This chapter begins with a description of how the 60 priority *Countdown* countries were selected. In the second section we introduce five major programmatic components within newborn and child survival, and identify the indicators that will be used to track coverage for the specific interventions within each. In the third section we introduce developmental efforts to define indicators and tracking mechanisms for three important determinants of coverage: (1) policies and political commitment; (2) human resources; and (3) financial flows to newborn and child survival. Finally we introduce the 2005 country profile template and explain the information it contains.

**Selecting the 60 priority countries**

In an ideal world, all countries would track deaths and intervention coverage among children. In today’s world, far from ideal, the *Countdown* seeks to track coverage for a subset of countries that represent the greatest burden in child mortality.

The 60 priority countries represent those with the highest numbers and/or rates of under-five mortality. They were selected from two lists of all developing countries. The first list rank-ordered countries by the total number of child deaths in 2004. 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 (U5MR). Any country not already selected from the first list, but with a rate of 90 under-five deaths per thousand live births or higher was selected from this 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 which are located in sub-Saharan Africa, were included in the *Countdown*. The 60 priority countries are shown in Figure 2; a list that includes country-specific U5MRs and ranks is presented in Chapter 3 (Table 1).

Together, the 60 *Countdown* priority countries represent almost 500 million children – over 75% of all children under five alive in 2004. They also represent 94% of all deaths among children under five in that year.
Programmatic aims and associated coverage indicators

A “good” indicator for monitoring coverage is one that provides a valid measure of whether the target population for a given intervention receives that intervention at the time it is needed and biologically effective. Each coverage indicator must therefore be directly related to a programmatic aim and a specific intervention.

We have grouped newborn and child survival interventions into five component areas for the purpose of global Countdown monitoring: (1) nutrition interventions including breastfeeding; (2) vaccination; (3) other prevention interventions; (4) case management of illness; and (5) newborn health. In this section we summarize the programmatic aims and priority interventions within each component area, and identify the associated coverage indicators. Related policies tracked by the Countdown in 2005 are also identified where appropriate.

Most of the Countdown coverage indicators have already been agreed to at a joint UNICEF/WHO meeting in June 2004 and incorporated into the questionnaires for the 2005-2006 round of the UNICEF-supported Multiple Indicator Cluster Surveys (MICS) and the USAID-supported Demographic and Health Surveys (DHS). The list of consensus indicators for child survival is available in Annex 1.

Some indicators have not yet been fully developed, field tested or agreed upon. For the purpose of the Countdown, a coverage indicator is considered fully available once it has been incorporated into the MICS and DHS survey questionnaires, thereby ensuring that country-level estimates will be widely available.

Nutrition, including breastfeeding

Undernutrition is an underlying cause of more than half of all child deaths worldwide. Undernourished children have lowered resistance to infection, they are more likely to die from common childhood ailments like diarrhoeal diseases and respiratory infections, and for those who survive, frequent illness can have longer-term detrimental effects on healthy growth and development.

Figure 2: The 60 Countdown countries include those with more than 50,000 annual deaths among children under age five or an under-five mortality rate of 90 per thousand live births or greater in 2004.

Countdown country profiles will include three measures of nutritional status abstracted from The State of the World’s Children. They are the proportion of children:

- with low birth weight (infants who weigh less than 2,500g);
- who are stunted (moderate & severe – below minus 2 standard deviations from median height-for-age of reference population); or
- who are underweight (moderate & severe – below minus 2 or 3 standard deviations from median weight-for-age of reference population).  

There are many contributors to childhood undernutrition, including distal determinants such as poverty, low levels of education, and poor access to health services. At the individual level, the most important intervention is educating families and supporting good practices such as exclusive breastfeeding to six months of age and the timely introduction of appropriate complementary foods. The Countdown indicators in the nutritional area move one step beyond intervention coverage (e.g., exposure to educational interventions) to assess behavioural outcomes. Thus the indicators in this case are the proportion of children who are exclusively breastfed up to six months, who are still being breastfed at six to nine months in addition to receiving appropriate complementary foods, and who are still breastfeeding at age 20-23 months. A fourth indicator, timely initiation of breastfeeding (within one hour), is addressed below in the section on newborn health.

A coverage indicator related to the Baby-Friendly Hospital Initiative, which promotes early and exclusive breastfeeding through support from health providers and community members, has not been included in the 2005 Countdown Report. Measures of exposure to baby-friendly interventions are not currently included in the standard household survey protocols. This may be considered for inclusion as a policy indicator in future reports.

A key policy support for child nutrition is national endorsement of the International Code of Marketing of Breastmilk Substitutes (International Code). This has been included in the policy section of the Countdown country profiles.

**Vaccination**

Vaccination, leading to immunization, is one of the most important and cost-effective interventions that health systems can provide. All 60 Countdown countries seek to achieve and sustain high (90%) levels of immunization coverage for five major vaccine-preventable diseases - pertussis, tuberculosis, tetanus, polio, measles and diphtheria. Vaccines to protect against these diseases are given to the child in the first year of life. Two Countdown indicators track progress in reaching children with these essential vaccines. The first is measles immunization. The second is coverage with the third dose of the combined vaccine for the prevention of diphtheria, pertussis and tetanus (DPT3). In addition, tetanus toxoid vaccine is administered to the mother before or during pregnancy to prevent maternal and neonatal tetanus, and is included as a
Countdown indicator under the section on newborn health below.

*Haemophilus influenzae* type B (Hib) is a leading cause of pneumonia and other bacterial infections among children under five years of age. An increasing number of low- and middle-income countries are incorporating Hib vaccine into their national immunization programmes. *Countdown* tracking should show increases over time in coverage rates for children under one year of age who received three doses of Hib vaccine.

**Other prevention interventions**

Four additional prevention interventions have been included in the 2005 *Countdown* report: vitamin A supplementation, interventions to improve access to safe drinking water and sanitation, and the use of insecticide-treated nets (ITNs) to prevent malaria. Each is described briefly below. Coverage indicators for other proven preventive interventions may be considered in future years.

**Vitamin A supplementation.** Vitamin A is essential for the functioning of the immune system. A Vitamin A-deficient child faces blindness as well as a 25% greater risk of dying from a range of childhood ailments such as measles, malaria or diarrhoea. Vitamin A enhances a child’s chances of survival, reduces the severity of childhood illnesses, eases the strain on health systems and hospitals, and contributes to the well being of children, their families and communities.

Vitamin A is found in milk, liver, eggs, red and orange fruits, red palm oil and green leafy vegetables. In some parts of the world, food staples like sugar and oils are fortified with vitamin A and other micronutrients. Nevertheless, at least 100 million of the world’s under-fives are vitamin A deficient and the majority of these children live in countries with the highest burden of under-five deaths.

Providing young children with two high-dose vitamin A capsules a year is a safe, cost-effective, efficient strategy for eliminating vitamin A deficiency and improving child survival. Among the 60 child survival priority countries, 56 have national vitamin A supplementation programs. The coverage indicator used in the *Countdown* is the proportion of children aged six to 59 months who received at least one dose of Vitamin A. Over time, the aim is to refine the *Countdown* indicator to assess the proportion of children who receive two doses each year.

**Water and sanitation.** Access to safe drinking water is not only a fundamental need and human right, it also has considerable health and economic benefits to households and individuals. For *Countdown* purposes, a lack of access to safe drinking water is important because it contributes to deaths and illness, especially in children.
Lack of sanitation is another major public health problem that causes disease, sickness and death, especially among children. Dehydration from diarrhoea kills about 2.2 million people each year, most of them children under five. Improvements in water supply, hygiene and sanitation have an estimated potential to reduce the incidence of diarrhoea by about one fifth and the number of deaths due to diarrhoea by more than half.5,6

**Insecticide-treated nets for the prevention of malaria.** Trials have shown that use of insecticide-treated nets (ITNs) can reduce all-cause mortality among children under five, either by killing mosquitoes or preventing them from biting.7,8 Countries with endemic malaria are working hard to increase ITN use among children as one part of their strategy to reduce child deaths.

The **Countdown coverage indicator** is the proportion of children reported to have slept under an insecticide-treated net the night previous to the survey interview. This is also an MDG indicator and was reconfirmed in the WHO/UNICEF consensus meeting (see Annex 1) as well as by the Roll Back Malaria Monitoring and Evaluation Reference Group (MERG). Data on this indicator are being collected in both the MICS and DHS, as well as in malaria-specific household surveys.

**Newborn Health**

About 40% of all children who die each year do so in the first month of life. Among these four million newborn deaths, two-thirds die in the first week, and two-thirds of these in the first 24 hours.9

The 2005 Lancet series on neonatal mortality defined a set of efficacious interventions to prevent newborn deaths.10 One is giving

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**Coverage indicators**

**NEWBORN HEALTH**

11. Skilled attendant at delivery
12. Neonatal tetanus protection
13. Timely initiation of breastfeeding
14. Postnatal visit within three days of delivery
15. Prevention of mother-to-child transmission of HIV
tetanus toxoid vaccine to the mother before or during pregnancy. Others include tasks that can be performed either by the family or by a trained caregiver, including immediate skin-to-skin contact and the initiation of breastfeeding within one hour of birth, drying and wrapping the baby, and proper cord care. In addition, receiving a postnatal check up by a trained worker at home or at the clinic within the first three days is important for assessing the health and providing any necessary care to the young infant.\(^1\)

MDG-6 includes the goal of reversing the spread of HIV/AIDS.\(^1\) The UNGASS Declaration on HIV/AIDS defined the target for the prevention of mother-to-child transmission of HIV (PMTCT) as reducing the proportion of infants infected with HIV by 20% by 2005, and 50% by 2010.\(^1\) Interventions include provision of information, counselling and other HIV prevention services to pregnant women during antenatal care contacts, and providing HIV-positive mothers with effective treatment to reduce the transmission of HIV to their children.\(^1\) In this first Countdow report we include data on the proportion of all HIV-positive pregnant women who received anti-retroviral therapy (ART) prophylaxis.\(^3\) This indicator uses the estimated number of all HIV positive pregnant women (as estimated by Spectrum) and the reported number of HIV positive pregnant women given ART prophylaxis. Data come from the PMTCT Report Card .

Panel 4: Newborn Health Indicators

Measuring progress in newborn health requires a set of valid indicators. A recent review of household survey protocols\(^4\) identified a short list of indicators that provide useful information on household care practices or health worker interventions related to newborn health. These indicators are:

- % low birth weight
- % of births attended by a skilled attendant
- % of newborns protected at birth from neonatal tetanus
- % of newborns breastfed within one hour of birth

The Healthy Newborn Partnership working group on newborn health indicators has suggested a number of additional indicators for monitoring progress in implementation of programmes and activities to improve newborn outcomes. In support of this work, MACRO International has done an initial testing of these indicators in Save the Children programme sites. The indicators tested include the four listed above and used in the Countdown report as well as the proportion of newborns receiving a check-up within three days after birth, use of a safe delivery kit and use of a clean/new instrument for cutting the cord. The MACRO report provides new insights for the selection of indicators, and will inform future Countdown monitoring efforts.

Several of the Countdown indicators for newborn health are still in development and field-testing, and have not yet been incorporated into major household survey protocols (MICS and DHS). Panel 4 provides a summary of this developmental work.
Case management of childhood illness
The three major diseases that lead to death among children after the first month of life are pneumonia, diarrhoea, and in some geographic areas, malaria.15 Currently recommended interventions for the management of these diseases as well as nutrition are delivered via the Integrated Management of Childhood Illness (IMCI) strategy.16 Achieving high coverage with the recommended treatment interventions would prevent the majority of child deaths from these causes.17 The current treatment guidelines are listed below, and accompanied by the relevant coverage indicator(s) to be used in the Countdown.

**Pneumonia**
*Treatment guidelines:* A child who has a cough and fast or difficult breathing may have pneumonia and should be taken to a trained health care provider. If these clinical signs are confirmed, the child should be given an antibiotic and the caregiver instructed on how to complete the full dose, and to return for follow-up and reassessment if the child does not improve.

*Coverage indicator:* Proportion of children with cough and fast or difficult breathing who report that they received an antibiotic. This indicator was included in the standard MICS and DHS surveys only in 2005, so as a proxy indicator the Countdown will also report the proportion of children with cough and fast or difficult breathing who were taken to a trained health care provider for care.

**Diarrhoea**
*Treatment guidelines:* A child who has diarrhoea should be given oral rehydration therapy (oral rehydration salts solution or an appropriate household solution) as defined in the national policy in order to prevent dehydration, and should continue to be fed throughout the episode.

*Coverage indicator:* Proportion of children with diarrhoea receiving oral rehydration and continued feeding.

**Malaria**
*Treatment guidelines:* A child living in an area endemic for malaria who has a fever should be assumed to have malaria, and a treatment course of the nationally-recommended first-line antimalarial should be started within 24 hours of fever onset.

*Coverage indicator:* Proportion of children under five years old with fever in last 2 weeks who received antimalarial treatment according to national policy within 24 hours from onset of fever.
Tracking key determinants of coverage: Work in progress

As shown in Figure 1 (page 16), the Countdown seeks to extend global monitoring to a limited number of indicators of broader systems issues that play a major role in determining coverage levels at country level. The choice of these three areas reflected assumptions made by the Countdown Programme Committee about the most important factors determining coverage levels at country level; in later meetings the Committee has discussed the need to add community mobilization as a fourth determinant (Figure 3).

Countdown technical working groups were formed in early 2005 to assess options and issues related to tracking for each of three determinants of coverage: (1) policies and political commitments; (2) health systems with a focus on human resources; and (3) financial flows. Brief summaries are presented below; more detailed progress reports from two of the three groups are available in Annex 2.

Policies and political commitment

Effective policies provide the foundation for programmatic efforts, although adoption of a policy does not guarantee its implementation. The 2005 Report includes information on a small number of policies selected on the basis of their relevance to essential programmatic action. Long-standing policies that have already been adopted by all or most countries have not been included. The focus is on policies that represent relatively new advances in the evidence base – their adoption signals that a country has considered the evidence and agreed that the policy will be implemented. Other policies that would be useful, but cannot easily be defined or tracked at this point, include the incorporation of specific newborn interventions into national health plans, or the availability of an overarching national plan for scaling up maternal, newborn, and child health interventions.

Figure 3: Simplified impact model for child survival guiding the choice of coverage determinants for intensified monitoring.

<table>
<thead>
<tr>
<th>Policies &amp; political commitment</th>
<th>Human resources</th>
<th>Financial flows</th>
<th>Community mobilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implementation</td>
<td>Coverage</td>
<td>Impact on child survival</td>
<td></td>
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Policies tracked in 2005

- International Code of Marketing of Breastmilk Substitutes adopted as national policy
- New ORS formula adopted as national policy
- Use of zinc in diarrhoea management adopted as national policy
- Hib vaccine incorporated into immunization schedule as of 31 December 2004
- Management of pneumonia in the community by trained health workers adopted as national policy.
A country’s progress in adopting each of the policies is reflected in one of three levels: “Yes”, indicating full adoption; “Partial”, indicating that there has been some progress in adopting at least part of the policy, or that the policy has been fully adopted in only some parts of the country; and “No”, meaning that no action has been taken.

Political commitment has proven more difficult to track than policies. The Working Group responsible for this area, led by Gill Walt of the London School of Hygiene & Tropical Medicine (LSHTM), has started by developing an overview of issues that arise in holding politicians to account. Over the coming two years, these and other approaches will be developed and field tested, yielding a reliable measure suitable for global tracking by the time of the 2007 Report.

**Health systems/Human resources**

Several recent reviews have highlighted the critical role of human resources in meeting the MDGs, and the many challenges that remain. Under the leadership of Andy Haines of LSHTM, one Working Group has begun to assess the specific human resource needs and issues related to child survival, with the aim of identifying indicator(s) and feasible monitoring mechanisms for use in the Countdown effort. A summary of their thinking to date is available in Annex 2. The World Health Report 2006 will be devoted to human resource issues, and will shed further light on current situation and challenges in countries.

**Financial flows**

The availability of adequate financial resources is a prerequisite for scaling up effective child survival interventions to achieve the child mortality Millennium Development Goal (MDG-4). Although the challenge of achieving universal coverage of priority interventions is more complex than simply adequate financing, insufficient funding remains, for many countries, the major factor limiting their ability to reduce child mortality. Alternative methods for tracking financial flows to child survival at national and international levels are under investigation by a Working Group led by Anne Mills of LSHTM (see Annex 2 for a summary of progress to date).

The Working Group recommended that a placeholder indicator be included in the 2005 Report. The indicator is: *per capita total expenditure on health at average exchange rate (USD) 2002*. Country-specific values for this indicator are computed by WHO to ensure comparability, and have been abstracted from the 2005 *World Health Report* for use in this document.

**Tracking improvements in equity**

Coverage rates for known and effective newborn and child survival interventions are not only low in most developing countries -- they are inequitable. Children belonging to the poorest families are consistently less likely to receive preventive and curative interventions than those from other families. The Countdown must therefore track not only national coverage rates, but also inequities in coverage within countries.
Cesar Victora and his colleagues recently published the first application of a summary measure reflecting the joint distribution of key preventive interventions in children younger than five years across wealth quintiles at country level, drawing on existing DHS surveys. This measure capitalizes on the fact that in most low-income countries a number of child-survival interventions are being implemented simultaneously. These include preventive interventions such as vaccines, insecticide-treated mosquito nets, micronutrient supplementation, nutrition counseling (breastfeeding and complementary feeding), growth monitoring, and appropriate newborn care. Additionally, health systems in most countries provide many case-management interventions, including oral rehydration therapy, antibiotics, and antimalarials. The co-coverage score, by collating information on several different child survival interventions, provides a more robust measure of inequalities than would be obtained by studying each intervention in isolation.

The Countdown will report on the proportion of children under five receiving six or more child survival interventions for the poorest and least poor quintiles of the population. The 2005 Report includes data for countries with a recent DHS survey; this will be expanded to include countries with MICS by 2007.

Data Sources

Sources of data for demographic and nutrition indicators
All data in these two sections were abstracted from tables prepared by UNICEF for The State of the Worlds Children 2006 (SOWC 2006), with the exception of the neonatal (0-27 days) mortality rate, which was abstracted from the World Health Report 2005 and some nutrition indicators which were further updates from the Progress for Children, A Report Card on Nutrition*. The two source documents provide further information on original data sources and their dates.

Epidemiological profiles
The interpretation of country-specific information on intervention coverage requires an understanding of the major causes of death. The 2005 World Health Report included regional estimates of the proportional distribution of under-five deaths by cause. In 2006, WHO plans to publish country-specific cause-of-death distributions for children under five, which will serve as a source for future Countdown reports.

In the meantime, the 2005 Countdown Report includes for each country one of five epidemiological profiles that reflect the distribution of under-five deaths characteristic of the country. Full details about how countries were grouped into one of these five patterns are available elsewhere. These charts should not be confused with country-specific cause-of-death estimates. Four of the 60 priority countries did not have enough data available to support assignment to one of the epidemiological profiles: Congo, Djibouti, Gabon and Liberia.

Sources of data for coverage indicators

Almost all of the country-specific coverage estimates included in the country profiles were abstracted from the SOWC 2006. Estimates of national immunization coverage are developed in a joint process between WHO and UNICEF, described at http://www.childinfo.org/areas/immunization/database.php. For PMTCT data was abstracted from the PMTCT Report Card. Other exceptions are noted in the text. http://www.unicef.org/uniteforchildren/knowmore/files/ufc_PMTCTreportcard.pdf

Household surveys are the primary source of data for tracking progress in maternal and child survival related indicators and the coverage estimates presented in the SOWC. 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 the collection of information on most Countdown coverage indicators.

Multiple Indicator Cluster Surveys (MICS).
The MICS is a household survey programme developed by UNICEF to assist countries in filling data gaps for monitoring the situation of children and women. It is capable of producing statistically sound data that are internationally comparable.

The MICS 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 MICS was conducted around 1995 in more than 60 countries. A second round of about 65 surveys was conducted in 2000. The 2005-2006 round of MICS was planned to provide a monitoring tool for the MDGs 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. It will now also serve as a monitoring tool for the Countdown.

MICS surveys are usually carried out by government organizations, with the support and assistance of UNICEF and other partners. Results from the different rounds of MICS surveys, as well as related technical background materials, are available at www.childinfo.org.

Demographic and Health Surveys (DHS). The USAID-supported DHS surveys have been conducted in many countries over the last 20 years. DHS surveys provide national and sub-national data on family planning, maternal and child health, child survival, HIV/AIDS/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.

Other household surveys. Many countries obtain national-level data for a range of different indicators by conducting nationally representative surveys. Results from these surveys are included in global estimates after they have been cleared by the country Government and reviewed by the quality control committee.

As shown in Figure 4, 43 of the 60 Countdown priority countries have conducted or are planning to conduct a MICS, DHS or other nationally-representative survey that includes most or all of the Countdown coverage indicators in 2005-2006, in time for updated results to be available for the 2007 Countdown report. Among the remaining 17 priority countries, UNICEF records indicate that eight conducted household surveys in 2004, some being of the “other household survey” type described above. For the purposes of the Countdown, in the future, those countries who plan to implement a household survey other than MICS or DHS should review the protocol carefully to ensure that all Countdown indicators are included and measured using the MICS/DHS survey questions. In addition, at least the six countries where no survey is currently planned (Afghanistan, Brazil, Gabon, Mexico, Myanmar and the Philippines), should begin preparations now to ensure that the Countdown coverage indicators are assessed and the results analyzed and cleared at country level in time for inclusion in the 2007 Countdown Report.

Figure 4: Countries in which a household survey measuring most or all Countdown coverage indicators has been or will be conducted in 2005-2006.

Source: Division of Policy and Planning, UNICEF. December 2005.
Estimating uncertainty for the *Countdown* coverage indicators

The 2005 Report presents point estimates, and makes no attempt to estimate precision or provide uncertainty ranges. The aim in future reports will be to include estimates of uncertainty.

Sources of information about policies

Information on country-specific policies related to child survival was obtained from staff of the UNICEF offices in the 60 priority countries in November 2005. These reports were then reviewed and confirmed with technical staff in the relevant programme area at UNICEF headquarters in New York.

Sources of data for the assessment of equity

The 2005 Report includes equity assessments only for those priority countries in which a recent DHS survey including data on family assets was available. We hope that future reports will also be able to include equity assessments drawing on MICS data.

CHAPTER 2 REFERENCES


