work of others. Coverage estimates and trends for HIV-related interventions, immunisation, vitamin A supplementation and water and sanitation reflect the work of various interagency working groups described more fully below. For other indicators the *Countdown* reports available estimates but recognizes the need for improvement in data availability and estimation methods. (Annex C defines the *Countdown* 2008 coverage indicators.)

Through its efforts the *Countdown* has acquired a clear view of the limitations of available coverage indicators, the data that support them and the process through which country-specific estimates are updated. A part of the *Countdown* work plan is addressing these issues.

Coverage indicators are summarized only for countries to which they are relevant. For example, only 45 of the 68 countries have endemic malaria, defined here as documented risk of Plasmodium falciparum transmission nationwide and throughout the year.[18] The country profiles estimate coverage for countries with limited geographic areas of malaria risk, but such countries are not included in the results summarized in this chapter. All *Countdown* priority countries are considered to need antiretroviral treatment for pregnant women with HIV/AIDS to prevent mother-to-child transmission.[19]

Indicators for factors that contribute to coverage

The *Countdown* Core Group identified two prerequisites for success in attaining high, sustained and equitable levels of coverage for interventions and approaches proven to improve maternal and child survival: a supportive policy environment with adequate health systems support (including human resources) and predictable, longer term financial support. For the 2008 *Countdown*, technical groups were convened in each area and charged with reviewing the 2005 *Countdown* experience and improving on the tracking procedures.

The Working Group on health policies and health systems searched for relevant indicators, prioritising those with international benchmarks for health systems strengthening and with data either available in the public domain or objectively assessable within the timeframe of the 2008 *Countdown* cycle. Box 2.1 shows the list of indicators finally selected through a consultative process involving the *Countdown* Core Group, health systems experts and experts in maternal, newborn and child health.

Each technical or intersectoral policy identified as critical to maternal, newborn and child health was coded as being either fully adopted at country level ('Yes'), partially adopted ('Partial') or not adopted ('No'; see annex table D1). The inclusion of a policy or plan does not necessarily reflect the extent or quality of implementation, but can often be a prerequisite for effective programme action. (Annexes B and D present further information on data sources, definitions and coding criteria for each indicator.)

Health Policies and Health Systems Indicators

Countries with adopted national policies indicating:

- International Code of Marketing of Breastmilk Substitutes adopted.
- International Labour Organization Convention 183 on Maternity Protection ratified.
- Notification of maternal deaths.
- Midwives authorized to administer a core set of life-saving interventions.
- Integrated management of childhood illness guidelines adapted to cover newborns 0–1 week of age.
- Low osmolarity oral rehydration salts and zinc supplements for the management of diarrhoea.
- Community management of pneumonia with antibiotics.
- Costed implementation plan or plans for maternal, newborn and child health available.

National indicators of health system preparedness to improve maternal, newborn and child health

- Per capita total expenditure on health (at international US dollar rate).
- Government expenditure on health as a percentage of total government expenditure.
- Out-of-pocket expenditure as a percentage of total expenditure on health.
- Density of physicians, nurses and midwives per 1,000 people.
- Availability of emergency obstetric care services as a percentage of recommended minimum.

Box 2.1. Health policies and health systems indicators tracked in the 2008 Countdown

The *Countdown* has worked to develop methods for tracking domestic and external financial investments in child health. Efforts through the 2005 *Countdown* to track official development assistance indicated that overall funding for child survival in the priority countries was insufficient and not well targeted to countries with the greatest needs.[20] The present *Countdown* cycle's official development assistance tracking effort has expanded to include support for maternal and newborn activities in the priority countries. The country profiles include estimates of official development assistance to child health per child and official development assistance to maternal and neonatal health per live birth.

Work on tracking domestic investments in maternal, newborn and child health has also progressed. The most promising method identified by the Working Group was to build on the National Health Accounts approach[21] and develop specific procedures for a sub analysis of resources directed to maternal, newborn

and child health, including reproductive health. Results on a greater number of countries are expected in the next *Countdown* cycle.

Tracking improvements in equity

Efforts to monitor coverage for interventions proven to reduce maternal and child mortality are incomplete without measures of equity, defined here as the extent to which mothers and children in different socioeconomic or ethnic groups or children of different sexes are equally likely to receive services. Each 2005 *Countdown* country profile included a graph showing the proportion of children under age five in two population quintiles – the poorest and the least poor – who were receiving six or more preventive child survival interventions.[22]

In the 2008 *Countdown* cycle we focus on socioeconomic inequities across a broader set of interventions. Because curative services are needed only by particular subpopulations in response to particular health events, we developed a new measure reflecting the gap between universal coverage for an intervention (100 per cent of the population in need) and current coverage for each country. This 'coverage gap' measure includes eight interventions grouped into four areas:

1. Family planning (need met or modern contraceptive use).

2. Maternal and newborn care (antenatal care and skilled birth attendance).

3. Immunisation (measles vaccine, Bacille Calmette-Guerin vaccine against tuberculosis and third dose of diphtheria and tetanus with pertussis vaccine).

4. Treatment of child illness (medical care sought for acute respiratory infection and oral rehydration therapy with continued feeding for diarrhoea).

Larger coverage gaps indicate poorer coverage for these interventions; smaller coverage gaps indicate better coverage. Thus, while the coverage gap across wealth quintiles represents coverage inequities within a country, it can also be compared with other countries' coverage gaps to suggest intercountry coverage inequities. (Annex E offers further details about the construction of the coverage gap measure and guidance on its interpretation.)

Data sources and methods

The *Countdown* aims to bring together data on coverage for interventions and approaches with proven effectiveness in reducing maternal, newborn and child survival, making this information readily accessible and spurring donors and policy makers to action. The *Countdown* does not normally collect new coverage data. This section describes the sources of *Countdown* data (listed for each indicator in annex B) and the quality control mechanisms that are already in place to assess and ensure their validity. Any secondary analysis carried out solely for the *Countdown*'s use is described in detail. The section follows the order in which indicators are presented on the country profiles available in chapter 4.

Child and maternal mortality

Country-specific estimates of mortality in children under age five were abstracted from tables in The State of the World's Children 2008.[23] The methods and limitations associated with these estimates are available elsewhere.[24] Country-specific cause-of-death profiles were abstracted from World Health Organization statistical databases,[25] based on work by the Child Health Epidemiology Reference Group.[26]

Progress towards Millennium Development Goal 4 was assessed by determining whether the average annual rate of reduction in mortality in children under age five from 1990–2006 matched or exceeded the rate needed from 2007–2015 if the goal is to be met. If a country's mortality rate in children under age five is less than 40 per 1,000 live births, or greater than or equal to 40 with an average annual reduction rate of at least 4 per cent for 1990–2006, it is considered 'on track'. If the country's mortality rate in children under age five is greater than or equal to 40 and the average annual reduction rate for 1990–2006 was between 1.0 per cent and 3.9 per cent, the country is considered to be making 'insufficient progress'. If the mortality rate in children under age five is greater than or equal to 40 and the average annual reduction rate for 1990–2006 was less than 1.0 per cent, the country is considered to be making 'no progress'.

Country-specific maternal mortality ratios per 100,000 live births reflect 2005 data,[27] drawing on estimates developed by the Maternal Mortality Working Group. Because large uncertainty margins surround these estimates, progress towards Millennium Development Goal 5 – improve maternal health – was assessed using four broad categories for maternal mortality: low (maternal mortality ratio of less than 100), moderate (maternal mortality ratio of 100–299), high (maternal mortality ratio of 300–549) and very high (maternal mortality ratio of 550 or greater).[28]

Nutritional status

The *Countdown* country profiles include nutritional status indicators (such as underweight prevalence, stunting prevalence, wasting prevalence and incidence of low birthweight) as an important reference point for interpreting coverage. Country-specific estimates for nutritional status indicators[29] were adjusted to reflect new World Health Organization growth standards.[30] An exception is estimates of low birthweight, which are not dependent on the growth standards and have been adjusted here for high underreporting (especially in sub-Saharan Africa).[31]

Coverage

Data sources and quality. Household surveys are the primary data source for tracking progress in coverage for maternal, newborn and child survival. The main sources of coverage data for the *Countdown* are UNICEF's global databases and the coverage estimates in its annual The State of the World's Children reports. The two most important sources of household survey data are the Multiple Indicator Cluster Surveys (MICS) and the Demographic and Health Surveys (DHS). The latest protocols for these two surveys permit collecting harmonised information on most of the *Countdown* coverage indicators.

The remaining coverage estimates come from several sources. The latest available coverage data and methods of estimating coverage for antiretroviral treatment to prevent mother-to-child HIV transmission reflect harmonised estimates developed by the Joint United Nations Programme on HIV/AIDS (UNAIDS), UNICEF and the World Health Organization. Based on denominators derived from unpublished HIV estimates for 2007 by the Joint United Nations Programme on HIV/AIDS and the World Health Organization, these harmonised estimates are more recent than those published in UNICEF's The State of the World's Children 2008. Data on Caesarean section prevalence are drawn from the Demographic and Health Surveys.

Many groups share responsibility for the quality control of the coverage estimates for interventions and approaches effective in reducing maternal, newborn and child mortality. Table 2.2 summarizes quality review and improvement mechanisms for the maternal, newborn and child health coverage indicators, together with selected mortality measures.

A number of methodological challenges in coverage measurement have been known for some time. The *Countdown* throws these challenges into relief. They will be prioritized as part of the *Countdown* technical work plan in the next reporting cycle. One area that needs urgent attention is the development of standard procedures for estimating uncertainty. The 2008 report presents point estimates and makes no attempt to estimate precision or provide uncertainty ranges.

Data summary and analysis. The *Countdown* focuses on accelerating coverage improvements at the country level. Therefore, in summarizing the results this report uses the country as its unit of analysis, consistent with the need for in-depth country-by-country analysis and action. The most appropriate summary measures for this purpose are the median, which gives each of the 68 countries an equal weight, and the range, which illustrates the extent of the variation among countries.

All *Countdown* Core Group members were invited to participate in a consultative process to agree on the most important aspects of the country-specific findings and their implications for achieving Millennium Development Goals 4 and 5. Meetings were held in Addis Ababa (2 December 2007), Geneva (10 December 2007) and New York (12 January 2008). At each meeting participants examined preliminary results and agreed on the most important findings and their implications for continued implementation efforts. These findings were then shared with the broader *Countdown* Core Group through a draft report, resulting in extensive further discussion and agreement on the conclusions presented here.

In 2005, summaries of performance across the priority countries for each indicator were categorized in three ways – 'on track', 'watch and act' or 'high alert' – based on international targets. For indicators without targets, categorizations across the priority countries were based on arbitrary thresholds for high, middle and low performance.

In 2008 the challenge was to compare progress over time as well as across countries. Countries were first grouped into the 2005 categories for each indicator. But since the number of countries had increased from 60 in 2005 to 68 in 2008 – resulting in a lack of data for one of the two years in some countries – summaries like those presented in 2005 proved difficult to produce, and an alternative approach to summary analysis was devised.

For the 2008 *Countdown*, then, progress is measured by the average annual percentage point change in coverage for each indicator, standardized to a three-year reference period to conform to the *Countdown* reporting cycle. Using the databases containing the trend information presented in the 2008 country profiles, we identified the subset of countries that had two data points for each indicator since 1998 with

Quality Review and Improvement Mechanisms

Review Group	Coverage or mortality indicators	Membership
Interagency Child Mortality Estimation Group	None at present (Develop joint estimates for under-five, infant and neonatal mortality)	**International organizations** (UNICEF, WHO, The World Bank, UN Population Division) **Academia and institutions** (Harvard and others)
Malaria Monitoring and Evaluation Reference Group (MERG)	Use of insecticide-treated nets by children under five Treatment of fever among children under five Intermittent preventative treatment for pregnant women (malaria; IPTp)	**International organizations** (UNICEF, MACEPA, WHO, USAID, The World Bank, The Global Fund) **Academia and institutions** (Macro International, CDC, LSHTM, others)
Joint Monitoring Program (JMP) for Water Supply and Sanitation and Technical Advisory Group	Use of improved drinking water sources Use of improved sanitation facilities	**International organizations** (UNICEF, WHO, The World Bank, USAID) **Academia and institutions** (LSHTM, Macro International and others)
HIV/AIDS Monitoring and Evaluation Reference Group (MERG)	HIV+ pregnant women receiving ARVs for PMTCT	**International organizations** (UNAIDS, UNICEF, WHO, UNFPA and others) **Academia and institutions** (various)
WHO UNICEF Joint Working Group on Immunizations	Measles vaccination DPT vaccination Hib vaccination	**International organizations** (UNICEF, WHO)
Child Health Epidemiology Reference Group (CHERG)	None at present (Conduct systematic reviews on cause-specific mortality, morbidity and risk factors, including nutrition)	**International organizations** (UNICEF, WHO, UNFPA, CDC, Save the Children US and others) **Academia and institutions** (Johns Hopkins, LSHTM, others)
Interagency group for maternal mortality estimation and trend analysis	None at present (Develop joint maternal mortality estimates and new methodology for trend analysis; Prepare regional workshops to explain methodology and promote data analysis and use)	**International organizations** (UNICEF, WHO, UNFPA, World Bank, UN Population Division) **Academia and institutions** (Harvard and others)

Source: Author's compilation based on data as described in the report

Table 2.2. Quality review and improvement mechanisms for country-specific estimates of coverage and mortality

these data points being at least three years apart. We calculated the difference in the coverage estimates and divided it by the number of years between the two point estimates. This product was then multiplied by three to produce a three-year estimate, resulting in a continuous variable across the 68 countries.

Coverage patterns for the interventions and approaches presented in the country profiles were also analyzed for the continuum of care. This was done by counting the number of countries that had coverage levels for four of the component indicators of at least 10 per cent, at least 20 per cent, at least 30 per cent and so on.

The *Countdown* countries that were included in the summary estimates for each coverage indicator met the following criteria, consistent with those used in global reporting:

- Only data from countries with available coverage estimates for 2000–2006 were used.
- Countries with summary measures from years or time periods other than 2000–2006, or with data that differ from the standard definition or refer only to part of a country, were excluded from the analysis. Exceptions to this rule are coverage estimates for vitamin A supplementation, which refer only to 2005 data, and coverage estimates for measles immunisation, neonatal tetanus protection, the third dose of diphtheria and tetanus with pertussis vaccine (DPT3) and the third dose of haemophilus influenzae type B vaccine (Hib3), which refer only to 2006 data.

Policies, health systems and financial flows

Information on country-specific policies related to maternal, newborn and child health was obtained from staff of the UNICEF and World Health Organization offices in the 68 priority countries in November 2007. These reports were then reviewed and confirmed with technical staff in the relevant programme area at UNICEF's New York headquarters and the World Health Organization headquarters in Geneva. The information on emergency obstetric care was derived

from a joint Averting Maternal Death and Disability–UNICEF database. Averting Maternal Death and Disability and UNICEF headquarters staff reviewed initial country assessments and consulted country staff, United Nations Population Fund colleagues and other experts to determine the reliability of the data.

The *Countdown* Working Group on Financial Flows analysed and coded the complete aid activities database for 2005, using the methodology for the 2005 *Countdown* cycle.[32] The analysis included all 22 donor countries and the European Union, represented in the Development Assistance Committee of the Organisation for Economic Co-operation and Development. The World Bank, UNICEF, the Joint United Nations Programme on HIV/AIDS, the Global Alliance for Vaccines Initiative and the Global Fund to Fight AIDS, Tuberculosis and Malaria were included as multilateral development organisations and global health initiatives. Consistent with earlier analysis, the United Nations Population Fund was treated as a delivery channel and does not appear in the donor list. Because it is a significant supporter of maternal and reproductive health efforts, this approach will be reviewed in future work.

For all but one of the donors the analysis used data from the Creditor Reporting System database, which is maintained and administered by the Organisation for Economic Co-Operation and Development.[33] The analysis also includes disbursement data provided by the Global Alliance for Vaccines Initiative. Disbursements by the Global Fund to fight AIDS, Tuberculosis and Malaria were already included in the Creditor Reporting System database; the Working Group triangulated the information with the data that the Global Fund to Fight AIDS, Tuberculosis and Malaria provided on its website. The Creditor Reporting System database shows no reported disbursements for Norway, only commitments.

Results are reported for two groups: first, children under five years of age; second, mothers and newborns. Both categories include financial flows for nutrition, so far as these could be identified – although nutrition is not defined as a separate category.

Equity

The 2008 *Countdown* country profiles present the coverage gap by wealth quintiles, drawing on Multiple Indicator Cluster Surveys and Demographic and Health Surveys conducted since 1990. In particular, the profiles show:

- The absolute size of the coverage gap (the difference between universal coverage for these eight interventions and actual coverage as measured in each survey).
- The ratio between the gap in the poorest and the least poor ('best-off') quintile of the population.
- The absolute difference between the two quintiles.

Larger gaps reflect poorer coverage; smaller gaps reflect better coverage.

The coverage data used to construct the coverage gap index for each country, as well as its wealth quintiles, are based on national Demographic and Health Surveys[34] and Multiple Indicator Cluster Surveys. Where multiple surveys were available for a *Countdown* country, all data were used to assess current levels and trends in the coverage gap measure by wealth quintile. Data on coverage for key interventions by wealth quintile were available from surveys conducted since 1990 for 54 of the 68 *Countdown* priority countries. Forty countries had more than one survey, 22 more than two surveys.

The coverage gap was analyzed by wealth quintiles using a standard methodology.[35] (Further details about the analysis methods are in annex E.)

Notes

[1] UNICEF 2005.

[2] UNICEF 2004.

[3] WHO, UNICEF, UNFPA and World Bank 2007; UNICEF 2007c; Hill, Thomas, AbouZahr and others 2007.

[4] Glewwe, 1999; Schell, Reilly, Rosling and others 2007.

[5] Pedersen 2002; Al Gasseer, Dresden, Keeney and others 2004.

[6] Noji 2000.

[7] UNICEF 2006b.

[8] UNICEF 2007c.

[9] UNICEF 2007a; UNAIDS and WHO 2007; UNAIDS 2007.

[10] UNICEF 2007c.

[11] World Bank n.d.

[12] Personal communication from Edilberto Loaiza, DPP/SIS UNICEF, 25 January 2008, based on a recent analysis by UNICEF of the Uppsala conflict database, the Conflict Barometer of the Heidelberg Institute for International Conflict Research, and Project Ploughshares 2007.the Project Ploughshares' Armed Conflicts Report 2007.

[13] Emergency Events Database n.d.

[14] Jones, Steketee, Black and others 2003; Darmstadt, Bhutto, Cousens and others 2005.

[15] Tinker, ten Hoope-Bender, Azfar and others 2005; Kerber, de Graft-Johnson, Bhutta and others 2007.

[16] UNICEF n.d.

[17] Measure DHS, MACRO International, Inc. n.d.

[18] WHO 2007a.

[19] UNICEF 2007c; UNICEF 2007a; UNAIDS and WHO 2007; UNAIDS 2007.

[20] Powell-Jackson, Borghi, Mueller and others 2006.

[21] World Bank, WHO and USAID 2003.

[22] Bryce, Terreri, Victora and others 2006.

[23] UNICEF 2007c.

[24] UNICEF, WHO, World Bank and UNPD 2007.

[25] WHO 2007b.

[26] Bryce, Boschi-Pinto, Shibuya and others 2005.

[27] UNICEF 2007b, p. 27.

[28] Hill, Thomas, AbouZahr and others 2007.

[29] UNICEF 2007c, pp. 118–21.

[30] WHO 2006a.

[31] Blanc and Wardlaw 2005.

[32] Powell-Jackson, Borshi, Mueller and others 2006.

[33] IDS n.d.

[34] Gwatkin, Rutstein, Johnson and others 2007.

[35] Filmer and Pritchett 2001.

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The 2008 *Countdown* findings – and a call to action

The *Countdown*'s most important findings appear in the individual country profiles, which answer basic questions about maternal, newborn and child survival. For example:

- What proportion of women, newborns and children have benefited from life-saving interventions?
- Are there coverage gaps?
- Are supportive policies in place?
- Are adequate resources directed to maternal, newborn and child health?
- How equitable is existing coverage?

Aggregated statistics often mask the answers to such questions, making it difficult to see where the problems are and the steps needed to address them.

This chapter summarises information from the 68 country profiles in simple ways that can be useful for planning country programmes and future analysis, and the text follows the layout of the country profiles. We begin with a summary of the epidemiological context in the 68 countries, continue by examining coverage levels and equity in coverage, and end with information about health system policies and financial flows. Where the data are sufficient we highlight trends, and especially progress or its absence, since about 2000.

Finally, this chapter presents the Core Group's preliminary conclusions capped by a *Countdown* call to action.

The bottom line: mortality

Coverage indicators for effective interventions and approaches are linked to mortality reduction. The correlation between coverage indicators and mortality in children under age five is very strong.[1] The correlation is less strong for maternal mortality[2] – suggesting that coverage, though a necessary condition for impact, may not be sufficient when care is substandard.

Table 3.1 shows progress towards Millennium Development Goal 4 – reducing child mortality – in the 68 *Countdown* priority countries. Most have under-five mortality rates greater than 40. Such countries are considered 'on track' if their under-five mortality rates from 1990–2006 showed an average annual reduction rate of at least 4.0 per cent, roughly the improvement needed for all developing countries to achieve Millennium Development Goal 4. All countries with under-five mortality rates of less than 40 are considered 'on track.'

For the 2008 *Countdown* cycle, 16 of 68 countries (24 per cent) were judged 'on track,' compared with 7 of 60 (12 per cent) in 2005. Seven countries which had been 'on track' in reducing child mortality in 2005 retained that status in 2008 (Bangladesh, Brazil, Egypt, Indonesia, Mexico, Nepal and the Philippines). Among the remaining nine 'on track' countries in 2008, three had been included in the *Countdown* in 2005 and made demonstrable progress in reducing child mortality since then (China, Haiti and Turkmenistan). The six remaining 'on track' countries participated in the *Countdown* for the first time in 2008 (Bolivia, Eritrea, Guatemala, Lao People's Democratic Republic, Morocco and Peru).

Twenty-six of the 68 priority countries (38 per cent) were judged to have made insufficient progress in reducing child mortality, and 26 (38 per cent) no progress at all.[3] In twelve countries the average annual rates of reduction in under-five mortality since 1990 were negative (Botswana, Cameroon, Central African Republic, Chad, Congo, Equatorial Guinea, Kenya, Lesotho, South Africa, Swaziland, Zambia and Zimbabwe), indicating that child mortality has increased.

Progress Towards Millennium Development Goals 4 and 5

Country or territory	Millennium Development Goal 4 (reduce by two-thirds, between 1990 and 2015, the mortality rate in children under age five)						Millennium Development Goal 5 (reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio)[a]		
	Under-five mortality rate			Average annual rate of reduction (%)					
	1990	2006	Millennium Development Goal target 2015	Observed 1990–2006	Required 2007–2015	Progress towards the Millennium Development Goal target	Maternal mortality ratio (2005, adjusted)	Lifetime risk of maternal death (2005) 1 in:	Level of maternal mortality
Afghanistan	260	257	87	0.1	12.1	No progress	1,800	8	Very high
Angola	260	260	87	0.0	12.2	No progress	1,400	12	Very high
Azerbaijan	105	88	35	1.1	10.2	Insufficient	82	670	Low
Bangladesh	149	69	50	4.8	3.6	On track	570	51	Very high
Benin	185	148	62	1.4	9.7	Insufficient	840	20	Very high
Bolivia	125	61	42	4.5	4.2	On track	290	89	Moderate
Botswana	58	124	19	–4.7	20.7	No progress	380	130	High
Brazil	57	20	19	6.5	0.6	On track	110	370	Moderate
Burkina Faso	206	204	69	0.1	12.1	No progress	700	22	Very high
Burundi	190	181	63	0.3	11.7	No progress	1,100	16	Very high
Cambodia	116	82	39	2.2	8.3	Insufficient	540	48	High
Cameroon	139	149	46	–0.4	13.0	No progress	1,000	24	Very high
Central African Republic	173	175	58	–0.1	12.3	No progress	980	25	Very high
Chad	201	209	67	–0.2	12.6	No progress	1,500	11	Very high
China	45	24	15	3.9	5.2	On track	45	1300	Low
Congo	103	126	34	–1.3	14.5	No progress	740	22	Very high
Congo, Democratic Republic of the	205	205	68	0.0	12.2	No progress	1,100	13	Very high
Côte d'Ivoire	153	127	51	1.2	10.1	Insufficient	810	27	Very high
Djibouti	175	130	58	1.9	8.9	Insufficient	650	35	Very high
Egypt	91	35	30	6.0	1.6	On track	130	230	Moderate
Equatorial Guinea	170	206	57	–1.2	14.3	No progress	680	28	Very high
Eritrea	147	74	49	4.3	4.6	On track	450	44	High
Ethiopia	204	123	68	3.2	6.6	Insufficient	720	27	Very high
Gabon	92	91	31	0.1	12.1	No progress	520	53	High
Gambia	153	113	51	1.9	8.8	Insufficient	690	32	Very high
Ghana	120	120	40	0.0	12.2	No progress	560	45	Very high
Guatemala	82	41	27	4.3	4.5	On track	290	71	Moderate
Guinea	235	161	78	2.4	8.0	Insufficient	910	19	Very high
Guinea-Bissau	240	200	80	1.1	10.2	Insufficient	1,100	13	Very high
Haiti	152	80	51	4.0	5.1	On track	670	44	Very high
India	115	76	38	2.6	7.6	Insufficient	450	70	High
Indonesia	91	34	30	6.2	1.3	On track	420	97	High
Iraq	53	46	18	0.9	10.6	No progress	300	2	High
Kenya	97	121	32	–1.4	14.7	No progress	560	39	Very high
Korea, Democratic People's Rep	55	55	18	0.0	12.2	No progress	370	140	High
Lao People's Democratic Republic	163	75	54	4.9	3.6	On track	660	33	Very high
Lesotho	101	132	34	–1.7	15.2	No progress	960	45	Very high
Liberia	235	235	78	0.0	12.2	No progress	1,200	12	Very high
Madagascar	168	115	56	2.4	8.0	Insufficient	510	38	High
Malawi	221	120	74	3.8	5.4	Insufficient	1,100	18	Very high
Mali	250	217	83	0.9	10.6	No progress	970	15	Very high

Mauritania	133	125	44	0.4	11.5	No progress	820	22	Very high
Mexico	53	35	18	2.6	7.6	On track	60	670	Low
Morocco	89	37	30	5.5	2.4	On track	240	150	Moderate
Mozambique	235	138	78	3.3	6.3	Insufficient	520	45	High
Myanmar	130	104	43	1.4	9.7	Insufficient	380	110	High
Nepal	142	59	47	5.5	2.5	On track	830	31	Very high
Niger	320	253	107	1.5	9.6	Insufficient	1,800	7	Very high
Nigeria	230	191	77	1.2	10.1	Insufficient	1,100	18	Very high
Pakistan	130	97	43	1.8	9.0	Insufficient	320	74	High
Papua New Guinea	94	73	31	1.6	9.4	Insufficient	470	55	High
Peru	78	25	26	7.1	–0.4	On track	240	140	Moderate
Philippines	62	32	21	4.1	4.8	On track	230	140	Moderate
Rwanda	176	160	59	0.6	11.1	No progress	1,300	16	Very high
Senegal	149	116	50	1.6	9.4	Insufficient	980	21	Very high
Sierra Leone	290	270	97	0.4	11.4	No progress	2,100	8	Very high
Somalia	203	145	68	2.1	8.5	Insufficient	1,400	12	Very high
South Africa	60	69	20	–0.9	13.8	No progress	400	110	High
Sudan	120	89	40	1.9	8.9	Insufficient	450	53	High
Swaziland	110	164	37	–2.5	16.6	No progress	390	120	High
Tajikistan	115	68	38	3.3	6.4	Insufficient	170	160	Moderate
Tanzania, United Republic of	161	118	54	1.9	8.7	Insufficient	950	24	Very high
Togo	149	108	50	2.0	8.6	Insufficient	510	38	High
Turkmenistan	99	51	33	4.1	4.8	On track	130	290	Moderate
Uganda	160	134	53	1.1	10.2	Insufficient	550	25	Very high
Yemen	139	100	46	2.1	8.6	Insufficient	430	39	High
Zambia	180	182	60	–0.1	12.3	No progress	830	27	Very high
Zimbabwe	76	105	25	–2.0	15.8	No progress	880	43	Very high

a. Due to the large margins of uncertainty around these estimates, country-level trend analysis is problematic. Progress towards this Millennium Development Goal is therefore assessed based on the latest available estimates and is classified according to the following thresholds: Very high: maternal mortality ratio of 550 or more; High: maternal mortality ratio of 300–549; Moderate: maternal mortality ratio of 100–299; Low: maternal mortality ratio below 100.
Source: UNICEF 2007a

Table 3.1. Progress towards Millennium Development Goals 4 and 5.

Neonatal deaths – deaths in the first month of life – account for 40 per cent of deaths in children under age five, or four million worldwide deaths each year.[4] As countries reduce deaths of children under age five, the proportion of children dying in the neonatal period typically increases. Reaching Millennium Development Goal 4 will require specific attention to achieving good coverage for interventions to reduce neonatal mortality. Latin America and South-East Asia have made substantial progress in reducing neonatal mortality rates. Africa has made no measurable progress. In South Asia progress has been minimal, though a few countries such as Bangladesh and Nepal have achieved substantial reductions.[5]

Annual country-level data or estimates for neonatal mortality are an important adjunct to tracking for Millennium Development Goal 4. Although Demographic and Health Surveys produce neonatal mortality rates, Multiple Indicator Cluster Surveys currently do not. Careful assessment of data reliability and a transparent methodology for developing estimates, where data on neonatal mortality rates are not available, are urgently needed for tracking progress towards Millennium Development Goal 4.

Reducing stillbirths also requires more attention and depends on improved data collection and monitoring. Up to 3.2 million babies are dying each year during the last 12 weeks of pregnancy.[6]

In addition to under-five mortality rates, table 3.1 presents the best available estimates of maternal mortality ratios for the 68 *Countdown* priority countries. Country-specific maternal mortality ratios are the basis for judging progress towards Millennium Development Goal 5 – improve maternal health. Because large uncertainty margins surround these estimates, progress towards Millennium Development Goal 5 was assessed using four broad categories for maternal mortality: low (maternal mortality ratio of less than

100), moderate (maternal mortality ratio of 100–299), high (maternal mortality ratio of 300–549) and very high (maternal mortality ratio of 550 or greater). Of the 68 priority countries, 56 (82 per cent) have either high or very high maternal mortality ratios. Only three have low maternal mortality ratios (Azerbaijan, China and Mexico).

In table 3.1, the column for lifetime risk of maternal death reflects the combined input of risks associated with each birth (the maternal mortality ratio) and the total exposure to risk represented by the total number of births (the total fertility rate). Lifetime risk of maternal death varies widely across the priority countries, from 1 in 7 (Niger) to 1 in 1,300 (China).

As explained in chapter 2, reproductive health will receive special attention in the next cycle of the *Countdown*.

Comparisons of country-specific progress towards Millennium Development Goal 4 and Millennium Development Goal 5 show that the great majority of the priority countries (50 of 68) are judged to be doing poorly in both areas, with either 'no progress' or 'insufficient progress' towards Millennium Development Goal 4 and either 'high' or 'very high' maternal mortality ratios.

The remaining 18 countries, however, are making good progress towards Millennium Development Goal 4, Millennium Development Goal 5 or both (table 3.2).

A closer look at the country profiles for the 10 countries making good progress towards both Millennium Development Goal 4 and Millennium Development Goal 5 is encouraging, since several are among the priority countries with the largest populations.


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Summary of Progress

	Good progress towards Millennium Development Goal 4 and Millennium Development Goal 5	Good progress towards Millennium Development Goal 4 but not Millennium Development Goal 5	Good progress towards Millennium Development Goal 5 but not Millennium Development Goal
Number of countries	10	6	2
Countries	Bolivia, Brazil, China, Egypt, Guatemala, Mexico, Morocco, Peru, the Philippines, Turkmenistan	Bangladesh, Eritrea, Haiti, Indonesia, Lao People's Democratic Republic, Nepal	Azerbaijan, Tajikistan

Source: Abstracted from UNICEF 2007b

Table 3.2. Summary of progress towards Millennium Development Goals 4 and 5

Nutritional status

Undernutrition is the underlying cause of over one-third of deaths among children under age five. And it is the underlying cause of one-fifth of maternal deaths in childbirth.[7] The aim of Millennium Development Goal 1 – eradicating extreme poverty and hunger – is inextricably linked to achieving Millennium Development Goals 4 and 5.[8] One target for Millennium Development Goal 1, "to halve, between 1990 and 2015, the proportion of people who suffer from hunger,"[9] is now monitored through an indicator of underweight prevalence among children under age five. Underweight can reflect either wasting (low weight-for-height, indicating acute weight loss), or much more commonly, stunting (low height-for-age, indicating chronic restriction of a child's potential growth).[10] Table 3.3 shows the *Countdown* priority countries that are 'on track' for the underweight target of Millennium Development Goal 1, based on their average annual rate of reduction in underweight prevalence.

Progress Towards Underweight Target

No progress (n=15)	On track (n=16)
Burkina Faso	Afghanistan
Burundi	Bangladesh
Cameroon	Bolivia
Central African Rep.	Botswana
Djibouti	Brazil
Lesotho	Cambodia
Madagascar	China
Niger	Congo
Sierra Leone	Ghana
Somalia	Guatemala
South Africa	Guinea-Bissau
Sudan	Indonesia
Togo	Malawi
Yemen	Mauritania
Zimbabwe	Mexico
	Peru

Source: UNICEF 2007b

Table 3.3. Countdown countries making 'no progress' or 'on track' towards achieving the underweight target of Millennium Development Goal 1 (2008)

Many countries with a high burden of maternal and child undernutrition also show high maternal mortality ratios and high mortality rates in children under age five. Of the 36 countries that account for 90 per cent of the world's estimated 178 million stunted children,[11] 34 are among the 68 *Countdown* priority countries (the exceptions are Viet Nam and Turkey).

The *Countdown* country profiles include data on underweight, wasting, stunting and low birthweight as contextual information important to interpreting coverage levels for interventions to reduce maternal, newborn and child mortality. Underweight, wasting and stunting estimates (table 3.4) have been adjusted using the new World Health Organization Child Growth Standards.[12] In 33 of the 68 priority countries, at least 20 per cent of children are either moderately or severely underweight. Among the 67 countries with stunting prevalence data, 62 have stunting prevalence of at least 20 per cent and 12 have stunting prevalence of more than 50 per cent. A recent analysis showed that stunting rates could be reduced by at least 36 per cent in countries with rates of 20 per cent or more by achieving high coverage for interventions that are already available and affordable in developing countries.[13] Results from the 2008 *Countdown* show that progress in coverage for such interventions remains unacceptably low.

Nutritional Status

	Number of countries	Number of *Countdown* priority countries with prevalence among under-fives				
		< 5%	5–19%	20–30%	31–50%	>50%
Underweight moderate or severe	68	1	34	16	17	0
Stunting moderate or severe	67	0	5	11	39	12
Wasting moderate or severe	66	11	51	4	0	0

Source: UNICEF 2007c, adapted based on new World Health Organization growth standards

Table 3.4. Nutritional status indicators in the Countdown priority countries (n=68)

Babies who are born at term (after 37 weeks of gestation) but with low birthweight (less than 2,500 grams) are likely to have experienced intrauterine growth restriction, which is rarely a direct cause of neonatal death but is an indirect contributor to neonatal mortality.[14] Monitoring low birthweight is difficult in developing countries, where fewer than 6 in 10 newborns are weighed at birth. A procedure to adjust for the missing data, and for the bias introduced when mothers report birthweight inaccurately, was developed in 2004[15] and has since been applied to estimates of low birthweight prevalence.[16] Estimates are available for 65 of the 68 priority countries.[17] The median low birthweight prevalence in these 65 countries is 13, with a range from 2 per cent (China) to 32 per cent (Yemen).

Maternal and child nutrition need to be improved more vigorously and rapidly in most of the 68 *Countdown* priority countries. Nutrition during the period from pre-pregnancy through 24 months is associated with adult health and productivity.[18] And weighing newborns, though not a lifesaving measure, should be a part of packaged maternal, newborn and child health interventions because it yields critical monitoring information.

Coverage in 2008

Unprecedented amounts of household survey activity in 2005–2006 have yielded new coverage estimates for most of the 68 *Countdown* priority countries. Figure 3.1 shows the year in which the most recent Multiple Indicator Cluster Survey[19] or Demographic and Health Survey[20] was conducted for each country.

The years for the specific estimates presented in the country profiles deserve special attention. First, the mortality estimates in table 3.1 may refer to periods before increases in intervention coverage reflected in the 2008 *Countdown* coverage estimates could have affected mortality. Second, coverage data for some countries are from around 2000. Even 2006 coverage survey results might not fully reflect recent global scaled-up efforts to meet the health-related Millennium Development Goals. The next round of *Countdown* reporting is expected to register such recently intensified efforts.

Table 3.5 shows the latest available medians and ranges across the priority countries for the subset of coverage indicators for which:

- Data from at least 19 countries are available.

An exception is antiretroviral prophylaxis to prevent mother-to-child transmission of HIV, which is reported separately to maintain consistency with other global reports. Postnatal care coverage, for which few countries have data, is also presented separately.

Most Recent MICS or DHS Coverage Data

Source: Compiled by UNICEF based on MICS and DHS surveys conducted through to 2006

Figure 3.1. Most recent MICS or DHS coverage data available in the 68 Countdown priority countries

Medians and Ranges of Coverage Indicators

Coverage indicator	Number of countries	Median	Range	
			Low	High
Nutrition				
Exclusive breastfeeding (less than six months)	63	28	1	88
Breastfeeding and complementary feeding (6–9 months)	63	62	10	91
Vitamin A supplementation: two doses	55	78	0	99
Vitamin A supplementation: at least one dose	55	90	9	100
Child health				
Measles immunisation	68	80	23	99
Third dose of diphtheria and tetanus with pertussis vaccine (DPT3) immunisation	68	81	20	99
Third dose of haemophilus influenzae type B vaccine (Hib3) immunisation	20	85	10	99
Oral rehydration therapy or increased fluids, with continued feeding	57	38	7	76
Children sleeping under insecticide-treated nets[a]	35	7	0	49
Antimalarial treatment for fever[a]	34	40	0	63
Careseeking for pneumonia	60	48	12	93
Antibiotic use for pneumonia	19	32	3	82
Maternal and newborn health				
Contraceptive prevalence rate	64	29	3	87
Unmet need for family planning	40	23	9	41
Antenatal care coverage: four or more visits	39	49	12	87
Antenatal care coverage: at least one visit	65	82	16	99
Neonatal tetanus protection	64	81	31	94
Intermittent preventive treatment for pregnant women (IPTp) for malaria[a]	22	7	0	61
Skilled attendant at delivery	66	53	6	100
Early initiation of breastfeeding (within one hour of birth)	47	43	23	78
Water and sanitation				
Use of improved drinking water sources (total)	68	69	22	100
Urban	68	87	32	100
Rural	68	56	11	100
Use of improved sanitation facilities (total)	68	43	9	86
Urban	68	59	24	95
Rural	68	32	3	82

a. Intervention applies only to the 45 malaria endemic priority countries.
Source: Author's analysis based on data from UNICEF global databases with contributions from WHO databases and United Nations Population Fund databases

Table 3.5. Coverage estimates for selected Countdown interventions and approaches, 68 priority countries, latest available data (2000–2006)

Table 3.5 highlights three points with important programming implications:

- **Overall coverage levels remain too low**. Figure 3.2 shows the distribution of median coverage across 18 interventions and approaches tracked through the *Countdown*. Of these 18, only the 4 vaccination interventions are reaching 80 per cent of the children who could benefit from them. The empty space in the chart represents millions of deaths each year that could be prevented if all interventions were universally available.

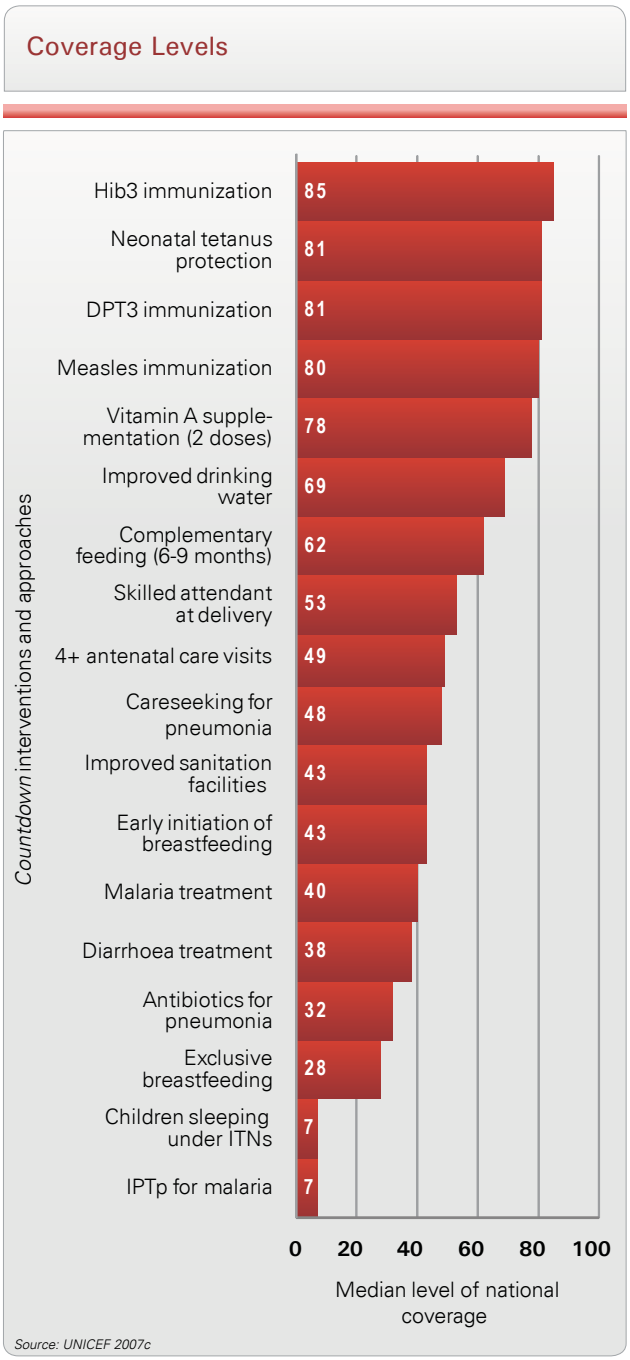


Figure 3.2. Median national coverage levels for selected Countdown indicators and approaches across the 68 priority countries, most recent estimate

- **Median coverage estimates vary widely across different interventions.** Such variations can reflect the different characteristics of interventions, such as how each is delivered, how long it has been available, if it is accessible and affordable in developing countries, and the training required to deliver it adequately and with effective management and monitoring. Other reasons for coverage variations include differences between services that can be scheduled in advance (for example, through campaigns that reach children of a particular age during recommended immunisation periods) and services that must be more regularly available (such as delivery, postnatal care, family planning services or nutritional counselling). The characteristics of interventions, and their relationship to achieving high and sustained coverage, are priority areas for the *Countdown*'s continuing technical work.

- **Coverage levels for all interventions show large intercountry differences.** The 'Range' columns in table 3.5 show wide variations in coverage for each intervention across the 68 priority countries. Though a full explanation of these differences is beyond the scope of this report, it should be a priority research topic for *Countdown* conference participants.

Recent coverage trends

This section presents results on progress by the priority countries in increasing coverage for the interventions and approaches proven effective in reducing mortality among mothers and children. As was explained in chapter 2, trend assessment is limited to those countries with coverage data for at least two points in time: one around 2000 and one around 2005. An exception is neonatal tetanus protection, for which annual coverage estimates are available; here data from 2003 and 2006 are used. (The four missing countries have no data for any year since 1980. No matter what years were used, they could not have been included in the trend analysis for neonatal tetanus protection coverage.)

The inter-survey periods vary considerably; most, however, span five years. Progress is measured by calculating the average annual percentage-point change between the data point collected within two years of 2000 and the most recent data point, then standardising to a three-year period for consistency with the *Countdown* reporting cycle.

Table 3.6 summarises the trend data reported in the 2008 *Countdown* country profiles for select coverage indicators. The greatest reported increase is in the proportion of children sleeping under insecticide-treated nets (median: 7; range: 2 to 18), followed by neonatal tetanus protection (median: 5, range –11 to 31). Delivery care, contraceptive prevalence and diarrhoea treatment have median three-year increases of 2 percentage points. Careseeking for pneumonia has increased by a median of 1 percentage point over three years. The table shows that interventions showing steadier progress are generally preventive and deliverable on a planned schedule – unlike other interventions that must be available on demand in response to health events.

Changes in Coverage

Coverage indicator	Number of countries	Average three-year change in percentage points		
		Median	Range	
			Low	High
Nutrition				
Exclusive breastfeeding (0–5 months)	36	3	–11	29
Maternal and newborn health				
Antenatal care coverage (at least one visit to skilled provider)	42	4	–21	19
Births attended by skilled health personnel	45	2	–5	12
Neonatal tetanus protection	64	5	–11	31
Contraceptive prevalence rate	39	2	–7	10
Child health				
Careseeking for pneumonia	33	1	–10	18
Oral rehydration therapy (oral rehydration salts or recommended home fluids) or increased fluids, with continued feeding	31	2	–17	23
Children sleeping under insecticide-treated nets	19	7	2	18

Source: Author's analysis based on data from UNICEF global database

Table 3.6. Summary of estimated coverage changes for selected interventions for the most recent three-year period since 2000 (for Countdown priority countries with at least two measurements since about 2000)

Coverage levels and trends for selected programmatic areas

This section summarises the most recent coverage levels, and trends in coverage levels since 2000, as presented in the 2008 *Countdown* country profiles. Current coverage levels and three-year progress estimates for specific subsets of interventions are described. In addition, an analysis of four component indicators associated with continuum of care for maternal, newborn and child survival is presented. (Descriptive statistics for each coverage indicator were shown in table 3.5; trends were summarised in table 3.6. Later analyses will bring together the coverage results and measures of policy, health system strength and equity.)

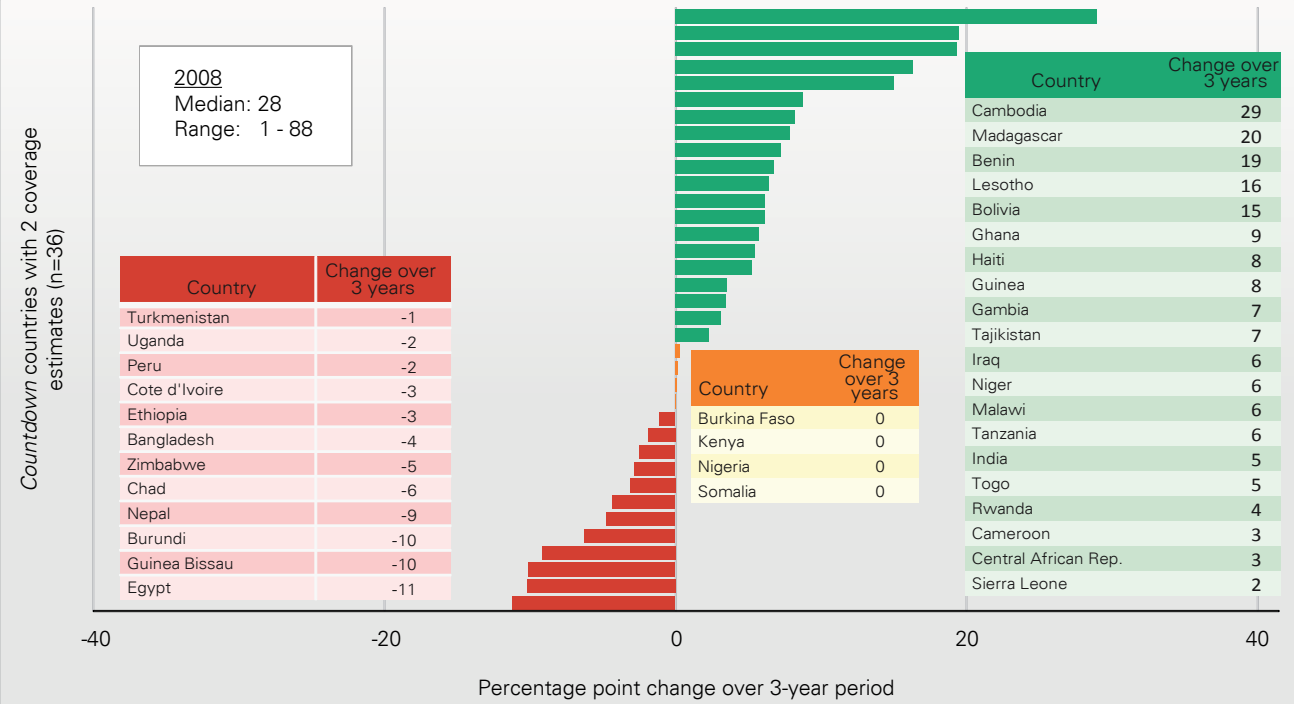
The *Countdown* is an evolving effort. Further input on methodological and programmatic issues is expected from discussions planned for the 2008 *Countdown* conference. Readers are cautioned that this section presents simple summary measures and that more meaningful programmatic information can be found in the profiles of coverage for the individual countries.

Nutrition

Infant and young child feeding. The recent Lancet series on maternal and child undernutrition reinforces this area's importance and offers guidance about effective country interventions and strategies.[21] Its recommendations are consistent with the Global Strategy for Infant and Young Child Feeding.[22] Most of the interventions identified as effective[23] are being tracked through the *Countdown*.

The Lancet series emphasised the importance of exclusive breastfeeding in the first six months of life[24] and highlighted individual and group counselling as effective ways to increase exclusive breastfeeding rates in countries with high stunting rates.[25] In 2008, in the 66 priority countries with available data, the median prevalence of exclusive breastfeeding for infants less than six months old was 28 per cent (table 3.5), with a range from 1 per cent (Djibouti) to 88 per cent (Rwanda).

Changes in Exclusive Breastfeeding



Source: Authors' compilation based on data from UNICEF global database (household survey data 2000–2006)

Figure 3.3. Estimated percentage point change in exclusive breastfeeding over a three-year period, by country, 2000-2006

Figure 3.3 shows the estimated percentage point change in exclusive breastfeeding in countries with adequate data to support trend analysis (n=36). Five countries have reported increases in the prevalence of exclusive breastfeeding of at least 10 percentage points over a three-year period since about 2000. But drops in coverage of similar magnitude occurred in three countries. Readers can refer to the individual country profiles to better understand these changes.

Breastfeeding plus complementary foods between six and nine months is a *Countdown* coverage indicator reflecting the importance of ensuring that children receive adequate quantities and quality of complementary foods after six months and up to 24 months of age. This is an essential intervention to prevent stunting.[26] An evidence base pointing to specific effective interventions is described in detail elsewhere.[27]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Two methodological problems continue to constrain coverage monitoring for complementary feeding: the lack of a consensus about a valid and measurable indicator of complementary feeding behaviour and the use of a behavioural outcome (feeding behaviour) as a proxy for the intervention or interventions that could affect that outcome. The Steering Team of the Interagency Working Group on Infant and Young Child Feeding is addressing the first issue, having recently completed a five-year programme of research to develop new and more valid indicators.[28] There has also been some progress in defining effective interventions and approaches.[29] This *Countdown* cycle relies on the existing indicator, which is not adequate to support the estimation of trends.

As shown in table 3.5, among the 63 countries with coverage data available for this report, the median prevalence of complementary feeding from six to nine months was 62 per cent, with a range from 10 to 91 per cent. Ten countries reported rates of 80 per cent or more (Tanzania 91, Malawi 89, Burundi 88, Haiti and Zambia 87, Kenya 84, Cambodia 82, Peru 81, Mozambique and Uganda 80). Three countries reported prevalence rates of less than 20 per cent (Somalia 15, Tajikistan 15, Lao People's Democratic Republic 10).


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Vitamin A supplementation. Of the 68 *Countdown* priority countries, 66 are also priority countries for vitamin A supplementation, underscoring the importance of national-level programmes to ensure high two-dose coverage in almost all the *Countdown* countries.[30] Table 3.5 shows fairly high coverage rates for 2005, when 55 of 68 priority countries (81 per cent) reported estimates. The median for two-dose coverage of children 6–59 months of age is 78 per cent, with a range from 0 per cent (Djibouti, Papua New Guinea) to 99 per cent (Rwanda). And the median coverage for at least one dose is 90 per cent, with a range from 9 per cent (Lesotho) to 100 per cent (Rwanda).

Changes in Vitamin A Coverage

Country	2003 (%)	2005 (%)	Change (percentage points)
Rwanda	8	99	91
Sudan	0	90	90
Zimbabwe	0	81	81
Cameroon	21	95	74
Nigeria	0	73	73
Malawi	14	86	72
Kenya	0	69	69
Eritrea	0	50	50
Haiti	0	42	42
Swaziland	0	40	40
Ethiopia	22	59	37
Niger	68	94	26
Togo	72	92	20
India	45	64	19
Cambodia	47	65	18
Burundi	0	17	17
Ghana	78	95	17
Mozambique	0	16	16
Yemen	0	15	15
Congo, The Democratic Republic of	72	87	15
Burkina Faso	80	95	15
Indonesia	62	76	14
Madagascar	84	95	11
Sierra Leone	84	95	11
Congo	0	9	9
Philippines	76	85	9
Myanmar	87	95	8
Afghanistan	85	91	6
Mali	61	66	5
Tanzania, United republic of	91	95	4
Guinea	93	95	2
Bolivia	38	39	1
Djibouti	0	0	0
Papua New Guinea	0	0	0
Korea, Democratic People's Republic of	95	95	0
Pakistan	95	95	0
Nepal	96	96	0
Lao People's Democratic Republic	64	62	–2
Angola	68	65	–3
Benin	95	92	–3
Bangladesh	87	82	–5
Zambia	73	66	–7
Gambia	52	16	–36
Lesotho	75	2	–73

Source: UNICEF Vitamin A global database 2008

Table 3.7. Trends in two-dose vitamin A coverage in Countdown priority countries with available data (N=44), 2003–2005

Table 3.7 shows the remarkable progress many priority countries have made in achieving gains in vitamin A coverage (for the 44 countries with available trend data). From 2003–2005 the number of countries with 80 per cent two-dose coverage nearly doubled (from 12 to 22), 13 countries increased two-dose coverage by more than 20 percentage points, and 8 others sustained a rate of greater than 80 per cent (Cameroon, Malawi, Niger, Nigeria, Rwanda, Sudan, Togo, Zimbabwe). Much of this progress is attributable to including vitamin A and other low-cost, high-impact preventive child survival interventions (measles immunisation, insecticide-treated bed nets) as part of integrated child health events.

However, 11 countries with available trend data still report two-dose vitamin A coverage rates of less than 80 per cent, and in two of these countries coverage has remained at 0 per cent (Djibouti, Papua New Guinea). The lack of sufficient progress in achieving high two-dose coverage rates in some priority countries is a reminder that increased efforts to institutionalise support for semi-annual delivery strategies, such as child health days, are needed to ensure that more at-risk children are fully protected from vitamin A deficiency. Also needed are outreach strategies that target areas of poor coverage within countries.

Child health

Immunisation. Measles immunisation is an indicator for Millennium Development Goal 4. Nearly all deaths attributable to measles in 2006 occurred in the 68 *Countdown* priority countries.[31]

In 2006, for the first time, global routine coverage rates for measles vaccination reached 80 per cent (up from 72 per cent in 1990).[32] Across the *Countdown* priority countries, estimates based on 2006 data show median measles coverage at 80 per cent, with a range from 23 per cent (Chad) to 99 per cent (Brazil, Peru, Turkmenistan).

Similarly, the estimated median coverage rate for three doses of diphtheria and tetanus with pertussis vaccine (DPT3) is 81 per cent for the 68 priority countries, with a range from 20 per cent (Chad) to 99 per cent (Brazil, Malawi, Rwanda, South Africa). A recent analysis estimated that in 2007 there were 26 million children not immunised with DPT3 and that 20 million of those children lived in just 10 countries – all of them *Countdown* priority countries.[33]

Haemophilus Influenzae Type B (Hib) vaccine is a fairly new intervention, recently recommended for delivery with DPT3 in all low-income country immunisation schedules.[34] In 2005 the *Countdown* reported on the number of priority countries that had included haemophilus influenzae type B vaccine in their child immunisation schedules as an indicator of country responsiveness to new interventions. This report presents coverage rates for the third dose of haemophilus influenzae type B vaccine (Hib3) for the first time. Among the 68 *Countdown* countries, 20 had data on Hib3 coverage for 2006. The median was 85 per cent, with a range from 10 per cent (Morocco) to 99 per cent (Brazil, Malawi, Rwanda, South Africa). These results demonstrate that rapid increases in immunisation coverage are possible where a strong delivery platform already exists.

Insecticide-treated bed nets. Another fairly new intervention, insecticide-treated bed nets have received much attention and resources at both national and international levels, with international funding for malaria control increasing dramatically over the past decade.[35]

Of the 68 *Countdown* priority countries, 45 have endemic malaria – defined here as nationwide risk of Plasmodium falciparum throughout the year.[36] Figure 3.4 shows median coverage and ranges for children sleeping under insecticide-treated nets in those 45 countries. The median coverage is 7 per cent, with a range from 0 per cent (Guinea, Madagascar, Sudan) to 49 per cent (The Gambia).

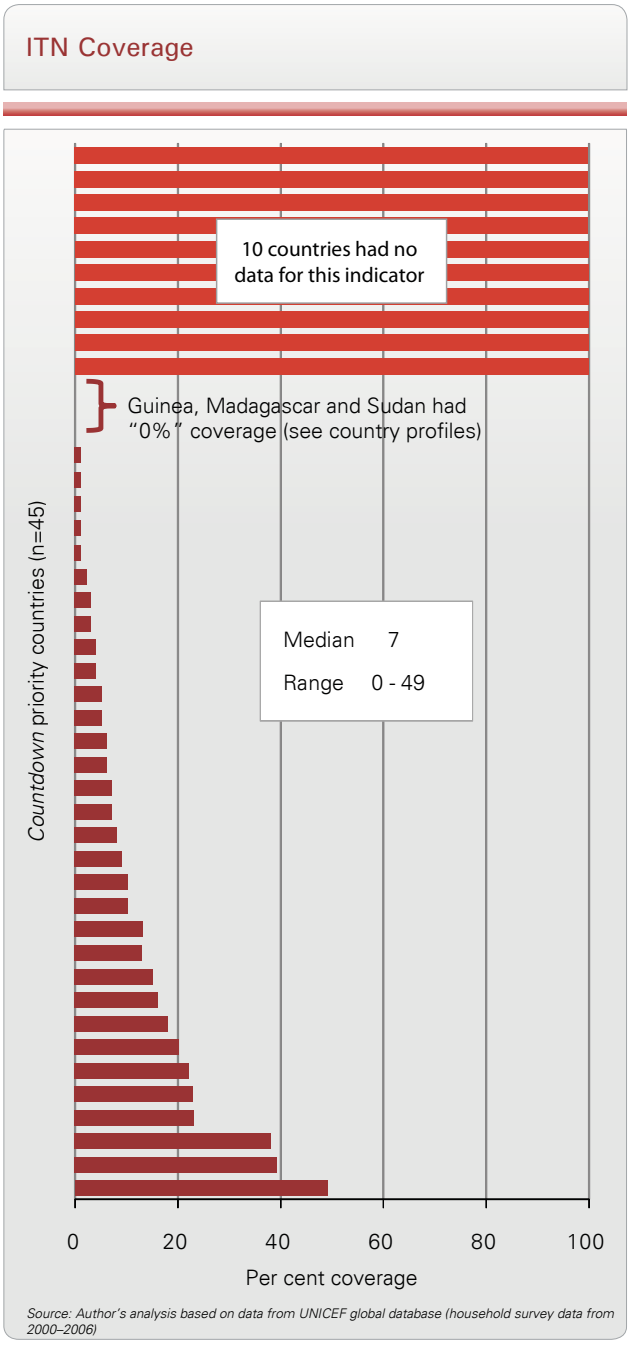


Figure 3.4. Insecticide-treated net coverage for children in the 45 countries with endemic malaria, most recent estimate, 2008. (Endemic countries defined here as countries with nationwide risk of p. falciparum throughout the year.)

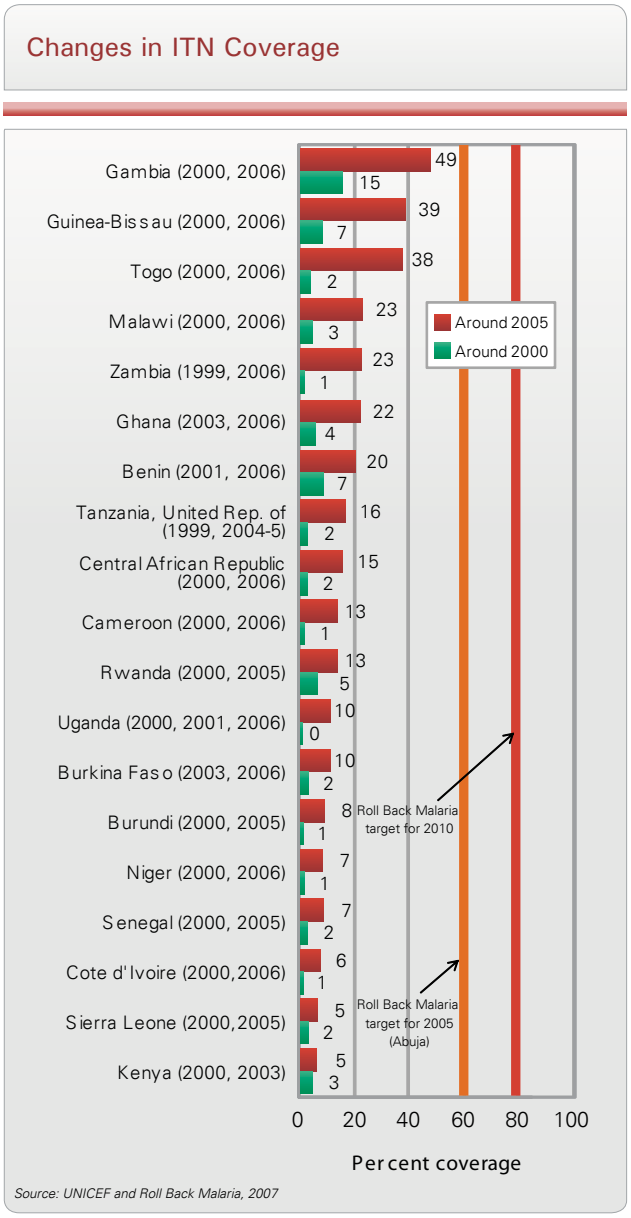


Figure 3.5. Children sleeping under ITN's in Countdown priority countries with two coverage surveys since about 2000

For each of the 19 priority countries with available trend data, figure 3.5 presents two successive recent estimates for insecticide-treated net coverage. While showing dramatic increases for most countries, the results also show that additional rapid improvement is needed to achieve global targets. Some programme efforts may not yet be captured in these estimates. For example, both Ethiopia and Kenya are reported to have distributed millions of nets since coverage data were last collected in 2005 (for Ethiopia) and 2003 (for Kenya).[37] Future surveys are expected to document coverage rates that reflect these accelerated efforts.

Antiretroviral prophylaxis to prevent mother-to-child HIV transmission. Over 90 per cent of infant and child HIV infections are passed on by mothers during pregnancy, labour, delivery or breastfeeding.[38] Effective, feasible and well-known interventions to reduce such transmission could save thousands annually. Many low- and middle-income countries are scaling up national programmes to approach the global target – set by the United Nations General Assembly Special Session on HIV/AIDS in 2001 – of reaching at least 80 per cent of pregnant women with services to prevent mother-to-child HIV transmission by 2010.

In a number of *Countdown* priority countries increased amounts of effort, resources and political commitment have significantly boosted coverage for antiretrovirals to prevent mother-to-child HIV transmission. The *Countdown* country profiles present trend data on HIV-infected pregnant women receiving this intervention for 2004–2006.[39] Coverage increased in each of the 51 countries that reported data during that period. Progress is especially evident in Eastern and Southern African *Countdown* countries, where the majority of new child HIV infections occur (for example, coverage in South Africa tripled from 15 per cent in 2004 to 50 per cent in 2006).

Despite the increasing trends in coverage for antiretrovirals to prevent mother-to-child transmission, progress towards meeting the United Nations General Assembly Special Session goal remains insufficient in most *Countdown* countries. Using an average annual 8 per cent target increase in antiretroviral coverage for each year since 2001, countries are defined as 'on track' if at least 48 per cent of all HIV-positive pregnant women received the intervention in 2006. Of the 51 *Countdown* countries that reported data, only 8 achieved that coverage rate and are considered 'on track' to meet the global goal of 80 percent coverage for prevention of mother-to-child transmission (Botswana, Brazil, Swaziland, Rwanda, Burkina Faso, Benin, South Africa, Kenya).

Coverage rates remain low in some *Countdown* priority countries, particularly in sub-Saharan Africa where the greatest country HIV prevalence rates occur. All 15 *Countdown* countries with adult HIV prevalence of at least 5 per cent are in sub-Saharan Africa, yet in 11 of those countries coverage rates for antiretrovirals to prevent mother-to-child HIV transmission remain less than 40 per cent (table 3.8).

Prevention of Mother-to-Child HIV Transmission

Country	2004		2005		2006	
Botswana	87	(81-94)	64	(60-69)	>95	---
Cameroon	11	(10–13)	10	(9–12)	22	(18–30)
Central African Republic	2	(2–3)	7	(7–8)	18	(16–20)
Congo	7	(6–8)	23	(20–28)	7	(6–9)
Gabon	—	—	4	(3–5)	4	(3–5)
Kenya	25	(22–29)	24	(21–28)	48	(42–59)
Lesotho	7	(6–7)	15	(14–16)	17	(15–18)
Malawi	4	(4–5)	8	(7–9)	14	(12–16)
Mozambique	3	(3–4)	9	(8–11)	13	(11–15)
South Africa	15	(13–17)	34	(29–40)	50	(43–60)
Swaziland	5	(4–5)	36	(33–40)	62	(57–69)
Tanzania, United Rep. of	2	(1.7–2)	6	(6–7)	15	(14–16)
Uganda	9	(8–11)	15	(13–17)	25	(22–28)
Zambia	18	(16–20)	19	(17–22)	35	(31–39)
Zimbabwe	8	(7–8)	13	(12–14)	17	(16–19)

Note: Numbers in parentheses, representing the range in coverage estimates, are based on plausibility (uncertainty) bounds in the denominator (low and high estimated numbers of HIV-infected pregnant women).
— is not available.
Source: For the latest available coverage data and methods of estimating coverage, UNICEF and WHO, Report Card on the Prevention of Mother-to-Child Transmission of HIV and Paediatric Care (2007); for denominators, unpublished 2007 HIV estimates by the Joint United Nations Programme on HIV/AIDS and the World Health Organization

Table 3.8. Percentage of HIV-infected pregnant women receiving antiretrovirals to prevent mother-to-child HIV transmission in Countdown priority countries with estimated adult (age 15–49) HIV prevalence of at least 5 per cent, 2004–2006

Preventing mother-to-child HIV transmission requires giving pregnant women access to testing, safe delivery practices, antiretroviral therapy where needed and guidance for selecting safe and optimal infant-feeding options. Complementary efforts to prevent HIV transmission include providing family planning services to all women – with and without HIV infection – to increase the proportion of births that are intended.

Treatment of child pneumonia, diarrhoea and malaria. Pneumonia remains the biggest killer of children[40] and, together with diarrhoea and malaria, constitutes the cause of over 50 per cent of child deaths in most sub-Saharan African countries.[41] Prompt and effective treatment of these three infectious diseases is essential for newborn and child survival.

Coverage of antibiotic use for pneumonia in children under age five in the priority countries is low. Of all children under age five with suspected pneumonia, a median of 32 per cent receive antibiotics. Country coverage rates range from 3 per cent (Haiti) to 82 per cent (Iraq).

Coverage is only slightly better for diarrhoea treatment. Of children under age five with diarrhoea, the median proportion receiving oral rehydration therapy (or increased fluids) with continued feeding is 38 per cent, with a range of 7 per cent (Botswana, Somalia) to 76 per cent (the Philippines).

Figure 3.6 shows coverage for antimalarial treatment among children under age five. The results are similar to those for diarrhoea and pneumonia treatment, with a median of 40 percent across the 34 countries with available data.

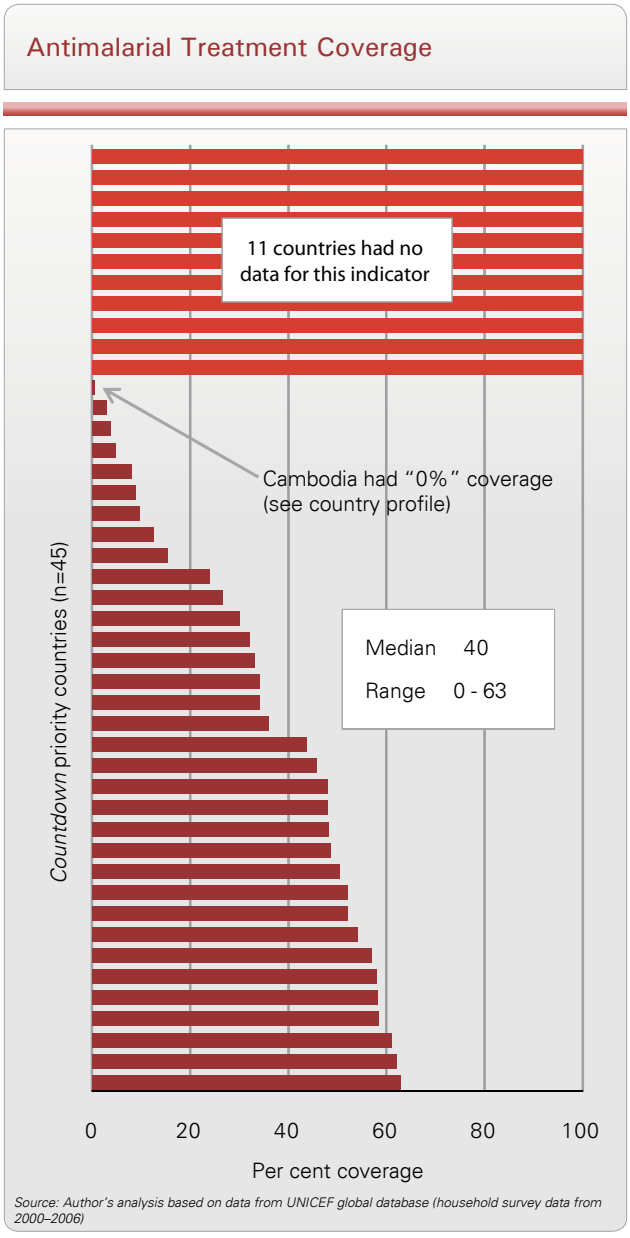
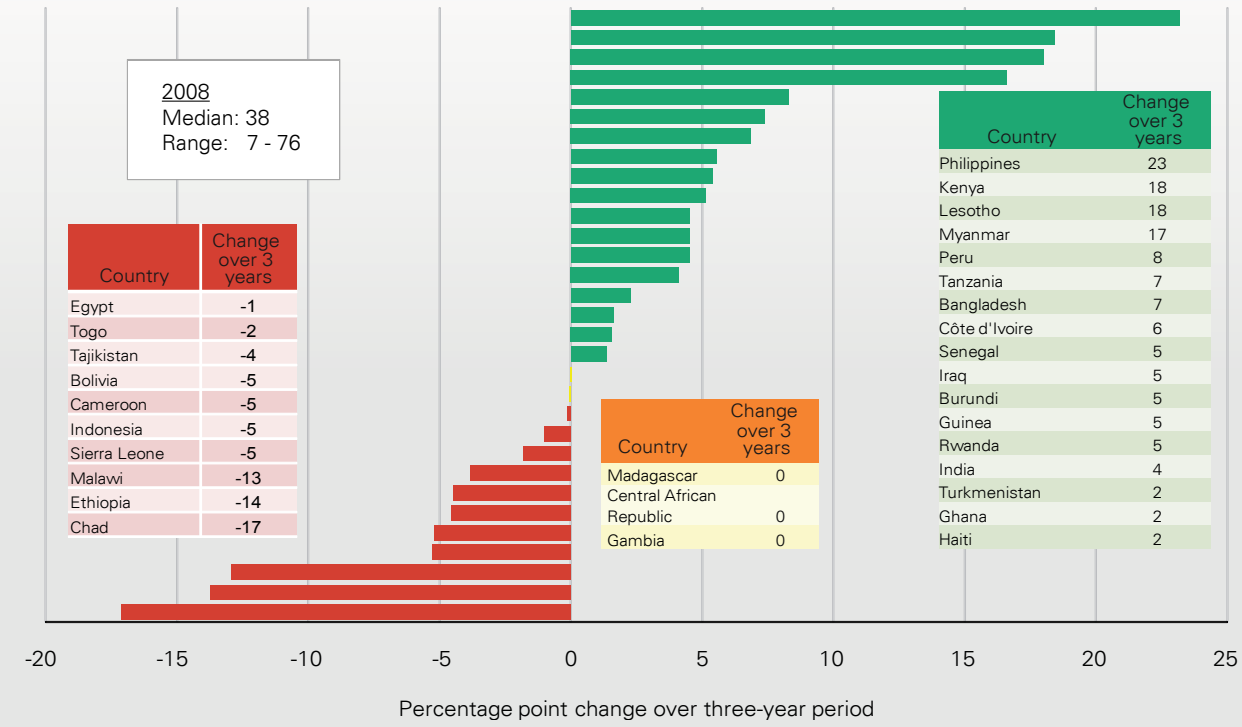


Figure 3.6. Antimalarial treatment coverage in the 45 countries with endemic malaria, most recent estimate, 2008. (Endemic countries defined here as nationwide risk of p. falciparum throughout the year.)

Changes in Treatment of Diarrhoea



Source: Author's analysis based on data from UNICEF global database (household survey data from 1998–2006)

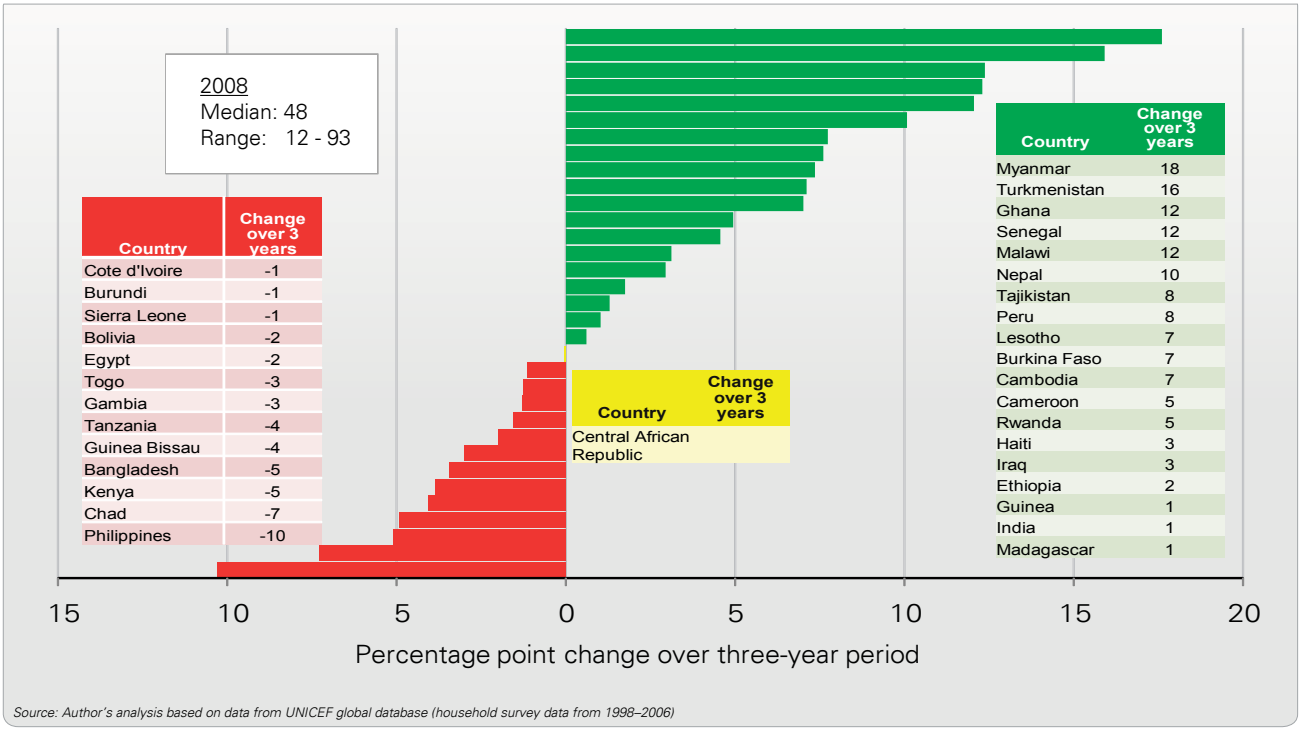
Figure 3.7. Estimated percentage point change in treatment of diarrhoea among children less than five years of age over a three-year period, by country (1998-2006).

Trend data are available only for diarrhoea treatment (figure 3.7) and careseeking for pneumonia (figure 3.8). Both show limited progress – if any – over the most recent three-year period for which data are available.

Pneumonia, diarrhoea and malaria, together with undernutrition, caused 54 per cent of the 10.6 million annual deaths from 2000–2003, or a total of more than 17 million deaths in newborns and children under age five.[42] In the 68 *Countdown* priority countries, which account for 97 per cent of all child deaths, coverage rates for pneumonia, diarrhoea and malaria treatment are poor and generally not improving.

The priority countries can reach more newborns and children with timely identification and treatment by adopting and implementing related policies monitored by the *Countdown*. The extension of integrated management of childhood illness to cover newborns, the introduction of new low osmolarity oral rehydration salts and zinc supplements for diarrhoea and policies facilitating the treatment of uncomplicated pneumonia in the community, for example, are all measures that the priority countries can introduce to reach more newborns and children with needed care.

Changes in Care Seeking for Pneumonia Treatment



Source: Author's analysis based on data from UNICEF global database (household survey data from 1998–2006)

Figure 3.8. Estimated percentage point change over three years in the proportion of children less than five years of age with suspected pneumonia taken to an appropriate health provider, by country (1998-2006)

Maternal and newborn health

Contraceptive prevalence and unmet need for family planning. Every woman has the right to plan her pregnancies and have access to effective family planning methods to space or limit births and to prevent unintended pregnancies. Target coverage rates for this indicator are less than 100 per cent because at any given time a certain proportion of women will want to conceive. The median prevalence of contraceptive use among currently married women or those in union of reproductive age (15–49) is 29 per cent in the 64 priority countries with available data, with a range from 3 per cent per cent (Chad) to 87 per cent (China). Unlike the contraceptive prevalence rate, unmet need for family planning is based on a target coverage rate of 100 per cent; the indicator measures the gap between the proportion of women who desire contraception and those who receive it. The median rate of unmet need is 23, with a range from 41 percent (Uganda) to 9 percent (Indonesia, Peru). But as figure 3.9 shows, data on unmet need are available for only 40 of the 68 *Countdown* priority countries.

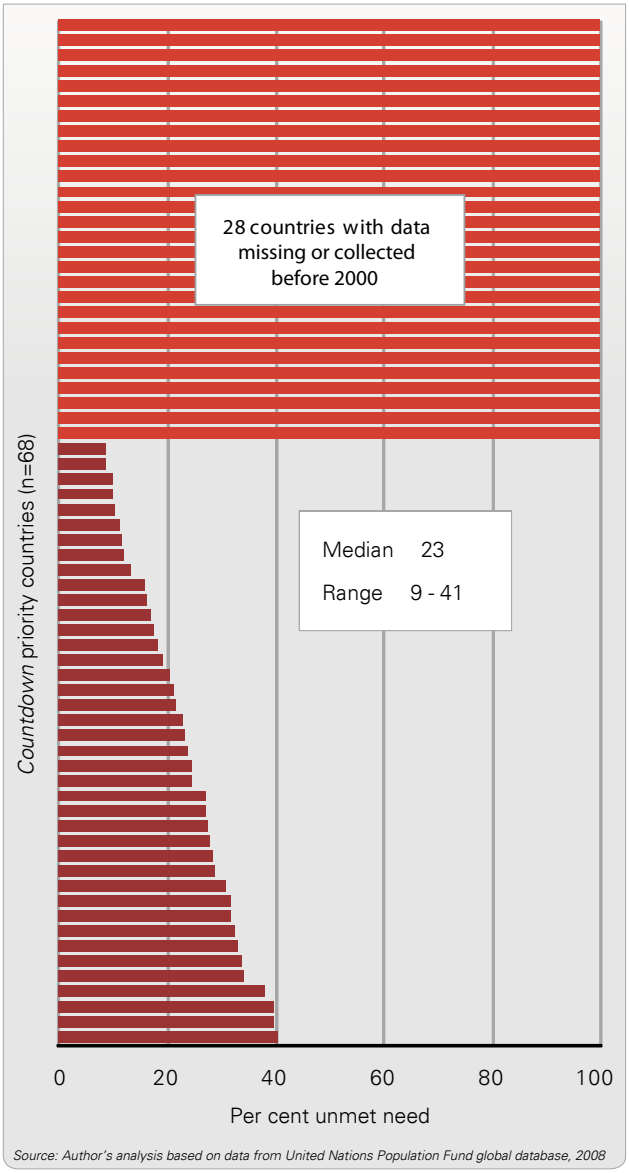
Of the countries with estimates for both contraceptive prevalence and unmet need, nearly half have an unmet need rate that exceeds contraceptive prevalence.

Overall, the proportion of stated desires to space the next birth by at least two years or avoid pregnancy that are being met by family planning services requires significant improvement through various supply and demand efforts. The Lancet sexual and reproductive health series has addressed this topic.[43]

Antenatal care can provide a platform for delivering several effective maternal and newborn interventions, including (among others) tetanus toxoid immunisation, intermittent preventive treatment for malaria and preventing mother-to-child transmission for HIV. The *Countdown* indicator for antenatal care is the percentage of women attending at least four antenatal care sessions during pregnancy, as recommended by the World Health Organization and UNICEF.[44] For continuity with past monitoring efforts, the country profiles also include the percentage of women attending at least one antenatal care session under a skilled health provider.

Indicators for one and for four visits have recently been added to the list of indicators for Millennium Development Goal 5 (Millennium Development Goal 5B, Target 5.5).[45] Readers should note that the survey

Family Planning Unmet Need



Source: Author's analysis based on data from United Nations Population Fund global database, 2008

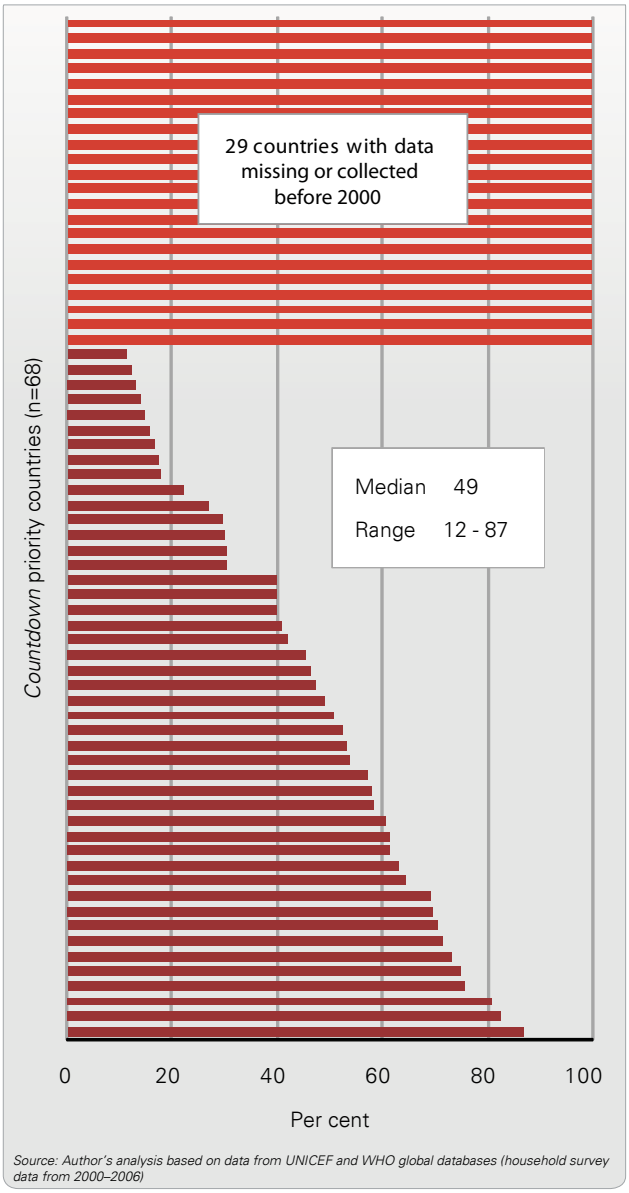
Figure 3.9. Median prevalence of unmet need for family planning in the Countdown countries, 2008

protocol asks about the type of provider for the one-visit indicator but not for the four-visit indicator. Future analyses will explore the relationship between the two measures.

Figure 3.10 summarises the median prevalence of at least four antenatal care visits in the 39 *Countdown* priority countries for which data were available. In those countries a median of 49 per cent of mothers attended four or more antenatal care sessions, with a range from 12 per cent (Ethiopia) to 87 per cent (Peru).

Maternal & newborn tetanus. Mothers and newborns are considered protected from tetanus if the pregnant woman receives two doses of tetanus toxoid vaccine during an appropriate period before the birth. Those vaccines are often provided at antenatal care visits. But many countries have improved their rates by introducing special maternal and neonatal tetanus campaigns. Some countries have also introduced programmes to cover school-age girls and adolescents.

Antenatal Care Coverage



Source: Author's analysis based on data from UNICEF and WHO global databases (household survey data from 2000–2006)

Figure 3.10. Median coverage for antenatal care (four or more visits), 2008

In the 64 *Countdown* priority countries with data for 2006, the median coverage estimates for neonatal tetanus protection is 81 per cent, with a range from 31 per cent (Haiti) to 94 per cent (Benin, The Gambia). Table 3.6 reports a median three-year increase of 5 percentage points in the 64 countries – an impressive trend, given that coverage is already so high.

Intermittent preventive treatment for pregnant women (IPTp) for malaria involves the provision of two or more doses of an antimalarial drug to women during pregnancy, protecting both mothers and their children. Figure 3.11 shows coverage for 22 of the 45 priority countries with endemic malaria (annex F);[46] the remaining 23 had no coverage data.

In most countries with intermittent preventive treatment for pregnant women, the countries have adopted it only recently. Rapid gains are expected in the next round of national surveys. Priority countries that adopted this intervention earlier had achieved fairly high coverage levels by 2006, such as 61 per cent (Zambia) or 45 per cent (Malawi).

Intermittent preventive treatment for pregnant women is not recommended for malaria endemic countries where large proportions of the population live in low-intensity malaria transmission areas. For this reason Botswana, Burundi, Eritrea and Ethiopia have not made it a part of their national malaria control strategies. They are not included in the coverage estimates for this indicator.[47]

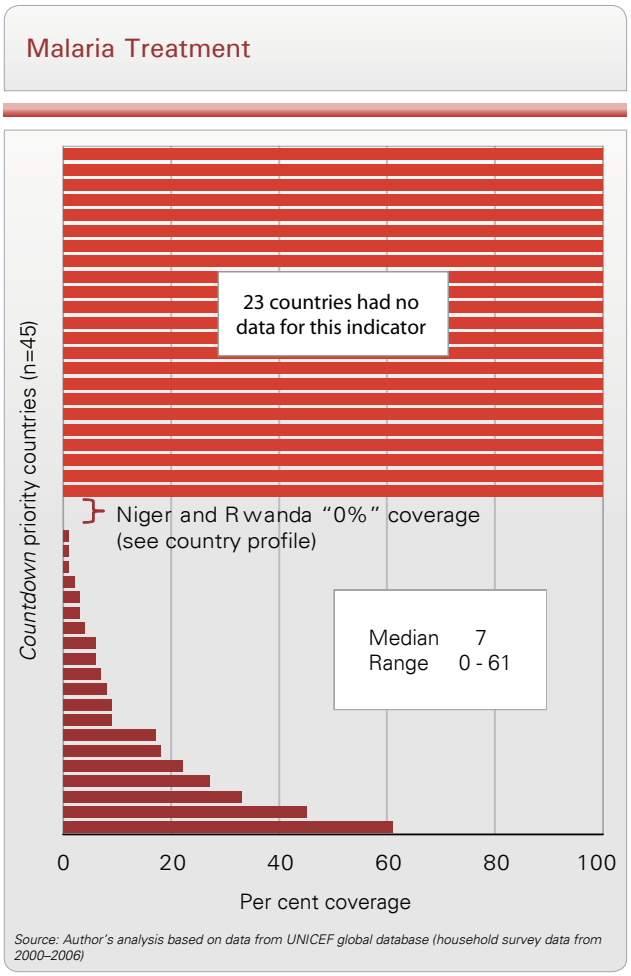


Figure 3.11. Coverage for intermittent preventive malaria treatment in pregnancy 45 countries with endemic malaria, most recent estimates, 2008. (Endemic countries defined here as nationwide risk of p. falciparum throughout the year.)

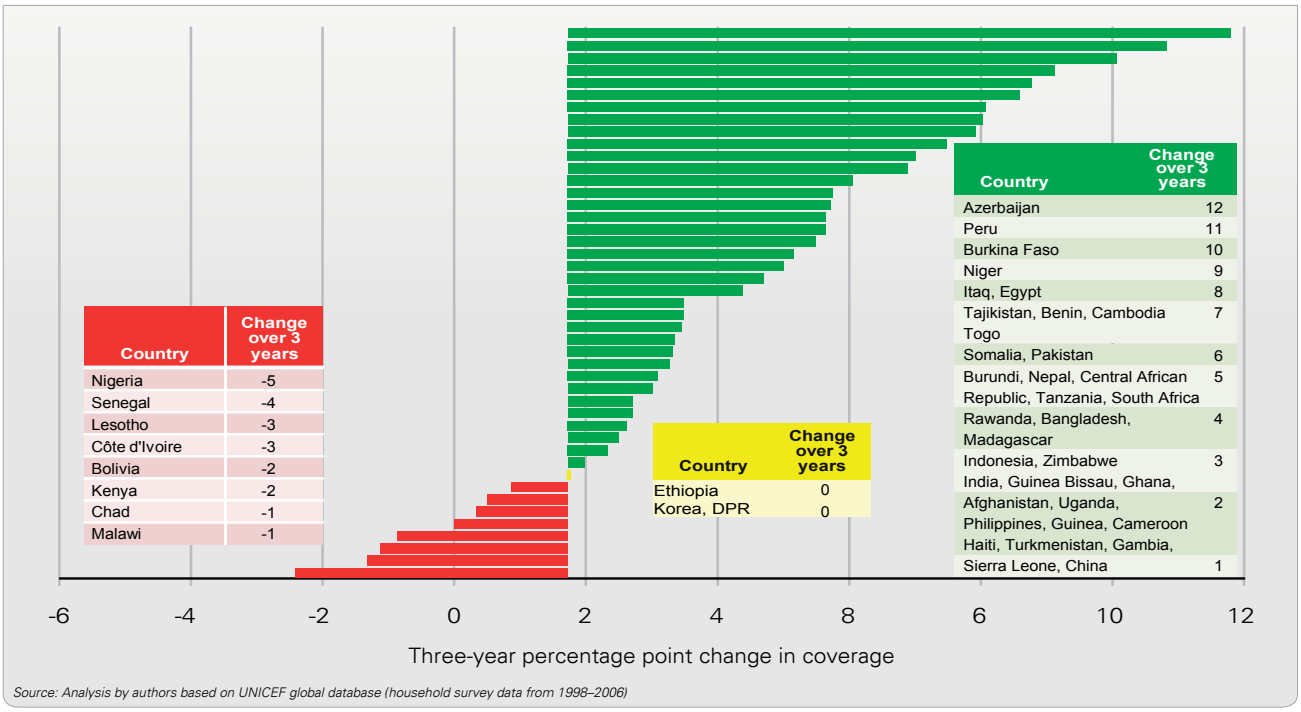
The presence of a skilled attendant at delivery is associated in observational studies with better delivery outcomes, including reduced maternal deaths.[48] This association is plausible, since an attendant who is authorised to perform life-saving functions and supported by a performing health system can provide life-saving interventions in a timely manner. Across the 66 priority countries with available coverage data for this *Countdown* cycle the median was 53 per cent, with a range from 6 per cent (Ethiopia) to 100 per cent (Azerbaijan, Turkmenistan). That rate may be compared with a recently published estimate of 61 per cent coverage for all developing countries.[49]

Of the 68 *Countdown* priority countries, 45 have data for the presence of a skilled attendant at delivery from two coverage surveys conducted at least three years apart between 1998 and 2006. Figure 3.12 shows the average three-year percentage point change for each.

The results suggest that while the majority of these priority countries are improving delivery care coverage, some need further improvement and others require efforts to sustain high coverage rates. The effectiveness of this approach depends on the specific interventions provided and on the quality of delivery, making national and subnational monitoring necessary.

Caesarean section coverage differs in important ways from the other coverage indicators tracked through the *Countdown*. First, the target coverage rate is not 100 per cent. Instead, the suggested acceptable rate of caesarean section – based on the estimated frequency of life-threatening obstetric complications – is between 5 and 15 percent of births.[50] By general agreement, rates of less than 5 per cent indicate that a substantial proportion of women lack access to caesarean sections and could die as a result. But rates greater than 15 per cent could indicate that the procedure is being over-utilised and performed for other than life-saving reasons, increasing morbidity and possibly mortality from unneeded risks associated with surgery.[51]

Changes in Births Attended by Skilled Health Personnel



Source: Analysis by authors based on UNICEF global database (household survey data from 1998–2006)

Figure 3.12. Estimated percentage point change in the percentage of live births attended by skilled health personnel, by country (1998-2006)

Second, caution is required when interpreting these results at the national level because of the substantial heterogeneity between urban and rural areas, different wealth strata and public and private sectors. If rates for a minority of the country's population exceed 15 per cent, then a national rate considerably greater than 5 per cent could mask widespread unmet need in a majority of the population. Even if country coverage rates are within the acceptable range, unmet need might vary both within and across countries.

Table 3.9 shows the percentage of live births delivered by caesarean section for the 39 priority *Countdown* countries with estimates from 2000 to 2006, stratified by urban or rural residence. Rural rates range from 0 per cent (Burkina Faso, Chad, Ethiopia, Mali, Niger) to 15 per cent (Egypt), with a median of 2 per cent. Urban rates range from 1 to 29 per cent, with a median of 7 per cent. In rural areas all but 8 of the 39 countries have caesarean section rates of less than 5 percent. In urban areas 5 countries have rates greater than the recommended threshold of 15 per cent (Bolivia, Egypt, Guatemala, India, Peru) and 10 have rates less than 5 per cent.

These data indicate that, in the 68 priority countries, rates of life-saving caesarean section use are low and require urgent attention. Despite evidence of overuse in some urban settings, large urban-rural differentials suggest inadequate access in most countries. The data for caesarean section rates should spur programme planners at the subnational, national and international levels to take urgent action to achieve appropriate coverage for this life-saving procedure. The limited availability of emergency obstetric care facilities, documented later in this report, is further evidence of the need for greater investments in health care systems so that pregnant women have access to essential care.

Early initiation of breastfeeding benefits both mothers and newborns. Immediate breastfeeding, facilitated by placing the newborn skin-to-skin on the mother's breast, helps prevent hypothermia, promotes bonding, and reduces the mother's risk of haemorrhage. The mother's milk during the first post-partum days, colostrum, also provides protective antibodies and essential nutrients. Figure 3.13 shows the prevalence rates of the early initiation of breastfeeding for the 68 priority countries, which was included as a *Countdown* intervention for the first time in 2008. Among the 47 priority countries with available data, the median prevalence is 43 per cent with a range of 23 (Guinea-Bissau, Senegal) to 78 (Eritrea), suggesting that the uptake and reinforcement of this behaviour will require special programmatic attention within the continuum of care.

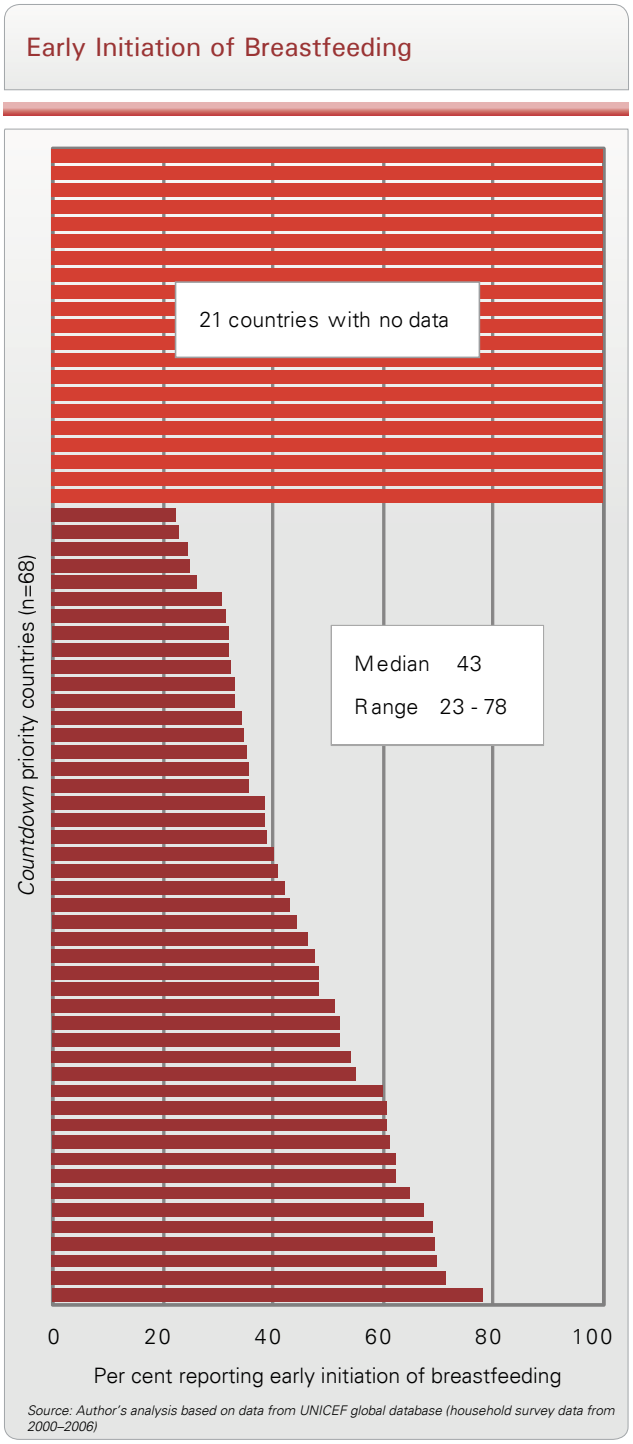


Figure 3.13. Median prevalence of early initiation of breastfeeding in the Countdown priority countries, 2008

Postnatal care is a *Countdown* indicator because of the importance of the postnatal period for maternal and newborn survival and health. Three-quarters of newborn deaths occur in the first week of life – up to half (2 million) on the first day.[52] The same period poses high risks for maternal death. On the other hand, it is a crucial time for establishing home care practices – especially breastfeeding, warmth for the baby, recognition of illness or danger signs and

Births by Caesarean Section

Country	Urban (%)	Rural (%)	Total (%)
Azerbaijan	4	1	3
Bangladesh	11	2	4
Benin	6	2	3
Bolivia	21	6	15
Burkina Faso	3	0	1
Cambodia	6	1	2
Cameroon	4	1	2
Chad	1	0	0
Cote d'Ivoire	8	6	6
Egypt	29	15	20
Eritrea	7	1	3
Ethiopia	9	0	1
Gabon	6	4	6
Ghana	8	2	4
Guatemala	19	8	11
Guinea	5	1	2
Haiti	6	1	3
India	17	6	9
Indonesia	7	2	4
Kenya	9	3	4
Lesotho	8	5	5
Madagascar	2	1	1
Malawi	4	3	3
Mali	3	0	1
Mauritania	6	1	3
Morocco	9	2	5
Mozambique	5	1	2
Nepal	8	2	3
Niger	5	0	1
Nigeria	4	1	2
Peru	23	6	16
Philippines	10	5	7
Rwanda	8	2	3
Senegal	7	1	3
Tanzania	8	2	3
Turkmenistan	4	2	3
Uganda	9	2	3
Zambia	4	1	2
Zimbabwe	9	3	5

Source: Author's analysis based on data from UNICEF and WHO global database (household survey data from 2000–2006)

Table 3.9. Percentage of live births delivered by caesarean section in Countdown priority countries with coverage estimates since 2000, by maternal residence (urban or rural)

referral or treatment when required – and for providing counselling on family planning services.[53]

Compelling evidence shows that the earlier the first postnatal visit, the more effectively it will prevent neonatal mortality and improve healthy behaviours. Home visits by trained community health workers in the first two days of life can significantly reduce neonatal mortality.[54] Other studies show that, controlling for other factors, a visit on the first day of life is associated with fewer neonatal deaths compared with a visit on the third day.[55] All mothers and babies should receive a first postnatal contact within 24 hours of birth or within 24 hours of discharge after a facility birth. For these reasons the *Countdown* indicator has been revised to focus on early postnatal care within two days of birth (rather than three days as in the 2005 report).

Effective postnatal care, like antenatal care, requires several contact visits. Visits after the first should occur at around day 3, at 6 to 7 days and six weeks after the birth.

Comparable data for postnatal care are lacking. Demographic and Health Surveys provide data on postnatal visits for 12 countries, but the question refers only to the mother, and it is not clear whether care for the baby (such as breastfeeding counselling) is included. Coverage for the 12 countries with such data is very low, with a median of 24 per cent and a range that begins at 2 per cent. Two countries have better coverage – 64 per cent (Cambodia) and 56 per cent (Egypt).

Five countries have adapted the standard Demographic and Health Survey questionnaire to ask mothers about whether a postnatal visit for the newborn occurred within two days after the birth. For those five countries, table 3.10 shows the coverage rates for postnatal newborn care. Since this question is addressed only to mothers who delivered at home, the denominator differs from that for the maternal postnatal care question; data from the two questions cannot be compared.

Postnatal care is a neglected area in many *Countdown* priority countries. Without clear policies –especially for early contact, specified programmatic delivery (who, what, where) and consistent data tracking – the lack of postnatal care represents a significant gap in the continuum of care. Important opportunities for the delivery of needed care to mothers and babies are missed, and linkages between care at birth and child health and ongoing reproductive health services remain poor.[56]

Postnatal Visits

Country	Total (%)
Bangladesh	22
Egypt	9
Haiti	4
Ethiopia	2
Nepal	2

Source: Analysis provided by Saving Newborn Lives (household survey data from 2000–2006)

Table 3.10. Percentage of newborns delivered at home whose mothers report receiving a postnatal visit for the newborn within two days of delivery

Data availability and quality for postnatal care would improve if the standard Demographic and Health Survey questionnaire were to ask about postnatal care for the mother and the baby, detail more visits than just the first and make the questionnaire ask about postnatal care at home after facility births (so that denominators become comparable). Advancing these aims now will create better data for the next *Countdown* report. In at least 12 countries, large-scale implementation research is evaluating an expansion of locally adapted approaches for visits to mothers and babies, including postnatal care.

Coverage across the continuum of care

Achieving the health-related Millennium Development Goals must start with an effective response to the needs of women, newborns and children. The continuum of care for maternal, newborn and child health includes integrated health service delivery throughout the lifecycle, including adolescence, pregnancy, childbirth, the postnatal period and childhood. This care is provided by families and communities and through outpatient, outreach and clinical services. To save the most lives, linkages among the time periods and places for caregiving are crucial.[57]

The graph in each 2008 *Countdown* country profile (upper right corner) highlights coverage for six interventions and approaches within the continuum of care: contraceptive use, antenatal care, a skilled attendant at delivery, a postnatal care visit for the mother, exclusive breastfeeding up to six months and measles vaccination. Of these six interventions, four have target coverage levels of 100 per cent and coverage data since 2000 for a majority of the 68 *Countdown* countries and could therefore be included in a summary coverage measure for the continuum. (Another measure reflecting coverage across multiple interventions is presented and discussed later in the report, in the section on equity.)

Figure 3.14 shows the number of the 62 priority countries with coverage data since 2000 that have achieved specific coverage rates for all four of these interventions: at least one antenatal care visit, a skilled attendant at delivery, exclusive breastfeeding up to six months and measles vaccination.

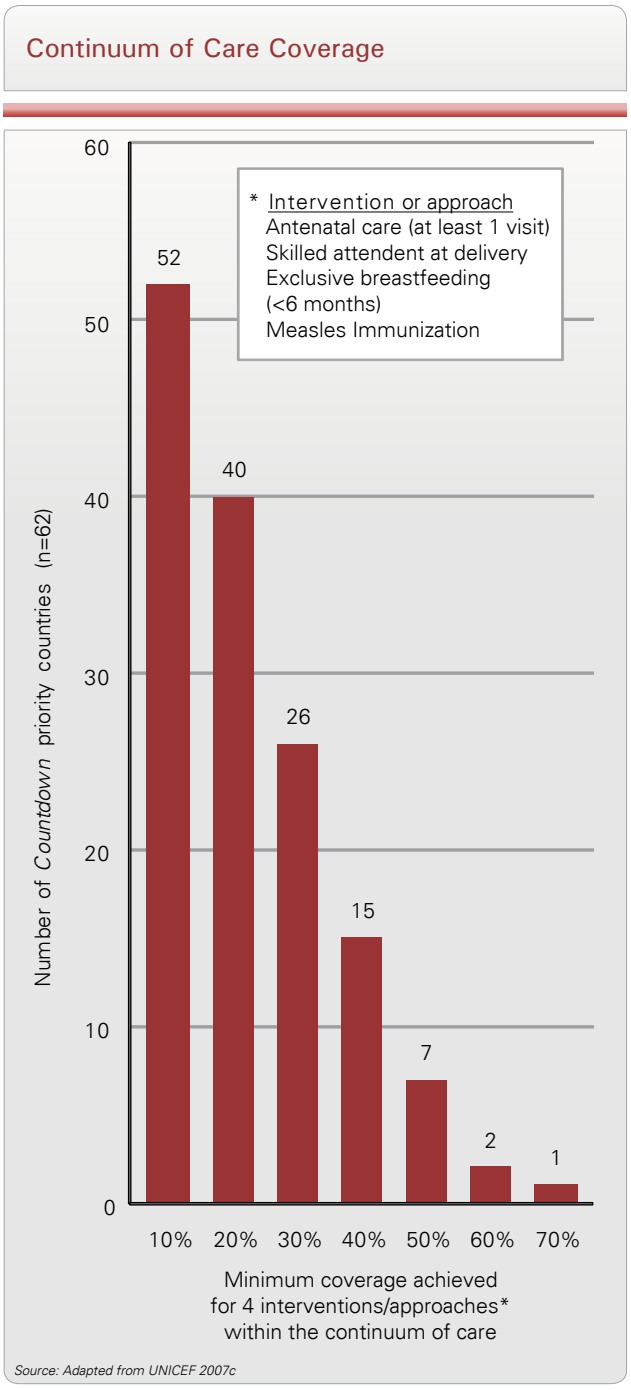


Figure 3.14. Number of countdown priority countries achieving coverage for interventions/aproaches within the continuum of care (n=62 countries with coverage data for all four interventions/aproaches)

Few countries have even moderately good coverage across this grouping of four interventions. Starting with the leftmost bar in figure 14, 52 of the 62 countries with the required data (84 per cent) have at least 10 per cent coverage across the four interventions. Moving towards the right, only 40 countries (65 percent) have at least 20 per cent coverage, and only 26 countries (42 percent) have at least 30 per cent coverage. Just two countries have at least 60 per cent coverage across the four interventions and approaches (Benin, Peru); only one has reached 70 per cent coverage or above (Benin).

Focusing on the continuum of care means focusing on the need to strengthen health systems. Health systems need to be shored up so that they can support a continuum of high quality services, one that spans the family and community and that includes both local providers and providers who can deliver emergency obstetrical care (contacted through operative referral mechanisms). Renewed efforts must focus on clarifying the root causes of health system underperformance and on effective approaches for strengthening health systems.[58]

Water and sanitation

The seventh Millennium Development Goal includes a target of halving, from 1990–2015, the proportion of people without sustainable access to safe drinking water. Improving water and sanitation are important to preventing infectious diseases and thereby to achieving the health-related Millennium Development Goals.

Table 3.11 shows the *Countdown* priority countries that were 'on track' to achieve the targets for water (n=36) and sanitation (n=14), based on data from 1990 and 2004.[59] Countries not listed had shown either insufficient or no progress.

Water and Sanitation

Use of improved drinking water sources (n=36)	Use of improved sanitation facilities (n=14)
Afghanistan	Afghanistan
India	China
Angola	Djibouti
Indonesia	Egypt
Azerbaijan	Guatemala
Kenya	Malawi
Bolivia	Mexico
Korea, DPR	Morocco
Botswana	Myanmar
Malawi	Nepal
Brazil	Pakistan
Mali	Peru
Burkina Faso	Philippines
Mauritania	Senegal
Burundi	
Mexico	
Cambodia	
Morocco	
Cameroon	
Myanmar	
Central African Republic	
Nepal	
Chad	
Pakistan	
China	
Peru	
Côte d'Ivoire	
Rwanda	
Egypt	
Senegal	
Eritrea	
South Africa	
Ghana	
Uganda	
Guatemala	
Zimbabwe	

Source: UNICEF 2007b

Table 3.11. Countries 'on track' to achieve the Millennium Development Goal targets for water and sanitation

Equity in coverage levels

The 2008 *Countdown* country profiles present findings about equity in coverage using a new measure, the 'coverage gap', which includes eight interventions grouped into four areas across the continuum of care:

- Family planning (need satisfied or contraceptive use).
- Maternal and newborn care (antenatal care and skilled birth attendance).
- Immunisation (measles vaccine, Bacille Calmette-Guerin vaccine against tuberculosis [BCG] and third dose of diphtheria and tetanus with pertussis vaccine [DPT3].
- Treatment of child illness (medical care sought for acute respiratory infection and oral rehydration therapy with continued feeding for diarrhoea).

Annex E gives further details on the data sources and methods of analysis. (Some inconsistencies in definitions between the component indicators of the coverage gap measure and *Countdown* indicators should not affect the validity of results as a measure of coverage equity.)

Comparing the absolute size of coverage gaps across the *Countdown* priority countries suggests intercountry inequities. The coverage gaps for 54 countries ranged from less than 20 per cent, indicating about 80 per cent coverage for the eight interventions (Turkmenistan, Peru), to over 70 per cent, indicating about 30 per cent coverage for the eight interventions (Chad, Ethiopia).

In the 40 *Countdown* countries with at least two surveys since 1990, coverage gaps decreased by about 1 percentage point per year, indicating improved coverage across the eight interventions or approaches. Coverage gap decreases, measured in percentage points, were faster for countries with gaps over 40 per cent than for countries with smaller gaps – suggesting that improvements in coverage can occur more rapidly where initial coverage levels are low.

The 'coverage gap' provides information on equity in coverage within countries, as reflected in the country profiles. The profiles show large intracountry differences between the poorest quintile of the population and the least poor quintile. In India (2006), Philippines (2003) and Peru (2000), for example, the coverage gap was at least three times as large in the poorest as in the least poor quintile. Measured by absolute differences in coverage, the largest inequity for maternal, newborn and child health interventions and approaches is in Nigeria (2003), where the difference between universal and current coverage for the eight interventions is 45 percentage points greater for the poorest than for the least poor quintile.

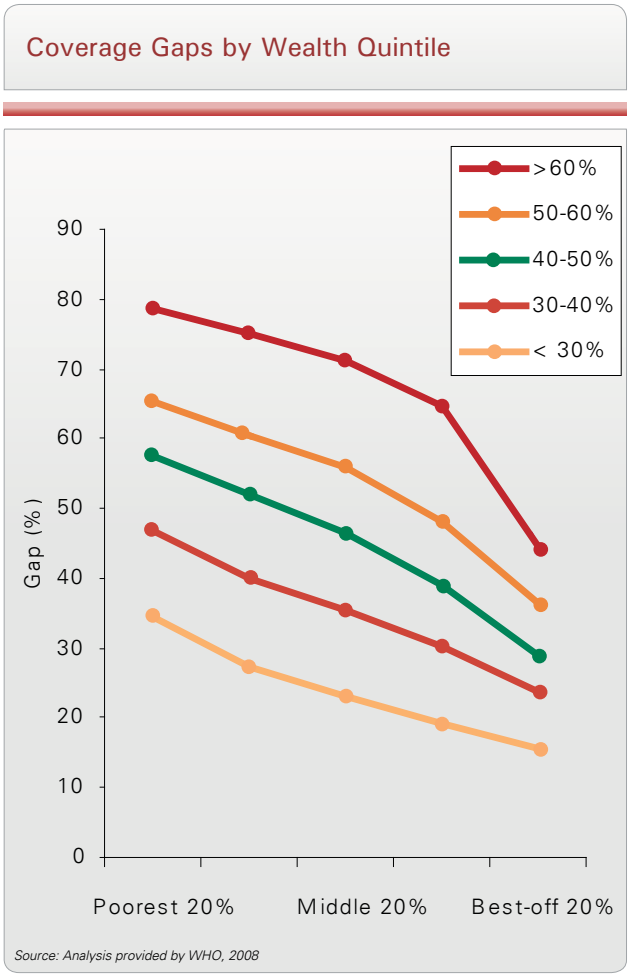


Figure 3.15. Coverage gaps by wealth quintile (countries grouped by overall coverage gap size)

To examine trends, associations between patterns of inequity and coverage gap size were first examined; intracountry trends were then assessed. The surveys were classified into five groups based on coverage gap size. Figure 3.15 summarises the size of the coverage gap in each of the five groups across the five wealth categories. Although the coverage gap is consistently higher among the poorer and lower among the less poor, there are important differences in the patterns of inequity (the shape of the curve) that have implications for how programmes should be designed and targeted to reduce inequities.

In countries where the coverage gap is the highest – indicating low coverage (the upper red line in figure 3.15) – there is an almost linear relationship between increasing wealth and decreases in the coverage gap except among the least poor, for whom coverage is much greater and the coverage gap much smaller. This pattern has been termed 'top inequity', its unusual feature being the striking comparative superiority in coverage for the least poor. To address such coverage

inequities, efforts can decrease the coverage gap for all but the least poor.

The pattern is different in countries with the lowest coverage gap, indicating relatively high coverage levels across the eight interventions (the lower light orange line in figure 3.15). Though in these findings the effect is relatively small, there is a linear improvement from the second poorest quintile to the least poor quintile, with a noticeable change in the slope of the line representing the poorest quintile. Referred to as 'bottom' inequity, this can often be addressed through effective targeting of services to the poor.

The country profiles provide a wide array of examples of these patterns, with notable exceptions. Some countries (such as Turkmenistan and Azerbaijan) show only small differences by wealth quintile. Others have dramatic 'top inequity' (for example, Burkina Faso) or 'bottom inequity' (such as Brazil).

Countries with multiple surveys provide examples of changes over time. The analyses show that the overall annual rate of coverage gap change is just less than 1 percentage point on average and rarely exceeds 2 percentage points. Patterns of inequity by wealth quintile normally change only gradually – but there are several examples of rapid change. For example, in Cambodia a substantial reduction of the coverage gap from 2000–2005 changed the pattern from 'top inequity' to a linear pattern. In Egypt and Peru progress was marked by reduced 'bottom inequity.' Yet in several countries, such as India, a marked overall reduction in the coverage gap did not change the inequity pattern and was not associated with greater progress for the poorest quintile. In most sub-Saharan African countries, likewise, coverage gaps decreased, but 'top inequity' remained.

Health policies and health systems

Figure 3.16 shows the frequency distribution of responses from 68 countries on adopting specific health policies affecting the continuum of care for maternal, newborn and child health. The remainder of this section summarises findings for each individual policy.

The International Code of Marketing of Breastmilk Substitutes

In 1981, as a minimum requirement to protect and promote breastfeeding, the World Health Organization member states almost unanimously adopted the International Code of Marketing of Breastmilk Substitutes. As urged in the Global Strategy for Infant and Young Child Feeding, governments should act

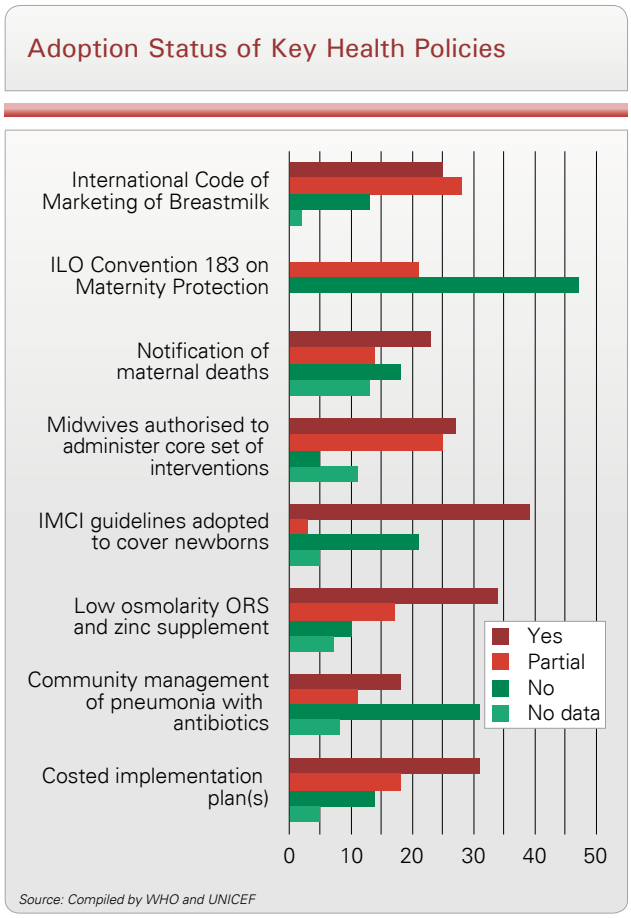


Figure 3.16. Adoption status of key maternal, newborn and child health policies in the 68 Countdown priority countries

Figure 3.17. Progress in implementing three policies (International Code of Marketing of Breastmilk Substitutes, low osmolarity oral rehydration salts and zinc supplementation and community treatment of pneumonia with antibiotics) in the 68 Countdown priority countries (2005–2007)

on the Code and on later World Health Assembly resolutions.[60]

By the end of 2007, 25 of the 68 *Countdown* priority countries had reported adopting legislation covering all provisions of the International Code while 28 reported having legislation or voluntary agreements covering some Code provisions. Another 13 countries had taken no action to adopt the Code and no information was available for 2 countries. These data reflect marked improvement since 2005, when the *Countdown* reported that 15 of 60 countries had fully adopted the Code and 39 had adopted parts of it (figure 3.17).[61]

The ILO Convention 183 on Maternity Protection

International labour standards on maternity protection are important to protect the health and employment of women.[62] Over the history of the International Labour Organization, member states have adopted three Conventions on maternity protection (No. 3, 1919; No. 103, 1952; No. 183, 2000), progressively expanding the scope and entitlements of maternity protection at work. Convention No. 183 provides for health protection at work, 14 weeks of maternity leave, cash and medical benefits, employment security and non-discrimination and rights to breastfeeding breaks for nursing mothers. The Social Security (Minimum Standards) Convention, 1952 (No. 102), is also relevant to maternal health, setting minimum requirements for the provision of health care during pregnancy and confinement, cash maternity benefits replacing lost income and minimum standards for access to preventive and curative health services in general. Conventions are binding in ratifying countries. To date, none of the 68 priority countries has ratified Convention No. 183, while 21 have ratified one of the earlier maternity protection conventions. Of the countries that have ratified none of the maternity protection conventions, five have ratified Convention No. 102.

Forty-seven countries had not ratified any convention on maternity protection. Intensified advocacy is needed in this area. Measures stipulated under the Convention are critical for ensuring direct protection, maternity leave, cash and medical benefits, employment security and non-discrimination for women and newborns.

Midwives authorised to administer a core set of life-saving interventions

Midwives are the primary skilled care providers at birth in many countries. Often, though, they are not authorised to perform life-saving skills that can affect the survival of the mother or her newborn. As early as 1997 global guidelines called for authorising midwives, among others, to perform a set of signal functions.[63] Essential care for women and newborns requires that midwives be authorised to administer perenteral antibiotics, perenteral oxytocics and perenteral anticonvulsants, to manually remove the placenta, to remove retained products of conception, to assist with vaginal delivery and to resuscitate newborns.

Of the 68 *Countdown* priority countries, 27 reported having a policy authorising midwives to perform these seven functions, 25 countries reported having a policy allowing midwives to perform part of them and 5 reported having no policy. For 11 countries no data were available.

Emergency obstetric care service availability

Three-quarters of maternal deaths are caused by direct obstetric complications including haemorrhage, sepsis, eclampsia and prolonged or obstructed labour.[64] The occurrence of these life-threatening complications is unpredictable and often unpreventable. But nearly all deaths from these causes can be averted through timely and appropriate intervention with quality emergency obstetric care, including caesarean section. It is critical that all pregnant women have access both to a basic emergency obstetric care facility for the seven signal functions (administer perenteral

antibiotics, perenteral oxytocics and perenteral anticonvulsants, manually remove the placenta, remove retained products of conception, assist with vaginal delivery and resuscitate newborns) and, if needed, a comprehensive emergency obstetric care facility that can also perform caesarean section and blood transfusion.

The availability of emergency obstetric care services provides one measurement of a health system's capacity to prevent both maternal and newborn deaths. For every 500,000 people it is recommended to provide at least five basic emergency obstetric care facilities, of which at least one should also offer comprehensive emergency obstetric care.[65] The geographic distribution of such facilities should ensure access for all women, not only those living in a few regions or urban centers.

The emergency obstetric care availability data in this report come from government surveys conducted with support from agencies and organisations such as UNICEF, the United Nations Population Fund, the World Health Organization and the Averting Maternal Death and Disability Program at Columbia University. The data are reported as percentages of needed facilities based on country populations. Data on geographic distribution, though available for several countries, are not reported.

Twenty-seven countries had comparable data that the *Countdown* could use. Of those 27, 11 had at least half of the recommended minimum number of functioning emergency obstetric care facilities. The remaining 16 countries with comparable and usable data had between 14 per cent and 48 per cent of the minimum. Even without knowing the geographical distribution of facilities within countries, one can see that a much greater investment is needed for emergency obstetric care services to reach all the women who need them. (Eighteen countries either had conducted smaller assessments, had not yet analysed their data or had conducted different types of facility surveys that were not comparable. For 23 other countries no data were available.)

All countries should be encouraged to conduct a national assessment and to routinely collect information on the signal functions and the availability, functioning and quality of care at emergency obstetric care facilities. It is expected that this set of indicators will be integrated into national health information systems so that the availability and quality of these services can be monitored more regularly.

Notification of maternal death

Maternal death is a rare event. It is also a very sensitive indicator of the health system functionality. A national policy requiring specific notification of maternal deaths can be a powerful instrument to examine the quality and responsiveness of health services and to help identify critical barriers in the continuum of care. In this cycle of the *Countdown*, 23 countries reported having a policy requiring notification of maternal death, 14 countries reported having a policy but no systematic implementation, and 18 countries reported having no such policy. No information was available for 13 countries.

Integrated management of childhood illness adapted to cover newborns 0–1 week old

A cost-effective way to diagnose and treat children with common illnesses, the integrated management of childhood illness approach (IMCI) has been adopted by over 100 countries. The first generic version of its guidelines was developed for children up to five years of age; it did not address newborns in the first week of life. Based on new evidence, revised generic guidelines have been promoted since 2006 to cover infants 0–2 months old.[66]

In this *Countdown* cycle, 39 of the 68 priority countries reported having national guidelines covering infants in the first week of life, in line with the generic guidelines. Three countries reported having partial adaptations for young infants; 21 reported having no such adaptations.

Low osmolarity oral rehydration salts and zinc supplementation

Strong evidence demonstrating the effectiveness of both a new, low osmolarity formulation of oral rehydration solution (oral rehydration salts) and zinc supplementation in reducing the duration and incidence and severity of diarrhoeal episodes resulted in an international call for action to countries to adopt the new guidelines and intensify efforts to increase coverage for oral rehydration therapy.[67] By the end of 2007, 34 *Countdown* priority countries had adopted the new guidelines and 17 had adopted one of the two improved interventions (either low osmolarity oral rehydration salts or zinc supplementation but not both), while 10 had not changed their policy to reflect the new technical advances. That was a marked improvement from 2005, when just 6 of 50 priority countries had adopted the new policy and 36 reported no policy (figure 3.17).

Although it might be too early to find nationwide increases in coverage for low osmolarity oral rehydration salts in countries that have updated their policy, future progress should be tracked to assess whether and how policy changes can affect coverage

for an intervention.

Community treatment of pneumonia with antibiotics

Pneumonia remains the leading killer of children under five years of age.[68] As table 3.5 shows, coverage levels for careseeking and the treatment of pneumonia with an effective antibiotic are alarmingly low in most of the 68 *Countdown* priority countries. Community health workers can manage uncomplicated pneumonia effectively and bring treatment closer to the home. In 2004, the World Health Organization and UNICEF called on countries to adopt and promote policies that would support community health workers in identifying and treating pneumonia, while improving service at first-level heath facilities.[69]

In 2005, of 60 *Countdown* priority countries, 16 had policies authorising community health workers to identify and manage pneumonia; 2 had no policies, but were implementing the approach in selected geographic areas; 41 explicitly prohibited community-based pneumonia management (one country lacked data). For the 2008 *Countdown*, 18 of 68 priority countries reported having community case management policies; 11 reported having no policies, but some implementation of the approach in selected areas; 31 reported having no policies or explicit prohibitions (figure 3.17). Country respondents to the *Countdown* survey offered reasons for the lack of progress, focusing on the complexities of decisions about which cadres of health providers would be permitted to administer antibiotics.

Costed implementation plan

For the 2008 *Countdown*, 31 countries reported having developed costed implementation plans for maternal, newborn and child health; 18 countries reported having partial plans that were either not costed or did not cover the entire continuum of care; 14 countries indicated having no such plans. Information was not available for 5 countries. Interpretations of this indicator varied between countries, since in some an investment case has been made for achieving the Millennium Development Goals while in others it has not. For countries in which it has not, the indicator was rated as full when medium-term plans and related programme costs were available.

Human resources and financing

Density of health workers per 1,000 people

The World Health Organization estimates that to ensure adequate coverage for basic maternal and child health services, at least 2.5 health workers are needed per 1,000 people. Results from global databases that include both facility- and community-based health workers show that in 54 out of the 68 *Countdown* priority countries (80 per cent), the numbers of such workers are too few to improve country prospects for achieving the health-related Millennium Development Goals.

There is no demonstrated association between health worker density and coverage for interventions. But these data show that many countries are facing a health worker crisis that could obstruct coverage increases.

Per capita total expenditure on health

It has been estimated that less than $45 per capita total expenditure on health is insufficient to ensure access to a very basic set of needed services. Among the 68 *Countdown* priority countries, 21 had a total per capita expenditure smaller than $45.

General expenditure on health as a percentage of total expenditure

This indicator reflects government commitment to health. While there is no threshold, African heads of state have made a commitment to allocate at least 15 per cent of the overall budget to health. An ideal target, it has only been achieved by 7 of the 68 *Countdown* priority countries.

Out-of-pocket expenditure as a percentage of total expenditure

Very high out-of-pocket payments prevent many people from seeking care. And they impoverish households. Where such payments comprise less than 15 per cent of total health spending, very few households tend to be harmed by catastrophic payments. Of the 68 *Countdown* priority countries, only 6 have a rate of out-of-pocket payments of less than 15 percent.

Financial flows to maternal, newborn and child health

The *Countdown* Financial Flows Working Group developed two new indicators for use in monitoring progress across the 68 priority countries: official development assistance to child health per child and official development assistance to maternal and neonatal health per live birth. Both indicators are included in the 2008 country profiles, with estimates for 2005.

The two new indicators are presented next to more

Official Development Assistance to Child, Maternal and Newborn Health

	Official development assistance to child health per child (2005 dollars)		Official development assistance to maternal and neonatal health per live birth (2005 dollars)	
Recipient country	**2004**	**2005**	**2004**	**2005**
Afghanistan	5.51	8.6	4.30	8.43
Angola	7.12	11.34	10.28	16.11
Azerbaijan	1.24	3.87	4.61	2.18
Bangladesh	0.84	1.58	8.42	9.56
Benin	9.93	7.36	13.32	3.76
Bolivia	9.67	6.43	22.74	11.04
Botswana	1.50	0.05	2.43	0.45
Brazil	0.12	0.1	1.51	0.16
Burkina Faso	6.06	8.17	7.23	6.72
Burundi	6.19	8.57	5.32	5.73
Cambodia	2.93	6.38	5.46	19.05
Cameroon	4.20	6.87	3.41	4.45
Central African Republic	8.57	6.72	9.14	5.49
Chad	4.34	4.22	3.11	5.41
China	0.39	0.32	0.66	0.4
Congo	12.13	2.42	4.28	2.73
Congo, Democratic Republic of the	6.56	3.21	3.82	2.97
Cote D'Ivoire	3.98	2.9	1.53	1.63
Djibouti	7.42	24.89	18.03	22.27
Egypt	0.72	1.26	0.35	3.3
Equatorial Guinea	10.75	14.28	11.87	12.73
Eritrea	4.47	3.77	4.77	2.36
Ethiopia	2.70	3.56	4.81	9.96
Gabon	11.04	17.09	15.57	20.65
Gambia	7.50	17.79	5.80	11.05
Ghana	12.74	11.24	14.63	12.01
Guatemala	2.04	3.41	10.53	14.49
Guinea	3.65	6.17	2.75	11.34
Guinea-Bissau	5.73	6.27	18.49	11.87
Haiti	8.57	4.18	7.86	15.53
India	0.90	1.1	1.78	3.24
Indonesia	1.15	1.11	4.25	2.8
Iraq	4.08	20.47	3.70	26.87
Kenya	7.71	8.98	6.04	14.7
Korea, Democratic Republic of	1.57	1.75	0.73	0.62
Laos	3.93	8.41	8.66	17.88
Lesotho	9.50	4.77	13.32	5.01
Liberia	12.91	7.81	14.32	7.54
Madagascar	4.90	5.91	8.46	6.95
Malawi	13.0	11.18	13.67	13.57
Mali	6.69	6.51	6.23	13
Mauritania	3.38	3.2	9.74	7.59
Mexico	0.17	0.12	0.81	0.51
Morocco	1.01	1.5	4.31	5.61
Mozambique	14.20	9.4	26.57	20.15
Myanmar	0.28	3.01	0.79	1.82
Nepal	5.25	3	11.96	3.39
Niger	4.15	5.32	2.77	5.32
Nigeria	1.91	2.23	1.12	2.99
Pakistan	3.58	1.88	1.93	4.4
Papua New Guinea	9.21	3.26	30.37	6.42
Peru	3.17	4.9	5.50	12.46
Philippines	0.97	0.4	1.51	1.58
Rwanda	13.91	13.47	14.47	12.68
Senegal	9.56	9.83	11.44	16.73
Sierra Leone	5.79	5.48	5.30	5.64
Somalia	4.87	4.39	4.86	4.19
South Africa	1.82	3.6	4.09	6.21
Sudan	4.86	9.05	7.35	15.21
Swaziland	3.24	15.09	1.56	1.41
Tajikistan	6.55	4.83	5.09	5.19
Tanzania	8.79	15.62	11.87	14.8
Togo	5.07	5.72	6.89	4.63
Turkmenistan	1.82	2.12	4.25	1.01
Uganda	11.09	9.89	6.59	8.4
Yemen	4.45	6.01	11.81	17.49
Zambia	21.24	26.55	22.43	44.77
Zimbabwe	3.61	7.11	8.88	18.32

Source: Compiled by WHO, 2008

Table 3.12. Official development assistance to child health per child and official development assistance to maternal and neonatal health per live birth for the 68 Countdown priority countries (2004–2005)

established general health expenditure indicators. Unlike the coverage indicators, there is little agreement on what makes a funding target desirable or adequate. The evidence points broadly towards a substantial funding gap in maternal, newborn and child health in developing countries, which must be filled partly by increased funding from donors.[70]

While acknowledging the unpredictability of international aid, the authors of this report make a tentative assessment of progress to increase official development assistance to maternal, newborn and child health by making a comparison across years. Table 3.12 presents estimates of the two official development assistance indicators by country for 2004–2005, expressed in constant 2005 dollars. The volume of official development assistance to child, newborn and maternal health increased by 28 per cent worldwide in 2005, representing increases of 49 per cent in official development assistance to child health and 21 per cent in official development assistance to maternal and newborn health. Of the 68 *Countdown* countries, 38 experienced increases in official development assistance to child health per capita in 2005; 39 countries also saw official development assistance to maternal and newborn health per live birth rise from 2004–2005. The *Countdown* Financial Flows Working Group is doing further statistical analysis of aid flow determinants.

Conclusions and recommendations

This second *Countdown* report, issued three years after the first report of findings at the 2005 conference,[71] documents what can be done and what needs to be done. Coverage for selected interventions – such as vitamin A supplementation and the use of insecticide-treated bed nets to prevent malaria – has increased rapidly in many countries, but not in all. And coverage levels for other interventions have stagnated or even deteriorated. Examining country-by-country progress can yield important knowledge about hindrances to progress, spurring further action.

The power of the *Countdown* depends on the quality of the coverage data in the priority countries. Let us be the first to say that many improvements can and should be made in defining indicators, measuring them and interpreting the results. We, better than most, recognise that there is an urgent technical agenda to be pursued in strengthening the measurement of coverage. But do the methodological weaknesses invalidate the massive amounts of information presented in the country profiles? We believe not. Millions of person-hours have been invested in defining measurement strategies, developing protocols, visiting randomly selected villages and knocking on doors to ask family members to participate in building an information base sufficient to guide policy. The answers have been recorded, checked, summarised, shared and interpreted in districts and capital cities throughout the world. If there is a better way to do things, let's do it together – not just as a 'community of practice,' aiming at improving the health of women and children, but also as scientists wanting a fuller understanding and as policy makers and programme managers hoping to learn more about how to make programmes and services more effective.

The *Countdown* is an informal 'community of practice' that brings together information and interprets it for several purposes: for science, for policy and governance, for better development assistance and for easier access and ownership by women and children. Any conclusions drawn from the information in these pages is in a sense premature, since a full understanding requires more input from those working to achieve high, sustained and equitable coverage in individual countries, districts and communities. But the community of practice also includes those responsible for the international *Countdown* movement. In that spirit we present a summary of what we see as the most important conclusions of this *Countdown* cycle and what those conclusions might mean for the immediate next steps towards the health-related Millennium Development Goals.

Country representatives who participate in the April, 2008 *Countdown* conference in Cape Town, South Africa will issue a statement. We see that statement as a companion to this section and an essential complement to the remainder of the chapter.

Preliminary conclusions proposed by the *Countdown* Core Group

Countries, while rapidly increasing coverage for some interventions, are making little or no progress with others. Coverage trends are most promising for many preventive interventions, such as vitamin A supplementation, immunisation (including measles, neonatal tetanus protection, Hib3 and DPT3) and insecticide-treated bed nets to prevent malaria. But progress is lagging for most curative interventions and interventions requiring 24-hour service availability, such as antenatal, postnatal and delivery care or treatment for pneumonia, diarrhoea and malaria. Postnatal care is an especially important gap in the first week of life when mothers and newborns are at the highest risk. Progress on nutrition indicators requiring behavioural and social change – such as exclusive breastfeeding and complementary feeding practices – is mixed and often insufficient.

The continuum of care for maternal, newborn and child health requires multiple delivery approaches. Progress towards the Millennium Development Goals will require a range of interventions to be delivered in different points in the life-cycle. Services that contribute to the achievement of one Millennium Development Goal will not necessarily advance progress towards another. Of particular concern today is a serious breakdown in the continuum of care at several points in the pre-pregnancy to two-year postnatal period when opportunities to deliver essential services are being lost.

Undernutrition is an area of little or no progress. More than one-third of deaths in children under age five are attributable to undernutrition – the underlying cause of 3.5 million child deaths annually. And maternal undernutrition increases the mother's risk of death at delivery, accounting for at least 20 per cent of such deaths.[72] In 33 of the 68 priority countries, at least 20 percent of children are moderately or severely underweight, and 62 countries have stunting prevalence rates exceeding 20 per cent.

Weak health systems and broader contextual factors obstruct progress. Health systems in many countries cannot now deliver essential interventions and approaches widely or well enough to reduce mortality nationwide. Indicators of health financing and health worker density are useful markers of health system strength. Of the 68 *Countdown* priority countries, 54 – or 80 percent – have workforce densities below the critical threshold for improved prospects for achieving the health-related Millennium Development Goals. It has been estimated that annual per capita total health expenditures of less than $45 are insufficient to ensure access to a very basic set of needed services. Of the 68 priority countries, 21 had less than $45. In addition, 11 out of the 12 countries with reversed progress towards Millennium Development Goal 4, contextual challenges – such as armed conflict, high HIV burdens and low female literacy rates – contribute to stagnating or deteriorating coverage.

Inequities obstruct progress. Mortality in children under age five is now concentrated in sub-Saharan Africa (almost 50 per cent) and South Asia (30 per cent).[73] Maternal and newborn mortality are similarly concentrated in those regions. Meanwhile, the inequity analyses show that within countries the richest quintile is gaining access to key interventions more quickly than the poorest.[74] Reducing both types of inequity – between regions and within countries – is a crucial part of achieving the health-related Millennium Development Goals.

Aid needs to increase and become more predictable. Overseas development assistance to child, newborn and maternal health increased by 28 percent from 2004 to 2005, including increases of 49 per cent to child health and 21 per cent to maternal and newborn health. Such aid for maternal, newborn and child health and nutrition has increased in most *Countdown* priority countries, but has decreased in some. Of the 68 countries, 38 received more per capita official development assistance to child health, and 39 received more to maternal and newborn health per live birth, in 2005 than in 2004.

Countries need more and better coverage estimates and research on local implementation. Since the first Countdown report in 2005, an unprecedented amount of household surveys have been conducted and include new MICS data from 54 countries and new DHS data for 35 countries. However, many countries are still determining coverage levels for essential interventions using data that is 5, 10 or even 15 years old. In consequence, the knowledge gained through current and ongoing efforts to promote maternal, newborn and child health and nutrition has not been adequately disseminated. The *Countdown* is drawing attention to the fact that data collection and dissemination need improvement to make timely data more readily available, which is crucial for planning and implementation.

The *Countdown* call to action

All people involved in the *Countdown*, who together constitute a 'community of practice' for achieving the health-related Millennium Development Goals, are encouraged to use the *Countdown* results and products to improve their effectiveness in reducing mortality and improving nutrition among women, newborns and children – each in their own way, applying their diverse skills and resources.

Participants in this round of data review for the *Countdown* effort identified the following immediate actions to be promoted and discussed at the second international *Countdown* conference, Cape Town, South Africa, 17–19 April 2008.

- **Sustain and expand successful efforts to achieve high and equitable coverage for priority interventions.** Recent areas of progress – especially immunisations, vitamin A supplementation and insecticide-treated bed nets – represent a major success for governments and their development partners. Such efforts should continue. But comparable efforts and investments are required for childbirth care and the case management of childhood illness.

- **Focus on the priority period within the continuum of care,** from pre-pregnancy through 24 months – especially around the time of birth. To reduce mortality during childbirth and in newborns, programming efforts must focus on the effective and integrated delivery of interventions and approaches associated with this crucial period. Examples include contraceptive services, antenatal, delivery, and postnatal care and infant feeding practices.

- **Within increased efforts to achieve the health-related Millennium Development Goals,** make improving maternal and child nutrition a priority. Nutrition must be central to both national and subnational development strategies.

- **Strengthen health systems, focusing on measurable results.** Health systems need to deliver on demand, creating a functional continuum of care over time and in different places. All new initiatives must focus on outcomes that measurably advance this aim.

- **Set geographic and population priorities**, and stick to them. The health-related Millennium Development Goals cannot be met globally without faster progress in sub-Saharan Africa and South Asia. Development efforts and official development assistance must increasingly target countries in these regions with large populations and poor performance.

- **Programme for equity**. Describing inequities, though an important first step, is not enough. Programmatic efforts to address inequities must be supported by strong monitoring and evaluation activities.

- **Do even more to ensure predictable long-term aid flows for maternal**, newborn and child health. Governments and their development partners cannot meet the health-related Millennium Development Goals unless assistance is adequate, predictable and targeted to those goals.

- **Monitor. Evaluate. Conduct locally driven implementation research**. And act on the results. The 'community of practice' for maternal, newborn and child health must lead the change by improving monitoring, evaluation and dissemination.

- **Lead the change for maternal, newborn and child survival.** It is time for all to work together as partners to improve the lives of women, newborns and children.

Notes

[1] Boerma, Bryce, Kinfu and others (forthcoming).

[2] Graham, Bell and Bullough 2001, pp.97–129; WHO, UNICEF, UNFPA and AMDD 2006.

[3] UNICEF 2007b.

[4] Lawn, Cousens and Zupan 2005.

[5] Ibid.

[6] Stanton, Lawn, Rahman and others 2006.

[7] Black, Allen, Bhutta and others 2008.

[8] World Bank 2006.

[9] United Nations n.d.

[10] Black, Allen, Bhutta and others 2008.

[11] Ibid.

[12] WHO 2006a.

[13] Bhutta, Ahmed, Black and others 2008.

[14] Black, Allen, Bhutta and others 2008.

[15] Blanc and Wardlaw 2005.

[16] UNICEF and WHO 2004.

[17] UNICEF 2007c.

[18] Victora, Adair, Fall and others 2008.

[19] UNICEF n.d.

[20] Measure DHS, MACRO International, Inc. n.d.

[21] Bryce, Coitinho, Darnton-Hill and others 2008.

[22] WHO and UNICEF 2003.

[23] Bhutta, Ahmed, Black and others 2008.

[24] Black, Allen, Bhutta and others 2008.

[25] Bhutta, Ahmed, Black and others 2008.

[26] Black, Allen, Bhutta and others 2008.

[27] Bhutta, Ahmed, Black and others 2008; Bryce, Coitinho, Darnton-Hill and others 2008.

[28] Arimond, Daelmans and Dewey 2008.

[29] UNICEF 2007c.

[30] UNICEF 2007d.

[31] Dabbagh, Gacic-Dobo, Wolfson and others 2007.

[32] UNICEF 2007b.

[33] Ibid.

[34] WHO 2006b.

[35] Waddington, Martin, Walford and others 2005.

[36] WHO 2007a.

[37] UNICEF and Roll Back Malaria 2007.

[38] UNICEF 2007b

[39] Ibid.

[40] UNICEF 2006a; Wardlaw, Salama, Johansson and others 2006.

[41] Bryce, Boschi-Pinto, Shibuya and others 2005; WHO 2007b.

[42] Bryce, Boschi-Pinto, Shibuya and others 2005.

[43] Cleland, Bernstein, Ezeh and others 2006.

[44] WHO and UNICEF 2003.

[45] United Nations 2008a.

[46] WHO 2007a.

[47] UNICEF and Roll Back Malaria 2007.

[48] Graham, Bell and Bullough 2001, pp.97-129; WHO, UNICEF, UNFPA and AMDD 2006.

[49] UNICEF 2007b.

[50] UNICEF, WHO and UNFPA 1997.

[51] Villar, Carroli and Zavaleta 2007.

[52] Lawn, Cousens and Zupan 2005.

[53] Darmstadt, Bhutta, Cousens 2005.

[54] Baqui, Ahmed, Arifeen and others n.d.

[55] Baqui, Ahmed, Arifeen and others 2007.

[56] Lawn, and Kerber 2006.

[57] Tinker, ten Hoope-Bender, Azfar and others 2005; Kerber, de Graft-Johnson, Bhutta and others 2007.

[58] Travis, Bennett, Haines and others 2004.

[59] UNICEF 2007b.

[60] WHO and UNICEF 2003.

[61] Bryce, Terreri, Victora 2006.

[62] ILO 2007.

[63] UNICEF, WHO and UNFPA 1997.

[64] Khan, Wojdyla, Say and others 2006; Ronsmans and Graham 2006.

[65] UNICEF, WHO and UNFPA 1997.

[66] The Young Infants Clinical Signs Study Group 2008.

[67] WHO and UNICEF 2004.

[68] Wardlaw, Salama, Johansson and others 2006.

[69] WHO and UNICEF 2006.

[70] Johns, Sigurbjörnsdóttir, Fogstad and others 2007; Stenberg, Johns, Scherpbier and others 2007; Greco, Powell-Jackson, Borghi and others (forthcoming).

[71] Bryce, Terreri, Victora and others 2006.

[72] Black, Allen, Bhutta and others 2008.

[73] UNICEF 2007b.

[74] Victora, Wagstaff, Armstrong-Schellenberg and others 2003.

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Annex A

Initiatives, resources and databases for monitoring progress towards the health-related Millennium Development Goals, with a special focus on maternal, newborn and child survival

This list is not comprehensive but includes important resources, reports and databases related to monitoring progress towards the Millennium Development Goals for women, newborns and children.

Reports

The State of the World's Children is UNICEF's flagship publication. Each year the report focuses on a key issue affecting children and provides a set of detailed statistical tables that include individual country and regional estimates on a range of key indicators for monitoring the situation of women and children in the world. The report's focus in 2008 is child survival (http://www.unicef.org/sowc/). This publication is the primary source for the coverage estimates used in the *Countdown*.

Progress for Children (PFC) is a UNICEF flagship publication reporting on progress towards the Millennium Development Goals. The World Fit for Children (WFFC) Statistical Review was a special issue of PFC to report on progress towards the WFFC goals and targets included in the May 2002 Special Session of the United Nations General Assembly outcome document. Heads of state and government committed themselves to targets in vital areas of children's well-being and development to be achieved by 2010, and UNICEF was specifically called upon to prepare a mid-decade progress report (http://www.unicef.org/publications/files/Progress_for_Children_ No_6.pdf).

State of the World's Mothers has been published by Save the Children each year since 1999, as a complement to UNICEF's The State of the World's Children report. This document brings together information on the world's mothers and newborns, with the aim of bringing attention to the urgent need to reduce maternal and infant mortality around the world. The report also identifies countries that are succeeding in improving the health and saving the lives of women and babies and shows that effective solutions to this challenge are affordable – even in the world's poorest countries. (http://www.savethechildren.org/publications/mothers/2006/SOWM_2006_final.pdf)

The World Health Report is published annually by the World Health Organization (World Health Organization) (http://www.who.int/whr). Each year the report combines an expert assessment of global health, including statistics relating to all countries, with a focus on a specific subject (in 2008, primary health care). Some of the data and benchmarks presented here on health policy and health systems, including human resources and financial flows, were taken from previous reports.

World Health Statistics Report (http://www.who.int/whosis): "This annual report presents comprehensive health data on all of the 193 World Health Organization Member States. The data, selected on the basis of quality and availability, relevance to global health, and comparability across member nations, cover over 50 core health indicators, which are organized into six major areas: mortality and burden of disease, health service coverage, risk factors, health system inputs, differentials in health outcome and coverage, as well as basic sociodemographic statistics."

The World Development Report, published by the World Bank, aims to provide a "guide to the economic, social and environmental state of the world today" (http://go.worldbank.org/LOTTGBE9I0, accessed 2 February 2008). Each year the WDR provides in-depth analysis of a specific aspect of development. Past reports have considered such topics as youth, equity, public services delivery, the role of the state, transition economies, labour, infrastructure, health, the environment and poverty. The most recent report examines the role of agriculture in development.

The Global Millennium Development Goal Monitoring Report is published annually by the World Bank (http://go.worldbank.org/XE4070LV80m). This publication focuses on the responsibilities and accountability of donor countries, developing countries and the international financial institutions to support achievement of the Millennium Development Goals and monitors progress towards the Millennium Development Goal targets. The 2007 report focuses on gender equality and the empowerment of women.

State of the World Population Report is the United Nations Populations Fund flagship publication (http://www.unfpa.org/swp/2007/english/introduction.html). Each year the report focuses on a key issue addressing population, reproductive and maternal health and development concerns and provides statistical tables on a range of key demographic, health and socioeconomic indicators. Past reports have addressed such topics as urbanization, adolescent health, poverty, the environment, international migration, gender equality and changing population age structures. The relation of the thematic focus to maternal and reproductive health is a feature of every report.

Resources and monitoring activities

Millennium Development Goal monitoring occurs within the United Nations system. The UN Statistics Division (UNSD) coordinates the preparation of the UN Secretary General's report on progress towards the Millennium Development Goals and is responsible for maintaining the Millennium Indicators database. The UN Statistics Division also coordinates the Inter-Agency and Experts Group on Millennium Development Goal reporting (IAEG), which is responsible for the preparation of data and analysis to monitor progress towards the Millennium Development Goals. The Group also reviews and defines methodologies and technical issues in relation to the indicators, produces guidelines and helps define priorities and strategies to support countries in data collection, analysis and reporting on Millennium Development Goals.

Lead agencies have been assigned to report on progress towards specific goals and targets. UNICEF and World Health Organization are the lead agencies for reporting on the health-related Millennium Development Goals. United Nations Population Fund is also involved in reporting on Millennium Development Goal 5. UNDP is responsible for providing support to countries in the preparation of country reports on progress towards the Millennium Development Goals.

The Child Health Epidemiology Reference Group (CHERG) was established in 2001 and has worked since that time to improve the quality of global estimates on maternal and child mortality and morbidity, intervention coverage and the potential effects of health services and interventions. The coverage estimates reported through the *Countdown* process are reviewed by the Child Health Epidemiology Reference Group for consistency with mortality estimates.

The Country Profiles on Maternal and Newborn Health produced in 2008 by the World Health Organization Department of Making Pregnancy Safer (MPS) complements the *Countdown* with country-specific reports focusing specifically on maternal and newborn health indicators, including subnational distributions and disaggregated reporting by measures of equity and location. In 2007 the Department initiated creation of a maternal and neonatal health epidemiology reference group (MNHERG) of global experts to catalyze improved capacity and use of country-level data to guide implementation and decisionmaking.

The Partnership for Maternal, Newborn and Child Health has collaborated closely with the *Countdown* in its efforts to monitor progress and to promote the use of the monitoring results for political advocacy related to maternal, newborn and child health.

Publicly accessible databases

UNICEF maintains a series of publicly accessible databases for tracking the situation of children and women globally. These databases contain both the current (presented in The State of the World's Children) and trend data for tracking progress on the situation of women and children. UNICEF's global databases include only statistically sound and nationally representative data from household surveys and other sources. These databases are updated annually through a process that draws on the wealth of data maintained by UNICEF's wide network of 140 field offices and other sources. All these data have undergone a rigorous data quality review based on a series of objective criteria. UNICEF includes survey data in global estimates after reviewing them for quality based on the following criteria:

- The survey is based on a nationally representative sampling frame.
- Standard protocols for collecting and analyzing data for the *Countdown* indicators were used in the survey.
- To the extent determinable, the survey was carried out using procedures to ensure data quality in the recruitment, training and supervision of data collection teams and in the transfer and management of the survey data.

One of the databases maintained by UNICEF is DevInfo, a technical platform designed for use in monitoring progress towards the Millennium Development Goals. Nationally, 103 countries are now using DevInfo to develop national socioeconomic databases for Millennium Development

Goal monitoring. (More information is available at http://www.devinfo.org/.)

The World Development Indicators Online (WDI) provide direct access to more than 700 development indicators, with time series for 208 countries and 18 country groups from 1960 to 2006, where data are available for interactive queries and can be downloaded by users (http://go.worldbank.org/6HAYAHG8H0).

The website for the Millennium Development Goals Indicators is maintained by the United Nations Statistics Division. The home page states that the site presents the official data, definitions, methodologies and sources for the 48 indicators to measure progress towards the Millennium Development Goals. The data and analyses are the product of the work of the Inter-agency and Expert Group (IAEG) on Millennium Development Goal Indicators, coordinated by the United Nations Statistics Division (http://mdgs.un.org/unsd/mdg/Host.aspx?Content=Indicators/OfficialList.htm).

Household survey protocols

The Multiple Indicator Cluster Survey (MICS) is a household survey programme developed by UNICEF to assist countries in filling data gaps to monitor the situation of children and women. It is capable of producing statistically sound data that are internationally comparable. The Multiple Indicator Cluster Survey was developed after the World Summit for Children to measure progress towards an internationally agreed-upon set of mid-decade goals. The first round of Multiple Indicator Cluster Surveys was conducted around 1995 in more than 60 countries. A second round of about 65 surveys was conducted in 2000. The 2005–06 round of Multiple Indicator Cluster Surveys was planned to provide a monitoring tool for the Millennium Development Goals and other major international commitments including the publication of A World Fit for Children, the UN General Assembly Special Session on HIV/AIDS, and the Abuja targets for malaria. Multiple Indicator Cluster Surveys are usually carried out by government organisations, with the support and assistance of UNICEF and other partners. Results from the different rounds of surveys, as well as related technical background materials, are available at www.childinfo.org.

The USAID-supported Demographic and Health Surveys (DHS) have been conducted in many countries over the last 20 years. They provide national and subnational data on family planning, maternal and child health, child survival, HIV/AIDS and sexually transmitted infections, infectious diseases and reproductive health and nutrition. More information is available at www.measuredhs.com. The MICS and DHS programmes have coordinated efforts both in terms of standardizing survey questions and methods for data analysis, as well as data collection on the ground. Coordinating both the countries surveyed and the questions included in the questionnaire modules ensures maximum coverage of countries and provides comparability across surveys.

Annex B

Indicators and data sources

Indicators		Data Source	Global Database
DEMOGRAPHICS			
Demographics	Total population	United Nations Population Division	United Nations Population Division
	Total under-five population	United Nations Population Division	United Nations Population Division
	Total births	United Nations Population Division	United Nations Population Division
	Birth registration	Multiple Indicator Cluster Survey, Demographic and Health Surveys	United Nations Children's Fund
Child Mortality	Under-five mortality rate	United Nations Children's Fund	United Nations Children's Fund/ World Health Organization/World Bank/United Nations Population Division
	Infant mortality rate	United Nations Children's Fund/ World Health Organization/World Bank/United Nations Population Division	United Nations Children's Fund/ World Health Organization/World Bank/United Nations Population Division
	Neonatal mortality rate	World Health Organization	World Health Organization
	Total children under five deaths	United Nations Children's Fund/ World Health Organization/World Bank /United Nations Population Division	United Nations Children's Fund
	Cause of death of children under five	Child Health Epidemiology Reference Group	World Health Organization
Maternal Mortality	Maternal mortality ratio	United Nations Children's Fund/World Health Organization/ United Nations Population Fund/ World Health Organization	United Nations Children's Fund/World Health Organization/ United Nations Population Fund/ World Bank
	Lifetime risk of maternal death	United Nations Children's Fund/World Health Organization/ United Nations Population Fund/ World Health Organization	United Nations Children's Fund/World Health Organization/ United Nations Population Fund/ World Bank
	Total maternal deaths	United Nations Children's Fund/World Health Organization/ United Nations Population Fund/ World Health Organization	United Nations Children's Fund/World Health Organization/ United Nations Population Fund/ World Bank
	Maternal deaths by cause (regional)	World Health Organization	World Health Organization
NUTRITION			
Anthropometric	Underweight prevalence	Demographic and Health Surveys, Multiple Indicator Cluster Survey, National Survey	United Nations Children's Fund/ World Health Organization
	Stunting prevalence	Demographic and Health Surveys, Multiple Indicator Cluster Survey, National Survey	United Nations Children's Fund/ World Health Organization
	Wasting prevalence	Demographic and Health Surveys, Multiple Indicator Cluster Survey, National Survey	United Nations Children's Fund/ World Health Organization
Infant feeding	Exclusive breast-feeding rate (<6 months)	Demographic and Health Surveys, Multiple Indicator Cluster Survey, National Survey	United Nations Children's Fund
	Complementary feeding rate (6-9 months)	Demographic and Health Surveys, Multiple Indicator Cluster Survey, National Survey	United Nations Children's Fund
Low birth weight	Low birth weight incidence	Demographic and Health Surveys, Multiple Indicator Cluster Survey, National Survey	United Nations Children's Fund

Micronutrient supplementation	Vitamin A supplementation (at least 1 dose & 2 doses)	National Immunisation Days, Demographic and Health Surveys, Multiple Indicator Cluster Survey	United Nations Children's Fund
CHILD HEALTH			
Immunisation	Measles immunisation coverage	Routine, Multiple Indicator Cluster Survey, Demographic and Health Surveys	United Nations Children's Fund/ World Health Organization
	DPT3 immunisation coverage	Routine, Multiple Indicator Cluster Survey, Demographic and Health Surveys	United Nations Children's Fund/ World Health Organization
	Hib3 immunisation coverage	Routine, Multiple Indicator Cluster Survey, Demographic and Health Surveys	United Nations Children's Fund/ World Health Organization
Malaria	Under-fives sleeping under ITNs	Demographic and Health Surveys, Multiple Indicator Cluster Survey,	United Nations Children's Fund
	Antimalarial treatment (under-fives)	Demographic and Health Surveys, Multiple Indicator Cluster Survey,	United Nations Children's Fund
Pneumonia	Careseeking for pneumonia	Demographic and Health Surveys, Multiple Indicator Cluster Survey	United Nations Children's Fund
	Antibiotic treatment for pneumonia	Demographic and Health Surveys, Multiple Indicator Cluster Survey	United Nations Children's Fund
Diarrhoeal diseases	Oral rehydration and continued feeding	Demographic and Health Surveys, Multiple Indicator Cluster Survey	United Nations Children's Fund
AIDS	HIV+ pregnant women receiving ARVs for PMTCT	MOH, Joint United Nations Programme on HIV/AIDS	United Nations Children's Fund
MATERNAL AND NEWBORN HEALTH			
Antenatal care	Antenatal care (at least one visit)	Demographic and Health Surveys, Multiple Indicator Cluster Survey, Reproductive Health Survey, Family Health Survey	United Nations Children's Fund
	Antenatal care (4 or more visits)	Demographic and Health Surveys, Multiple Indicator Cluster Survey, Reproductive Health Survey, Family Health Survey	United Nations Children's Fund/ World Health Organization
IPTp for malaria	Intermittent preventive treatment for pregnant women	Demographic and Health Surveys, Multiple Indicator Cluster Surveys	United Nations Children's Fund
Neonatal tetanus protection	Neonatal tetanus protection	Demographic and Health Surveys, Multiple Indicator Cluster Survey	United Nations Children's Fund/ World Health Organization
Delivery care	Skilled attendant at birth	Demographic and Health Surveys, Multiple Indicator Cluster Survey, Reproductive Health Survey, Family Health Survey	United Nations Children's Fund
C-section	C-section rate	Demographic and Health Surveys, Multiple Indicator Cluster Survey, Reproductive Health Survey, Family Health Survey	United Nations Children's Fund
Postnatal visit	Postnatal visit for mother	Demographic and Health Surveys, Multiple Indicator Cluster Survey, Reproductive Health Survey, Family Health Survey	Special data analysis by SNL
	Postnatal visit for baby	Demographic and Health Surveys, Multiple Indicator Cluster Survey, Reproductive Health Survey, Family Health Survey	Special data analysis by SNL

Breast-feeding	Early initiation of breast-feeding	Demographic and Health Surveys, Multiple Indicator Cluster Survey, NS	United Nations Children's Fund
Contraceptive prevalence	Contraceptive prevalence rate	Demographic and Health Surveys, Multiple Indicator Cluster Survey, Reproductive Health Survey, Family Health Survey	United Nations Children's Fund
Unmet need	Unmet need for family planning	Demographic and Health Surveys, National Survey	United Nations Population Fund
MATERNAL AND NEWBORN HEALTH			
Water	Use of improved drinking water sources	United Nations Children's Fund/ World Health Organization	United Nations Children's Fund/ World Health Organization
Sanitation	Use of improved sanitation facilities	United Nations Children's Fund/ World Health Organization	United Nations Children's Fund/ World Health Organization
POLICIES, SYSTEMS AND EQUITY			
Policies	International code of marketing of breast milk substitutes	United Nations Children's Fund/ World Health Organization	Special data compilation by World Health Organization
	New ORS formula and zinc for management of diarrhoea	World Health Organization/ United Nations Children's Fund/ Zinc task force	Special data compilation by World Health Organization
	Community treatment of pneumonia with antibiotics	United Nations Children's Fund/ World Health Organization	Special data compilation by World Health Organization
	IMCI adapted to cover newborns 0-1 week of age	World Health Organization	Special data compilation by World Health Organization
	Costed implementation plan for MNCH available	World Health Organization	Special data compilation by World Health Organization
	Midwives authorised to administer a core set of life saving interventions	World Health Organization	Special data compilation by World Health Organization
	Maternity protection in accordance with ILO convention 183	ILOLEX	International Labor Organization
	Specific notification of maternal deaths	World Health Organization	Special data compilation by WHO
Systems	Per capita total expenditure on health	World Health Stat 2007	World Health Organization
	General government expenditure on health as % of total government expenditure	World Health Stat 2007	World Health Organization
	Out-of-pocket expenditure as % of total expenditure on health	World Health Stat 2007	World Health Organization
	Density of health workers per 1000 population	Global Atlas on Human Resources	World Health Organization
	Official development assistance to child health per child	Development Assistance Committee	London School of Health and Tropical Medicine
	Official development assistance to maternal and neonatal health per live birth	Development Assistance Committee	London School of Health and Tropical Medicine
	Availability of emergency obstetric care services	EMOC Assessments, Health Information System	Averting maternal death and disability/United Nations Children's Fund
Equity	Coverage gap by wealth quintile	Multiple Indicator Cluster Survey/Demographic and Health Surveys	Special data analysis by World Health Organization
	Coverage gap (%)	Multiple Indicator Cluster Survey/Demographic and Health Surveys	Special data analysis by World Health Organization
	Ratio poorest/wealthiest	Multiple Indicator Cluster Survey/Demographic and Health Surveys	Special data analysis by World Health Organization
	Difference poorest - wealthiest (%)	Multiple Indicator Cluster Survey/Demographic and Health Surveys	Special data analysis by World Health Organization

Annex C

Defining current *Countdown* indicators

NO.	INDICATOR NAME	INDICATOR DEFINITION	NUMERATOR	DENOMINATOR
NUTRITION				
1	Exclusive breast-feeding (<6 months)	Percentage of infants aged 0-5 months who are exclusively breastfed	Number of infants aged 0-5 months who are exclusively breastfed	Total number of infants aged 0-5 months surveyed
2	Breast-feeding plus complementary food (6-9 months)	Percentage of infants aged 6-9 months who are breastfed and receive complementary food	Number of infants aged 6-9 months who are breastfed and receive complementary food	Total number of infants aged 6-9 months surveyed
3	Vitamin A supplementation coverage	Percentage of children aged 6-59 months who received at least one high dose vitamin A supplement in the last six months (and at least two doses in the last 12 months).	Number of children aged 6-59 months receiving at least one high dose vitamin A supplement in the 6 months prior to the survey (and atleast two doses in the last 12 months).	Total number of children aged 6-59 months
CHILD HEALTH				
4	Measles immunisation coverage	Percentage of children aged 12-23 months who are immunized against measles	Number of children aged 12-23 months who are immunized against measles	Total number of children aged 12-23 months surveyed
5	DPT3 immunisation coverage	Percentage of children aged 12-23 months who received 3 doses of DPT vaccine	Number of children aged 12-23 months receiving 3 doses of DPT vaccine	Total number of children aged 12-23 months surveyed
6	HiB3 immunisation coverage	Percentage of children aged 12-23 months who received 3 doses of HiB vaccine.	Number of children aged 12-23 months receiving 3 doses of Haemophilus influenzae type B (HiB) vaccine	Total number of children aged 12-23 months surveyed
7	Oral rehydration and continued feeding	Percentage of children aged 0-59 months with diarrhoea receiving oral rehydration and continued feeding	Number of children aged 0-59 months with diarrhoea in the 2 weeks prior to the survey receiving oral rehydration therapy (oral rehydration solution and/or recommended homemade fluids or increased fluids) and continued feeding	Total number of children aged 0-59 months with diarrhoea in the 2 weeks prior to the survey
8	Insecticide-treated net coverage	Percentage of children aged 0-59 months sleeping under an insecticide-treated mosquito net	Number of children aged 0-59 months sleeping under an insecticide-treated mosquito net the night before the survey	Total number of children aged 0-59 months surveyed
9	Antimalarial treatment	Percentage of children aged 0-59 months with fever receiving appropriate antimalarial drugs	Number of children aged 0-59 months reported to have fever in the 2 weeks prior to the survey who were treated with an appropriate antimalarial within 24 hours of the onset of symptoms	Total number of children aged 0-59 months reported to have fever in the 2 weeks prior to the survey
10	Prevention of mother-to-child transmission of HIV	Percentage of all HIV-positive pregnant women who received a complete course of ART prophylaxis	Number of HIV-positive pregnant women given ART prophylaxis in the preceding 12 months	Estimated number of HIV-positive pregnant women giving birth in the preceding 12 months[a]

11	Careseeking for pneumonia	Percentage of children aged 0-59 months with suspected pneumonia taken to an appropriate health provider	Number of children aged 0-59 months with suspected pneumonia in the 2 weeks prior to the survey who were taken to an appropriate health provider	Total number of children aged 0-59 months with suspected pneumonia in the 2 weeks prior to the survey
12	Antibiotic treatment for pneumonia	Percentage of children aged 0-59 months with suspected pneumonia receiving antibiotics	Number of children aged 0-59 months with suspected pneumonia in the 2 weeks prior to the survey receiving antibiotics	Total number of children aged 0-59 months with suspected pneumonia in the 2 weeks prior to the survey
MATERNAL AND NEWBORN HEALTH				
13	Contraceptive prevalence	Proportion of women currently married or in union aged 15-49 that are using (or whose partner is using) a contraceptive method (either modern or traditional)	Number of women currently married or in union aged 15-49 years that are using (or whose partner is using) a contraceptive method (either modern or traditional)	Total number of women aged 15-49 years that are currently married or in union
14	Unmet need for family planning	Proportion of women that are currently married/in union that have an unmet need for contraception	Number of women that are currently married or in union that are fecund and want to space their births or limit the number of children they have and that are not currently using contraception	Total number of women interviewed that are currently married or in union
15	Antenatal care (at least one visit)	Percent of women attended at least once during pregnancy by skilled health personnel for reasons related to the pregnancy in the X years prior to the survey	Number of women attended at least once during pregnancy by skilled health personnel for reasons related to the pregnancy in the X years prior to the survey	Total number of women who had a live birth occurring in the same period
16	Antenatal care (4 or more visits)	Percent of women attended at least four times during pregnancy by any provider (skilled or unskilled) for reasons related to the pregnancy in the X years prior to the survey	Number of women attended at least four times during pregnancy by any provider (skilled or unskilled) for reasons related to the pregnancy in the X years prior to the survey	Total number of women who had a live birth occurring in the same period
17	Neonatal tetanus protection	Percentage of newborns protected against tetanus	Number of mothers with a live birth in the year prior to the survey who received 2 does of TT within the appropriate interval prior to the infant's birth	Total number of women aged 15-49 with a live birth in the year prior to the survey
18	Intermittent preventive treatment for malaria	Proportion of women who received intermittent preventive treatment for malaria during their last pregnancy	Number of women at risk for malaria who received two or more doses of a recommended antimalarial drug treatment to prevent malaria during their last pregnancy that led to a live birth	Total number of women surveyed at risk for malaria who delivered a live baby within the last two years.
19	Skilled attendant at delivery	Percentage of live births attended by skilled health personnel (doctor, nurse, midwife or auxiliary midwife)	Number of live births to women aged 15-49 years in the X years prior to the survey attended during delivery by skilled health personnel (doctor, nurse, midwife or auxiliary midwife)	Total number of live births to women aged 15-49 years in the X years prior to the survey[b]

20	C-section rate	Percentage of live births delivered by Caesarean section	Number of live births to women aged 15-49 years in the X years prior to the survey delivered by Caesarean section	Total number of live births to women aged 15-49 years in the X years prior to the survey
21	Early initiation of breast-feeding	Percentage of newborns put to the breast within one hour of birth	Number of women with a live birth in the X years prior to the survey who put the newborn infant to the breast within 1 hour of birth	Total number of women with a live birth in the X years prior to the survey[c]
22	Postnatal care for mothers[d]	Percentage of mothers who received postnatal care visit within two days of childbirth	Number of women who received a postnatal care visit within two days of childbirth (regardless of place of delivery)	Total number of women aged 15-49 years with a last live birth in the x years prior to the survey (regardless of place of delivery)
23	Postnatal care for babies who were born at home	Percentage of babies born outside a facility who received a postnatal care visit within two days of birth.	Number of babies born outside of a health facility who received a postnatal care visit within two days of birth[e]	Total number of last-born babies born outside of a health facility in the x years prior to the survey[f]
WATER AND SANITATION				
24	Use of improved drinking water sources	Percentage of the population using improved drinking water sources	Number of household members living in households using improved drinking water sources (including household connections, public standpipe, borehole, protected dug well, protected spring, rainwater collection)	Total number of household members in households surveyed
25	Use of improved sanitation facilities	Percentage of the population using improved sanitation facilities	Number of household members using improved sanitation facilities (including connection to a public sewer, connection to a septic system, pour-flush latrine, simple pit latrine, or a ventilated improved pit latrine)	Total number of household members in households surveyed

Notes

a. More details on the HIV estimates methodology can be found at www.unaids.org.
b. This reference period may differ between surveys.
c. This reference period may differ between surveys.
d. As used for postnatal care in the continuum of care figure.
e. Information on postnatal care for babies who were born in health facilities is not collected because it is assumed by DHS that mothers would not know whether or not their newborn received specific aspects of immediate care, for example early bathing.
f. This denominator differs from the all births denominator used for the indicator for postnatal care for mother. Therefore, the coverage for mother and baby cannot be compared. Data for both mothers and babies that is comparable (home birth denominator) is available for only four countries.

Annex D

Definitions of policy and health systems indicators

NO.	POLICY	INDICATOR DEFINITION	CRITERIA FOR RANKING	2007 RESULTS (68 Countries)	2005 RESULTS (60 Countries)
POLICIES					
1	Midwives authorized to administer a core set of life saving interventions	National policy adopted authorizing midwives to administer the following: a. perenteral antibiotics b. perenteral oxytocics c. perenteral anticonvulsants d. manual removal of placenta e. removal of retained products of conception f. assisted vaginal delivery g. newborn resuscitation	Yes: midwives authorized for all tasks Partial: midwives authorized for some tasks No: midwives not authorized for any of these tasks	Yes: 27 Partial: 25 No: 5 No data: 11	
	Specific notification of maternal deaths	National policy adopted requiring health professionals to notify any maternal death	Yes: national policy adopted and implemented Partial: national policy adopted but no systematic implementation No: no national policy	Yes: 23 Partial: 14 No: 18 No data: 13	
	IMCI adapted to cover newborns 0-1 week of age	National IMCI guidelines adapted to cover major conditions affecting newborn survival in the first week of life generic guidelines 2006	Yes: National IMCI guidelines adapted and in line with WHO generic guidelines 2006 Partial: National IMCI guidelines adapted but not fully in line with WHO generic guidelines 2006 No: National IMCI guidelines not adapted	Yes: 39 Partial: 3 No: 21 No data: 5	
	New ORS formula and zinc for management of diarrhoea	National policy guidelines adopted on management of diarrhoea with low osmolarity ORS and zinc supplements	Yes: low osmolarity ORS and zinc supplements in national policy Partial: low osmolarity ORS or zinc supplements in national policy No: low osmolarity ORS and zinc supplements not promoted in national policy	Yes: 34 Partial: 17 No: 10 No data: 7	Yes: 6 Partial: 17 No: 36 No data: 1

	Community management of pneumonia with antibiotics	National policy adopted authorizing community health workers to identify and manage pneumonia with antibiotics	Yes: community health workers authorized to give antibiotics for pneumonia Partial: no national policy but some implementation of community-based management of pneumonia No: no national policy and no implementation	Yes: 18 Partial: 11 No: 31 No data: 8	Yes: 16 Partial: 2 No: 41 No data: 1
	Maternity protection in accordance with ILO Convention 183	ILO Convention 183 ratified by the country	Yes: ILO Convention 183 ratified Partial: ILO Convention 183 not ratified but previous maternity convention ratified No: No ratification of any maternity protection convention	Yes: 0 Partial: 21 No: 47 No data: 0	
	International Code of Marketing of Breast milk Substitutes	National policy adopted on all provisions stipulated in the International Code of Marketing of Breast milk Substitutes	Yes: all provisions of the International Code adopted in legislation Partial: voluntary agreements or some provisions of the international Code adopted in legislation No: no legislation and no voluntary agreements adopted in relation to the International Code	Yes: 25 Partial: 28 No: 13 No data: 2	Yes: 15 Partial: 39 No: 3 No data: 3
FINANCIAL FLOWS AND HUMAN RESOURCES					
	Costed implementation on plan for maternal, newborn and child health	National plan or plans for scaling up maternal, newborn and child health interventions available and costed	Yes: costed plan or plans to scale up maternal, newborn and child health interventions available at national level Partial: costed plan available for either maternal and newborn health or child health No: no costed implementation plan for MNCH available	Yes: 31 Partial: 18 No: 14 No data: 5	Data obtained from expert opinion in countries Variability between countries in interpretation of the indicator with respect to the scope of costing (programme costs versus programme and recurrent costs) and the time period covered by the plan
	Per capita total expenditure on health (at international US$ rate)		Numerical		World Health Statistics 2007
	Per capita expenditure on health as % of total government expenditure		Numerical		World Health Statistics 2007

	Out-of-pocket expenditure as % of total expenditure on health		Numerical		World Health Statistics 2007
	Density of health workers per 1000 population	Total number of physicians, nurses and midwives relative to the overall population	Numerical Minimum Standard: 2.5 health workers per 1000 people needed to deliver basic maternal and child health services	Above minimum standard: 14 Below minimum standard: 54	WHO Global atlas of the health work force (http://www.who.int/globalatlas/default.asp)
HEALTH SYSTEM					
	Availability of Emergency Obstetric Care (EmOC) Services % of recommended minimum	Minimum recommended is five EmOC facilities per 500,000 people. This should include 1 Comprehensive and 4 Basic Emergency Obstetric Care facilities. The breakdown of Comprehensive and Basic by population and geographic area is available in country Assessment Reports, but not included in the *Countdown*.	Availability is expressed as a percentage of the minimum acceptable number of EmOC facilities. The minimum acceptable number of EmOC facilities (C-EmOC and B-EmOC) is calculated by dividing the population by 500,000 and multiplying by 5. The percentage of recommended minimum number of EmOC facilities is calculated by dividing the number of functioning EmOC facilities by the recommended number and multiplying by 100. To qualify as fully functioning Basic or Comprehensive EmOC a facility must provide a standard set of signal functions.	27 countries had comparable data from EmOC Assessments. 2 of these countries had additional updates from national inventory or health system reports Of the 27 countries with data: • 4 had over 80% of the recommended minimum number of EmOC facilities. • 7 countries had 50-79% • 14 countries had 25-49% • 2 countries had 14-21% 18 additional countries have data from EmOC Assessments for specific geographic regions or using different criteria. 23 countries had no data	UNICEF/AMDD data base of Emergency Obstetric Care Assessments, Bangladesh National EmOC Inventory, HIS for Nepal and Bangladesh for updates

Annex E

Countdown to 2015 measuring equity in maternal, newborn and child health through the coverage gap index: technical notes

1. Coverage indicators

The measure of equity constructed for this report is called the 'coverage gap index'. For guidance on interpreting the coverage gap graphs in the country profiles, please see section 4 below. The coverage gap index combines information on four intervention areas across the Continuum of Care: family planning, maternal and newborn care, immunisation and treatment of sick children. Data from Demographic and Health Surveys and Multiple Indicator Cluster Survey on eight coverage indicators in these four intervention areas was used to construct the coverage gap index. Table E1 defines the indicators.

Table E1. Coverage gap index indicator definitions

No.	Indicator	Definition
1a.	Need for family planning satisfied (FP)	Percentage of currently married women who say that they do not want any more children or that they want to wait two or more years before having another child, and are using contraception
1b.	Contraceptive prevalence rate (CPR)	Percentage of women currently married or in union aged 15–49 that are using (or whose partner is using) a modern contraceptive method
2.	Antenatal care (ANC)	Percentage of women attended at least once during pregnancy by skilled health personnel for reasons related to the pregnancy in the three years prior to the survey
3.	Skilled birth attendance (SBA)	Percentage of live births in the three years prior to the survey attended by skilled health personnel (doctor, nurse, midwife or auxiliary midwife)
4.	Measles vaccination (MSL)	Percentage of children aged 12–23 months who are immunized against measles
5.	Diphtheria, pertussis and tetanus vaccination (three doses of combined diphtheria/pertussis/tetanus vaccine)	Percentage of children aged 12–23 months who received three doses of DPT vaccine
6.	BCG vaccination	Percentage of children age 1–23 months currently vaccinated against BCG
7.	Oral rehydration therapy (ORT)	Percentage of under-five children with diarrhoea in the last two weeks who received ORT (ORS packets, recommended home solution or increased fluids) and continued feeding
8.	Treatment of acute respiratory infection (ARI)	Percentage of children aged 0–59 months with suspected pneumonia (cough and dyspnoea) who sought care from a health provider

2. Calculation of the coverage gap index

The coverage gap index was calculated using the formula:

$$100 \text{ per cent} - ([ORT+ARI]/2 + FP + [SBA+ANC]/2 + [MSL+2*DPT3+BCG]/4)/4$$

Each of the four intervention areas is given equal weight.

Note: If need satisfied for family planning (FP) was not available, the contraceptive prevalence rate (CPR) among married women 15–49 years was used to estimate the need satisfied according to the following formula: FP = CPR*1.07 +27. This formula was derived from analysis of more than 100 Demographic and Health Surveys with data on both unmet need and contraceptive prevalence rate.

3. Wealth index

The coverage gap index was calculated for the total sample for each country and data point. To measure equity, one needs to divide the total sample into groups by socioeconomic status. The Demographic and Health Surveys and Multiple Indicator Cluster Survey do not collect information on income and expenditure, which could be used to divide the sample into socioeconomic groups. However, the Demographic and Health Surveys and Multiple Indicator Cluster Survey do collect information on asset ownership and availability of basic household services. For the purposes of analyzing socioeconomic inequalities in health, it has been shown that using such variables to develop an index of socioeconomic status leads to similar results as using income and/or expenditure data.[1]

For coverage of health interventions in the Demographic and Health Surveys, we used data from an analysis conducted by Gwatkin and colleagues (2005). They used information in Demographic and Health Surveys on household assets and access to basic household services to construct a wealth index.[2] The index was used to

rank households and then divide the household population into quintiles. Results from recent Demographic and Health Surveys results were also included. For Multiple Indicator Cluster Surveys, we used data provided by UNICEF through the MICS website (http://childinfo.org) for those countries and data points for which a wealth index had been constructed.[3]

4. Explanation and interpretation of coverage gap graph

The x-axis shows the wealth quintiles; from the poorest 20 per cent to the best-off 20 per cent. The y-axis shows the coverage gap, which is measured as a percentage as explained in section 2. No percentage gap implies maximum coverage for all interventions. A 20 per cent gap means that the coverage as calculated in the index is 80 per cent. Given that the gap is measured as maximum coverage minus actual coverage, a low figure is preferable to a high figure.

The difference between the poorest and richest quintiles and shape of the line show the patterns of inequality within a country. First, the greater the inequality between the poorest and richest quintiles, the steeper the downward slope. With a few exceptions, the coverage gap line declines as one moves from the poorest quintile to the best-off quintile in the country profiles. A horizontal line indicates relative equity, which was observed in some of the surveys in Central Asian Republics.

The shape is equally important.[4] The way the lines are curved can illustrate where inequities are concentrated. There are three main patterns. First, bottom inequity occurs when the poorest lag behind. Second, top inequity occurs when the richest do substantially better than the other quintiles. The intermediate pattern is more or less linear. The coverage gap increases by a similar fraction as one goes from the richest to the poorest quintile.

The shape of the coverage gap line can inform policies to address inequities. Many country graphs have relatively straight downward-sloping lines from the poorest to the best-off quintile, which would suggest that efforts should be made to increase the overall coverage of interventions, but with special attention paid to the poor. A top inequity pattern, as illustrated in the Burkina Faso and Niger country profiles, with a relatively small coverage gap among the best off 20 per cent, suggests that inequities would be reduced by raising the overall population coverage of interventions.

A downward slope from the poorest quintile to the second-poorest quintile and then a more or less straight line (or at least less steep) to the best-off quintile would be an example of bottom inequity, as shown in the Brazil country profile. Such a pattern indicates that inequities are concentrated among the poorest and that the most appropriate policy response would be to target that particular group.

For coverage gap graphs with data from two or more surveys, it can also be used to analyze trends, both by overall levels by wealth quintile and patterns between quintiles. A good example of the change from top inequity to linear pattern to bottom inequity as the overall coverage gap is reduced over time is Nepal between 1996 and 2006.

5. Explanation and interpretation of coverage gap ratio

The 'coverage gap ratio' was derived by dividing the coverage gap for the poorest quintile with that of the best-off quintile. A ratio of 1 indicates equity in coverage in terms of comparing those two quintiles (there could still be inequities with regards to the three middle quintiles). A ratio of less than 1 indicates a lower coverage gap (higher coverage of interventions) among the poor, while a ratio of more than 1 indicates a lower coverage gap among the best-off. The higher the ratio, the more inequity there is in coverage of interventions.

6. Explanation and interpretation of coverage gap difference

The difference is derived by subtracting the coverage gap of the best-off quintile from that of the poorest quintile. A positive difference implies that the coverage gap is larger among the poor; that is, coverage of interventions is lower among the poor. A relatively large poorest–best-off difference can occur in all patterns: top or bottom inequality or linear patterns. A small difference tends to occur in countries with smaller coverage gaps.

Notes:

[1] Wagstaff and Watanabe 2003.

[2] Gwatkin, Rutstein, Johnson, and others 2005.

[3] For more information on the calculation of the wealth index from DHS and MICS data, please refer to Rutstein and Johnson 2004.

[4] Victora, Fenn, Bryce and Kirkwood 2005.

Annex F

Countdown priority countries considered to be malaria endemic

Table F1. Plasmodium falciparum transmission risk in Countdown priority countries. This table indicates which of the Countdown priority countries are malaria endemic – defined as having a documented risk of Plasmodium falciparum transmission nationwide and throughout the year – and, of the remainder, which countries have subnational risk, mostly p. vivax, no risk or very limited risk.

Malaria endemic countries (n=45)	Countries with subnational risk of Plasmodium falciparum transmission (n=14)	Countries with mostly p. vivax, no Plasmodium falciparum or very limited risk (n=9)
Afghanistan	Bolivia	Azerbaijan
Angola	Brazil	Egypt
Bangladesh	China	Guatemala
Benin	Haiti	Iraq
Botswana	India	Korea Democratic Republic of
Burkina Faso	Indonesia	Lesotho
Burundi	Mauritania	Mexico
Cambodia[a]	Nepal	Morocco
Cameroon	Peru	Turkmenistan
Central African Republic	Philippines	
Chad	South Africa	
Congo	Swaziland	
Congo Democratic Republic of the	Tajikistan	
Cote d'Ivoire	Yemen	
Djibouti		
Equatorial Guinea		
Eritrea		
Ethiopia[a]		
Gabon		
Gambia, The		
Ghana		
Guinea		
Guinea-Bissau		
Kenya[a]		
Lao People's Democratic Republic		
Liberia		
Madagascar		
Malawi		
Mali		
Mozambique		
Myanmar[a]		
Niger		
Nigeria		
Pakistan[a]		
Papua New Guinea[a]		
Rwanda		
Senegal[a]		
Sierra Leone		
Somalia		
Sudan[a]		
Tanzania, United Republic of		
Togo		
Uganda		
Zambia		
Zimbabwe		

Note:
a. Countries having lower risk of Plasmodium falciparum transmission in identifiable areas (such as certain urban centres), but with highest prevention strategy still recommended nationwide.

Source: World Health Organization International Travel and Health Report

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