A Decade of Tracking Progress for Maternal, Newborn and Child Survival

The 2015 Report

Countdown to 2015

Maternal, Newborn & Child Survival

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The 2015 Report

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Contents

Foreword

Every day—in fact, hundreds of thousands of times a day—in dozens of countries around the world, events occur that on their own would seem entirely unremarkable. A pregnant woman arrives at a health centre for an antenatal care appointment. A newborn baby nurses from her mother's breast. A child cries after a vaccination injection; another coughs as he is examined for symptoms of pneumonia. A teenage girl learns about contraception; another waits at a community well to fill jugs with clean drinking water for her family. Ordinary moments in ordinary lives.

And yet, taken together, these moments are anything but ordinary. They are transformative, products of a global movement that we have seen—and that so many of us have worked to bring about—especially during the past decade. Women and children are increasingly receiving health services that they need—and to which they have a fundamental human right—in numbers unimaginable a generation ago. Fewer are dying from preventable causes. More survive. More are better fed. And more are educated. The world has become a healthier place for women and children, as this final *Countdown to 2015* report shows. That is a momentous achievement.

However, alongside these successes lies a large portfolio of unfinished business—of unintended pregnancies, babies born too soon, children unvaccinated and chronically malnourished and illnesses untreated; of vast inequities that deprive people of basic health services; of millions upon millions of preventable deaths.

Countdown to 2015 offers an accounting of those transformative moments when lives were saved or improved by delivery of essential health services and of the many moments of disappointment and injustice when services failed to reach those who needed them. The governments of the world have made many commitments to women, newborns, children and adolescents. This accounting helps show whether and to what extent those promises have been kept. The data in this report provide a critical tool for accountability at the national, regional and global levels.

For a decade, *Countdown to 2015* has been counting down the days and years to the present moment, the moment of truth for the Millennium Development Goals and the transition to the Sustainable Development Goals. But all along it has also been counting up those who receive health care and those left behind, the funds invested in women's and children's health and those who have been helped to survive and those who have needlessly died. We count them because doing so helps us understand why preventable deaths occur, and how we can most effectively prevent many more women and children from dying. We count them because every life counts and no one should be left behind.

We stand at a moment of transition, as the world's gaze shifts from 2015 to 2030. A new countdown begins today, and this immensely important accounting work will continue until the last preventable death has been counted.

Graça Machel
Chair of the Board of the Partnership for Maternal, Newborn & Child Health, former Education Minister of Mozambique, past Chair of the GAVI Alliance Board and renowned international advocate for women's and children's health and rights

Countdown headlines for 2015

Countdown headlines for 2015

This is the last *Countdown to 2015* report: a final accounting of progress and remaining gaps in the 75 countries that account for more than 95% of maternal, newborn and child deaths.

There is good news on maternal and child survival, but Millennium Development Goals 4 and 5 have mostly not been achieved.

- Maternal and child survival have improved markedly during the Millennium Development Goals era. Both under-five mortality and maternal mortality have been reduced by about half since 1990, and the rate of improvement has accelerated since 2000.

- Many countries have "graduated" from *Countdown*. About half of the 68 countries that were included in *Countdown* because they exceeded specified thresholds of child or maternal mortality have reduced mortality below the thresholds.

- However, Millennium Development Goals 4 and 5 remain mostly unfulfilled. Some 50 *Countdown* countries will fail to achieve the child mortality reductions required by Millennium Development Goal 4, and 69 will not achieve the maternal mortality reductions required by Millennium Development Goal 5. Only 4 of the 75 *Countdown* countries—Cambodia, Eritrea, Nepal and Rwanda—will achieve both Millennium Development Goals 4 and 5.

Newborn survival and child nutrition are two key continuing challenges that must be addressed.

- Newborns account for 45% of deaths among children under age 5. Neonatal conditions cause an increasing share of child deaths as interventions have reduced deaths of older children.

- Nutrition is crucial—and far too many children are still hungry. In more than half of *Countdown* countries, stunting (a sign of inadequate diet and repeated illness) affects at least 30% of children under age 5, and wasting (a marker of acute malnutrition) affects at least 5%. Almost half of all child deaths are attributable to undernutrition.

Coverage of key interventions remains unacceptably low and varies greatly across countries.

- Universal coverage remains a distant target for most interventions in most countries. Vaccines and many malaria and HIV interventions have been prioritized and have achieved substantial improvements, but most other interventions still fail to reach a third or more of the women and children who need them.

- Services requiring contact with a working health system have lagged the most. Family planning, pregnancy and childbirth services and childhood disease management still have large coverage gaps.

Equity has improved, but not nearly enough.

- Across the *Countdown* countries, systematic pro-rich inequalities exist for virtually all coverage indicators. These equity gaps are widest for interventions requiring access to health facilities 24/7.

- Globally, coverage has increased more for the poor than for the rich, so the equity gap is shrinking. Coverage equity is improving in both absolute and relative terms but remains a pressing challenge in virtually every *Countdown* country.

- Countries improve overall coverage when they focus on reducing inequity. Rapid progress in coverage came when countries effectively reached the poorest families.

Achieving high, equitable coverage requires financial investment, supportive policies and stronger health systems.

- Donor funding has increased, but countries' reliance on out-of-pocket spending is a concern. Aid for maternal, newborn and child health tripled from 2003 to 2012, and recent attention to neonatal survival has led to increased newborn health commitments.

- Many countries have adopted supportive policies. More research is needed to better understand the strength of countries' implementation after policies are adopted.

- Most *Countdown* countries have a severe shortage of skilled health workers. *Countdown* countries have a median of 10.2 physicians, nurses and midwives per 10,000 people, and three-quarters are below the World Health Organization benchmark of 22.8 per 10,000.

More data are now available; more and better data are still needed.

- More countries are conducting more frequent household surveys. Countries can use these data to support evidence-based decisionmaking about policies and programmes.

- Better data are needed for assessing quality of care. Coverage data on service contacts such as antenatal and postnatal care visits need to be complemented with information on interventions provided during those contacts.

The *Countdown to 2015* experience offers important lessons that are relevant to the Sustainable Development Goals era.

Introduction

"Ten years from now, in 2015," said the opening line of *Countdown*'s first report, "the governments of the world will meet to assess if we have achieved the Millennium Development Goals, the most widely ratified set of development goals ever, signed onto by every country in the world."[1] In that inaugural report the *Countdown to 2015* partnership committed "to share new evidence and experience, to take stock of progress in preventing child deaths, to hold international and national level institutions accountable if the rate of progress is not satisfactory, to identify any major gaps in knowledge or existing processes that are hindering progress, to propose new actions as appropriate and to advocate for greater investment in child survival." *Countdown* later expanded its mandate to include maternal survival and the continuum of care. This commitment aimed to ensure that the world's assessment of its efforts to achieve Millennium Development Goals 4 and 5—to reduce child mortality and improve maternal health—would be accurate, meaningful and robust.

That day of reckoning has come.

It is human nature to look forward, and that inclination has played itself out in this pivotal year of 2015. Speculation, advocacy, planning and negotiation surrounding the world's next set of goals—the Sustainable Development Goals—have claimed most of the attention in global health and development.[2] This is by no means a bad thing: The Millennium Development Goals experience has shown that realistic, measureable goalsetting is a critically important step towards concerted action and lifesaving impact.

But goals become truly meaningful only when performance is measured against them—that is, when those who wrote and signed on to those goals are held to account for their efforts to fulfil them and for the results of those efforts. Looking backward—identifying successes and failures and understanding how and why they occurred—is crucial. The Sustainable Development Goals that pertain to reproductive, maternal, newborn, child and adolescent health as well as to other fields of health and development, are being built atop the foundation of the Millennium Development Goals. The promises made before 2015 to women and children do not just disappear, and they must not be allowed to.

For Millennium Development Goals 4 and 5, the verdict is mixed. Since 2005, *Countdown*'s findings have always highlighted progress with unfinished business, lives saved with many lives still needlessly being lost. This mixed picture is the challenge ahead: how to convey powerful achievements that encourage other countries to do the same and to avoid the lure of complacency—that is, how to describe tragic failures in a way that stimulates a coordinated response rather than a crippling paralysis of "there's nothing to be done."

As in past *Countdown* reports, the data tell the story. This is firstly a story of momentous achievement. The world has become a healthier place for women and children during the Millennium Development Goals era. Maternal and child mortality have both been nearly halved or halved, respectively, since 1990, and millions fewer mothers and children die each year. About half the 75 *Countdown* countries have "graduated" by moving below the mortality thresholds originally set for inclusion as a *Countdown* country. These advances reflect, in part, notable improvements in coverage for several key health interventions, particularly in areas that have received high and consistent attention and funding at the national and international levels, including malaria, HIV and immunization. Evidence-based policies and programmes are being adopted, and more countries are conducting population-based surveys—which are essential for tracking progress and provide much of the data for *Countdown*'s analyses—more often.

However, the data also reveal a second, competing narrative, one in which a large majority of *Countdown* countries have not reached their

Millennium Development Goal 4 and 5 targets. In many countries coverage of critical family planning, pregnancy, childbirth and treatment interventions for childhood diseases remains low. And even in countries that have made spectacular overall progress the poor and disadvantaged are being left behind to suffer and die from preventable and treatable illnesses.

Both stories are true, and both are presented in this report. Together, they form the foreword to the story of the next 15 years under the Sustainable Development Goals, one hopefully full of small failures and great successes, of more women and children saved and fewer lives lost. These data-driven narratives are told by the figures and tables in the pages that follow and in the 75 country profiles that offer final report cards on the progress countries have made in improving equitable coverage and its policy, financial and health system determinants.

Beneath these data and the stories they tell about country progress lies a deeper truth. Each percentage point of coverage represents hundreds or thousands of women, newborns or children who received the essential care they needed, as their human right to the best available standard of health care demands. Each percentage point short of universal coverage contains the stories of hundreds or thousands forced to go without that lifesaving care: a woman who gave birth on a dirt floor and bled to death when there was no one around with the skills and tools to treat her, a newborn baby born too soon and too small whose mother received insufficient nutrition and inadequate antenatal care and who succumbed after only a few short hours or days of life, a toddler with diarrhoeal disease who died of dehydration because his family had neither safe drinking water nor access to the simple treatments that would have saved him, a teenager never taught how to prevent an unintended pregnancy who died from obstructed labour when the stillborn baby proved too big for her still-growing body.

Fifteen years from now, the governments of the world will meet to assess whether the Sustainable Development Goals have been achieved. The global community must work together between now and then to hear and understand every story, happy and sad, and to remember that the numbers reported represent human lives. It must commit to counting every success, to understanding every failure, to valuing every life and to holding everyone fully accountable for keeping the promises.

With this report, *Countdown*'s old work ends, and that new work begins.

Countdown: The 2015 report

More than a decade ago the momentum generated by the Millennium Development Goals sparked those involved in the 2003 Lancet Child Survival Series to propose and launch *Countdown to 2015*—a global movement to track, stimulate and support country progress towards the health-related Millennium Development Goals, particularly goals 4 (reduce child mortality) and 5 (improve maternal health). *Countdown* is supra-institutional and includes academics, governments, international agencies, professional associations, donors, nongovernmental organizations and other members of civil society, with *The Lancet* as a key partner. The new initiative pledged to hold regular conferences, with the aim of "ensuring that there is an overall mechanism for improving accountability, re-energising commitment, and recognizing accomplishments in child survival."[3]

Countdown compiled data to launch its first report in 2005, which was followed by five more reports launched at various high-level fora in 2008, 2010, 2012, 2013 and 2014.[4] This is the final report in the series. From its original focus on child survival, *Countdown* expanded to track progress on reproductive, maternal, newborn and child health indicators across the continuum of care. At the heart of the *Countdown* reports are two-page country profiles, which summarize the most recent data on intervention coverage, maternal and child mortality, and nutrition. The country profiles also highlight socioeconomic inequalities in intervention coverage and two of the main drivers of coverage (health systems and policies, and financing).

Countdown has evolved in many ways. It has grown from 11 to 43 institutional stakeholders. The number of countries monitored has increased from 60 to 75, to cover the countries where more than 95% of global deaths of mothers and children occur. And the number of indicators tracked has expanded from 35 to 73, as the scope has shifted beyond child survival and in response to new evidence. By including new, proven interventions in its profiles even before data were available for many countries, *Countdown* helped raise their visibility and speed their scale-up.

Countdown recognized the importance of engaging at the country level and in 2012 embarked on a set of case studies aimed at understanding how countries have achieved progress (box 1). *Countdown* is also the primary source of coverage information for monitoring the implementation of the recommendations of the Commission on Information and Accountability for Women's and Children's Health and the independent Expert Review Group reports.[5]

The number of reports on specific reproductive, maternal, newborn and child health issues has grown rapidly since *Countdown*'s inception. *Countdown*'s niches have been its action-oriented focus on intervention coverage and its user-friendly synthesis of information in the country profiles. Its principles have not changed: monitor the coverage of evidence-based, cost-effective interventions; maintain a country orientation; and build on existing goals and monitoring efforts.[6] *Countdown*'s realization of these principles has helped increase the global visibility of women's and children's health and helped boost the unacceptably slow rate of progress in reducing maternal, newborn and child mortality during the 1990s.[7] More information on *Countdown*, the explanatory framework guiding its work and its data sources and methods are included in annexes A–H and at www.countdown2015mnch.org. *Countdown* databases are publicly available at http://countdown2015mnch.org/about-countdown/countdown-data.[8]

This final *Countdown* report begins with a summary of results from 2015 based on the data presented in the country profiles, building on a companion article published in *The Lancet*.[9] It examines trends in mortality and nutrition; intervention coverage (including inequality); financial flows to reproductive, maternal, newborn and child health; and supportive policy and systems measures. Although some topics

BOX 1

Countdown country case studies

Countdown in-depth country case studies use evidence to tell a story about country progress in adopting supportive policies, ensuring adequate funding for reproductive, maternal, newborn and child health, increasing equitable coverage and reducing maternal, newborn and child mortality. They focus on understanding how and why Millennium Development Goals 4 and 5 were achieved and on strengthening country-level capacity to lead monitoring efforts and use the results to improve their programmes.

The portfolio of *Countdown* case studies includes Afghanistan, Bangladesh,[1] China, Ethiopia, Kenya, Malawi, Niger,[2] Pakistan, Peru and Tanzania,[3] all at various stages of completion. Each case study is led by a country-based institution that is not directly involved with reproductive, maternal, newborn and child health programme implementation, supported by a multidisciplinary team. The analysis is guided by a common evaluation framework[4] and spans *Countdown*'s four technical domains (coverage, equity, health systems and policies, and financing). The case studies culminate in a dissemination phase in which results are communicated using a variety of modes to inform national policymakers and civil society representatives and to increase the use of evidence in decisionmaking.

The portfolio of countries represents a diverse set of contexts and experiences. Most countries present a mixed set of achievements across the continuum of care, and all face remaining challenges such as stubborn inequities and insufficient, unreliable financial flows to maternal, newborn and child health programmes. Afghanistan, Ethiopia, Malawi and Tanzania are highly donor dependent, calling into question the sustainability of the health gains achieved. All countries implemented reforms to increase access to health services (including pro-poor strategies), which were important in improving health overall, but equity gaps persist. Even in Peru, where great strides were made in reducing glaring inequalities the case study results show that coverage of a skilled attendant at delivery is 100% in the richest quintile but only 65% in the poorest quintile.[5]

Although a mosaic of context-specific factors shaped each case study country's progress, several common themes emerged. For example, an important part of country plans to achieve Millennium Development Goal 4 included adopting multisectoral strategies to address childhood undernutrition and particularly high rates of stunting. Most countries also introduced integrated approaches to managing childhood illnesses at the facility and community levels. Similarly, improved maternal health outcomes across countries were associated with increased access to skilled attendants at delivery and emergency obstetric care, as well as such non–health sector changes as improved women's access to education and income-earning strategies and better transportation. Strong political leadership and commitment were critical in directing resources to reproductive, maternal, newborn and child health programmes. Slower progress in newborn mortality than in child mortality, reported in all countries, was attributed in part to the lack of political prioritization of newborn health until the mid-2000s and in part to the fact that several effective, low-cost interventions (including community approaches to delivering services) were scaled up only in recent years. Further efforts are needed to improve the quality of intrapartum care in facilities in order to achieve needed reductions in maternal and newborn deaths and stillbirths.

Countdown is planning to synthesize the lessons from the case studies once they have all been concluded at the end of 2015. Special attention will be given to the challenges of conducting the case studies in ways that expanded the capacity of local teams and country ownership of the data and results. These lessons should inform efforts to increase demand for and use of data by national decisionmakers in the Sustainable Development Goals era.

Notes

1. El Arifeen and others 2014.
2. Amouzou, Habi and Bensaid 2012.
3. Afnan-Holmes and others 2015.
4. Bryce and others 2011.
5. Huicho and others forthcoming.

and countries have seen considerable progress, important gaps remain that cannot be forgotten in the transition to the Sustainable Development Goals. The report then assesses changes in data availability and their implications for programme managers and decisionmakers. It concludes by turning a critical lens on the Sustainable Development Goals framework and future accountability efforts, drawing from *Countdown*'s 10 years of monitoring experience.

Progress towards Millennium Development Goals 4 and 5

Preventing the needless deaths of women and children depends on a collective ability to deliver high-quality services to those who need them and to improve the social determinants of health. The under-five mortality rate, the proportion of child deaths occurring during the neonatal period and the maternal mortality ratio are key indicators of women's and children's health and well-being. Mortality trends provide a reality check on how well the global community and countries are reaching their populations with equitable coverage of proven interventions across the reproductive, maternal, newborn and child continuum of care. This section reviews the 75 *Countdown* countries' progress towards the mortality targets for Millennium Development Goals 4 and 5 and towards lower undernutrition rates, which are a key indicator for Millennium Development Goal 1 on poverty eradication.

Laudable progress in reducing mortality—but more must be done

Based on modelled estimates, the global maternal mortality ratio has fallen around 45% over the past two decades, and the number of maternal deaths has dropped from around 523,000 a year to 289,000.[10] Although the reduction in mortality appears to have accelerated—75% of *Countdown* countries reduced maternal mortality faster over 2000–13 than over 1990–2000[11]—very few *Countdown* countries will achieve Millennium Development Goal 5. Between 2003 and 2009 more than half of maternal deaths worldwide were due to haemorrhage, hypertensive disorders and sepsis—causes that are preventable by providing quality antenatal, childbirth and postnatal care.[12]

Recognition of the association between increasing use of contraception and declining maternal and newborn deaths has boosted resources for family planning programmes[13] (box 2). Evidence of the importance of reaching adolescents with family planning and nutrition programmes to improve birth outcomes, as well as for their own health, has also increased attention to this population group.[14]

Stillbirths were not visible as a public health problem when *Countdown* was launched. Improved estimates showing a major burden of 2.6 million third trimester stillbirths—1.2 million of them during the intrapartum period—and evidence of close links with maternal and newborn health led to the stillbirth rate being included in *Countdown* country profiles in 2010. Without a specific target, global visibility for stillbirths may remain limited in the Sustainable Development Goals era, and progress will remain slow unless all stakeholders act together and include stillbirths in the future programmatic and measurement agenda.[15]

The global under-five mortality rate has dropped 53% since 1990, from 91 deaths per 1,000 live births to 43 in 2015.[16] The annual rate of reduction has accelerated steeply over time, suggesting that more progress can be expected in coming years. In 2000 there were 9.8 million deaths a year of children under age 5.[17] Pooled estimates for 42 countries that included more than 90% of child deaths identified the leading causes as neonatal conditions (33%), diarrhoea (22%), pneumonia (21%), malaria (9%) and AIDS (3%).[18] Estimates for 2015 suggest 5.9 million deaths a year,[19] with a major shift in the causes: Preterm birth complications now cause 18% of deaths among children under age 5. Together preterm birth complications and other neonatal causes account for 45% of deaths among children under age 5. Deaths due to pneumonia (16%), diarrhoea (9%), malaria (5%) and AIDS (1%) have declined in relative terms—and even more so in absolute terms.[20] The growing concentration of deaths in the newborn period, and improved understanding about causes of newborn deaths, has sparked the scale-up of long-existing interventions and the development of new ones, some of which are monitored by *Countdown* (see below).

Some 25 of the 75 *Countdown* countries achieved the 4.4% annual rate of reduction in under-five

BOX 2

Family planning—reaching an unmet need

There is an established body of evidence on the benefits of family planning on women's, newborn's and children's health.[1] Family planning can contribute to women's empowerment, environmental sustainability (through a reduction in births) and economic prosperity for individuals, communities and countries.[2] Although greater access to family planning has been a key development objective for about 50 years, efforts to help women prevent unintended pregnancies and unsafe abortions have historically been uneven, resulting in mixed progress across and within countries.[3] Median coverage of demand for family planning satisfied (the proportion of women at risk of pregnancy who want to avoid or delay childbearing and who are using a modern method of contraception) in the 57 *Countdown* countries with available survey data from 2009 or later is only 55%, and coverage ranges widely, from 13% in South Sudan to 93% in Viet Nam (see table 2 in the main report).

Use of family planning remains highly inequitable, with the wealthiest quintile having a higher demand for family planning satisfied than the poorest in all regions. This pattern is evident in almost all 41 *Countdown* countries with available disaggregated data (see figure), and the difference in coverage between the wealthiest and poorest quintile exceeds 5 percentage points in all but 6 of them. The gaps between wealth quintiles tend to decrease as national coverage increases. Viet Nam, with the highest coverage, shows almost no difference in demand for family planning satisfied between wealth quintiles. In contrast, Cameroon, Nigeria and other Sub-Saharan African countries where national coverage is below 50% show wide disparities.

An in-depth analysis of Tanzania's slow progress towards Millennium Development Goal 5 found that family planning programmes introduced in the late 1980s and 1990s, although high on the political agenda, were weakly implemented, and consequently the national contraceptive prevalence rate rose only about 1 percentage point a year, from 7% in 1991 to 27% in 2010. Unmet need (the proportion of women who are married or in union who want to delay or avoid a pregnancy but are not using a method of contraception) also varies widely across regions and between urban and rural areas, with women in rural areas and in the Lake and Western zones encountering frequent stockouts of methods and cultural barriers to using modern methods. In response, Tanzania revitalized its national family planning programme in 2010, and donor support for reproductive health increased.[4] This example illustrates the importance of sustained political and financial support for family planning and the need for community-based and other approaches to improve demand for and acceptability of modern contraceptive methods, particularly among the underserved.

There is reason to be optimistic for the future. The launch of Family Planning 2020 sparked renewed emphasis in the global community on accelerating progress in family planning. Considerable advocacy work is under way to ensure that sexual and reproductive health and rights remain at the forefront of the post-2015 global agenda. For example, the Sustainable Development Goals for health and gender reference reproductive health and explicitly mention the importance of family planning information and education.[5] Technical work is also ongoing to improve measurement of demand for family planning satisfied in order to increase the comparability of data in low- and middle-income countries. Better means of monitoring trends along with continued global emphasis on making contraceptive services available will spur progress in the years ahead.

Notes

1. Ahmed and others 2012; Glasier and others 2006; Cleland and others 2012.
2. UNFPA 2008; Singh, Darroch and Ashford 2014; Cleland and others 2006.
3. Darroch and Singh 2013; Fabic and others 2015.
4. Afnan-Holmes and others 2015.
5. United Nations 2015.

(continued)

mortality that was required to reach Millennium Development Goal 4 in 2015, but the evidence suggests that only 6 countries achieved the 5.5% annual rate of reduction in maternal mortality needed to achieve Millennium Development Goal 5 (table 1). Four countries—Cambodia, Eritrea, Nepal and Rwanda—achieved the required annual rate of reductions for both goals.

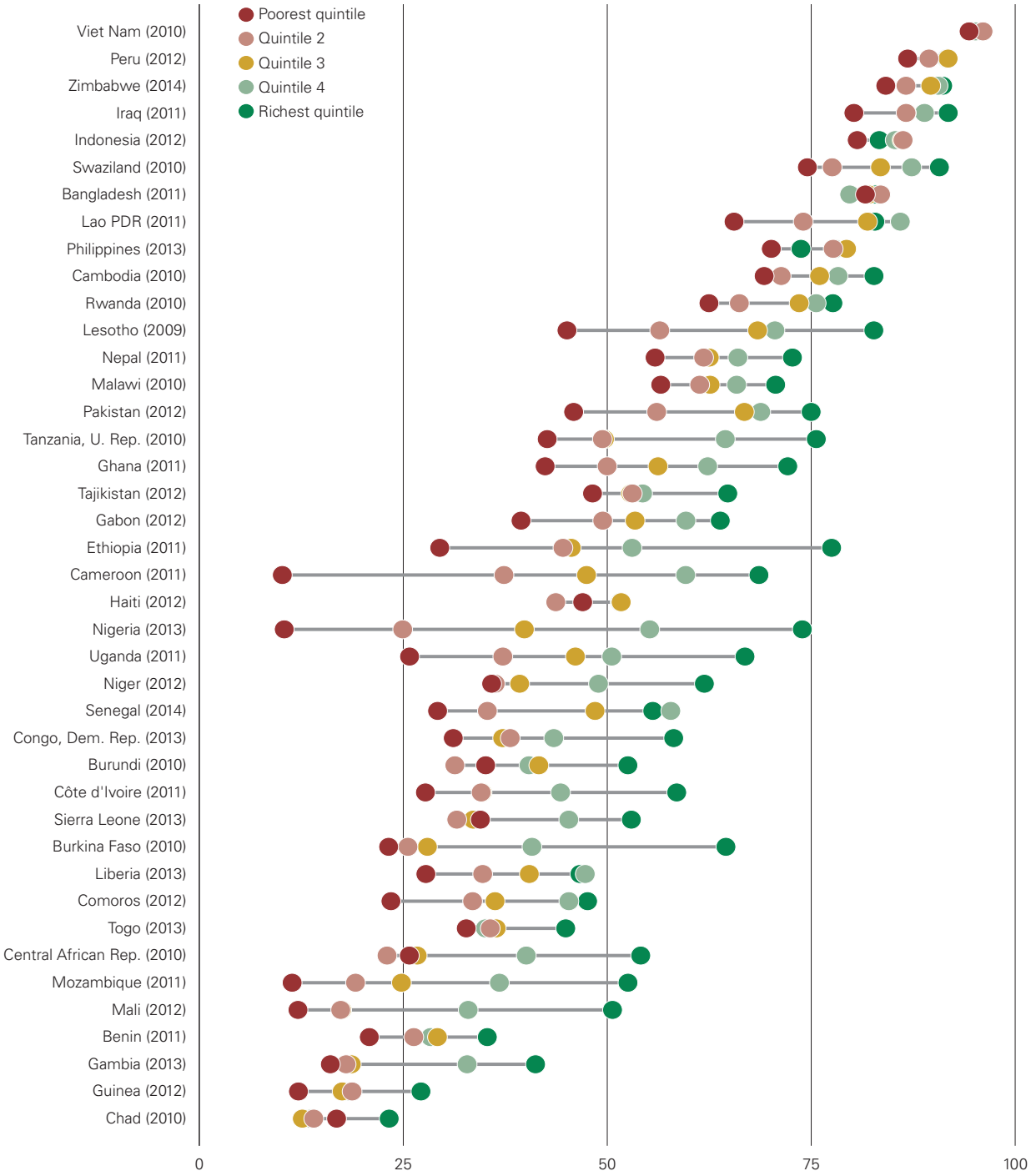
Of the 60 countries selected in 2005 for monitoring by *Countdown* based on their high under-five mortality (either an under-five mortality rate of 90 or more deaths per 1,000 live births or 50,000 or more child deaths a year), 28 have "graduated" from *Countdown* by reducing child mortality below the threshold. In 2008 *Countdown* broadened its scope to include maternal mortality and set a threshold

BOX 2 (CONTINUED)

Family planning—reaching an unmet need

Use of family planning remains highly inequitable, with the wealthiest quintile having a higher demand for family planning satisfied than the poorest in most *Countdown* countries

Demand for family planning satisfied for 41 *Countdown* countries with available data, by wealth quintile, 2009 or later (%)



Source: Re-analysis of Demographic and Health Survey and Multiple Indicator Cluster Survey data sets at the International Center for Equity in Health at the Federal University of Pelotas.

TABLE 1

Countdown countries and graduation status based on original entry criteria

Country	Year entered *Countdown*	Selection criteria used for inclusion as *Countdown* country[a]	Under-five mortality: Rate (deaths per 1,000 live births) 2015	Under-five mortality: Average annual rate of reduction (%) 1990–2015	Under-five mortality: Number of deaths[b] 2015	Under-five mortality: Share of deaths occurring during the neonatal period (%) 2015	Maternal mortality: Ratio (deaths per 100,000 live births) 2013	Maternal mortality: Average annual rate of reduction (%) 1990–2013	Maternal mortality: Number of deaths 2013	Country graduated from *Countdown*?
Afghanistan	2005	Under-five mortality rate and number of child deaths	91.1	2.7	94,261	38.4	400	4.7	4,200	No
Angola	2005	Under-five mortality rate and number of child deaths	156.9	1.5	169,310	31.4	460	4.9	4,400	No
Azerbaijan	2005	Under-five mortality rate	31.7	**4.4**	7,206	59.2	26	3.6	43	Yes
Bangladesh	2005	Number of child deaths	37.6	**5.4**	119,326	62.3	170	5.0	5,200	No
Benin	2005	Under-five mortality rate	99.5	2.4	37,092	32.2	340	2.4	1,300	No
Bolivia	2008	Maternal mortality ratio and number of maternal deaths	38.4	**4.7**	9,415	51.2	200	4.0	550	Yes
Botswana	2005	Under-five mortality rate	43.6	0.9	2,488	51	170	3.1	83	Yes
Brazil	2005	Number of child deaths	16.4	**5.2**	52,415	54.6	69	2.4	2,100	No
Burkina Faso	2005	Under-five mortality rate and number of child deaths	88.6	3.3	60,477	30.3	400	2.9	2,800	No
Burundi	2005	Under-five mortality rate and number of child deaths	81.7	3.0	36,970	35.8	740	2.3	3,400	Yes
Cambodia	2005	Under-five mortality rate and number of child deaths	28.7	**5.6**	10,257	51.5	170	**8.1**	670	Yes
Cameroon	2005	Under-five mortality rate and number of child deaths	87.9	1.8	71,348	29.5	590	0.9	4,900	No
Central African Rep.	2005	Under-five mortality rate	130.1	1.2	21,029	33.3	880	1.3	1,400	No
Chad	2005	Under-five mortality rate and number of child deaths	138.7	1.7	82,728	28.8	980	2.3	5,800	No
China	2005	Number of child deaths	10.7	**6.5**	181,574	51.5	32	4.7	5,900	No
Comoros	2012	[c]	73.5	2.1	1,897	46.9	350	2.6	90	[c]
Congo	2005	Under-five mortality rate	45	2.9	7,269	40.6	410	2.1	690	Yes
Congo, Dem. Rep.	2005	Under-five mortality rate and number of child deaths	98.3	2.6	304,558	30.9	730	1.5	21,000	No
Côte d'Ivoire	2005	Under-five mortality rate and number of child deaths	92.6	2.0	75,393	41.7	720	0.1	5,300	No
Djibouti	2005	Under-five mortality rate	65.3	2.4	1,429	51.6	230	2.4	55	Yes
Egypt	2005	Number of child deaths	24	**5.1**	65,775	54.5	45	4.1	860	No
Equatorial Guinea	2005	Under-five mortality rate	94.1	2.8	2,655	35.6	290	**7.0**	79	No
Eritrea	2008	Maternal mortality ratio and number of maternal deaths	46.5	**4.7**	7,764	39.4	380	**6.2**	880	No
Ethiopia	2005	Under-five mortality rate and number of child deaths	59.2	**5.0**	184,186	47.5	420	5.0	13,000	No
Gabon	2005	Under-five mortality rate	50.8	2.4	2,579	46.3	240	2.0	130	Yes
Gambia	2005	Under-five mortality rate	68.9	3.6	5,540	44.6	430	2.1	340	Yes
Ghana	2005	Under-five mortality rate and number of child deaths	61.6	2.9	54,061	47	380	2.9	3,100	No
Guatemala	2008	Maternal mortality ratio and number of maternal deaths	29.1	4.1	12,858	46.2	140	2.8	660	Yes
Guinea	2005	Under-five mortality rate and number of child deaths	93.7	3.7	42,073	34	650	2.2	2,800	No
Guinea-Bissau	2005	Under-five mortality rate	92.5	3.6	5,883	44	560	2.2	360	No
Haiti	2005	Under-five mortality rate	69	3.0	17,841	36.6	380	2.4	1,000	Yes
India	2005	Under-five mortality rate and number of child deaths	47.7	3.9	1,200,998	57.9	190	4.5	50,000	No
Indonesia	2005	Number of child deaths	27.2	**4.5**	147,162	50.2	190	3.5	8,800	No
Iraq	2005	Under-five mortality rate and number of child deaths	32	2.1	38,682	58.1	67	2.0	710	Yes
Kenya	2005	Under-five mortality rate and number of child deaths	49.4	2.9	74,429	45.3	400	0.8	6,300	No
Korea, Dem. People's Rep.	2008	Maternal mortality ratio and number of maternal deaths	24.9	2.2	9,271	54.9	87	−0.1	310	Yes
Kyrgyzstan	2012	[c]	21.3	**4.5**	3,644	54.5	75	0.5	110	[c]
Lao PDR	2008	Maternal mortality ratio	66.7	3.6	11,613	44.9	220	**6.8**	400	Yes
Lesotho	2008	Maternal mortality ratio	90.2	−0.1	5,570	36.7	490	1.7	280	Yes
Liberia	2005	Under-five mortality rate	69.9	**5.2**	10,509	34.7	640	2.8	980	Yes
Madagascar	2005	Under-five mortality rate and number of child deaths	49.6	**4.7**	40,075	40.4	440	2.3	3,500	Yes
Malawi	2005	Under-five mortality rate and number of child deaths	64	**5.3**	40,048	34.3	510	3.2	3,400	Yes
Mali	2005	Under-five mortality rate and number of child deaths	114.7	3.2	82,710	33.2	550	3.1	4,000	No
Mauritania	2005	Under-five mortality rate	84.7	1.3	11,050	42.5	320	2.9	430	No
Mexico	2005	Number of child deaths	13.2	**5.0**	31,278	53.1	49	2.5	1,100	Yes
Morocco	2008	Maternal mortality ratio and number of maternal deaths	27.6	4.3	19,759	64.3	120	4.1	880	Yes
Mozambique	2005	Under-five mortality rate and number of child deaths	78.5	**4.5**	82,387	35	480	4.3	4,800	No
Myanmar	2005	Under-five mortality rate and number of child deaths	50	3.2	46,284	52.5	200	4.5	1,900	Yes
Nepal	2005	Under-five mortality rate and number of child deaths	35.8	**5.5**	19,900	61.6	190	**6.0**	1,100	Yes
Niger	2005	Under-five mortality rate and number of child deaths	95.5	**4.9**	87,967	29	630	2.0	5,600	No

(continued)

TABLE 1 (CONTINUED)

Countdown countries and graduation status based on original entry criteria

Country	Year entered *Countdown*	Selection criteria used for inclusion as *Countdown* country[a]	Under-five mortality: Rate (deaths per 1,000 live births) 2015	Under-five mortality: Average annual rate of reduction (%) 1990–2015	Under-five mortality: Number of deaths[b] 2015	Under-five mortality: Share of deaths occurring during the neonatal period (%) 2015	Maternal mortality: Ratio (deaths per 100,000 live births) 2013	Maternal mortality: Average annual rate of reduction (%) 1990–2013	Maternal mortality: Number of deaths 2013	Country graduated from *Countdown*?
Nigeria	2005	Under-five mortality rate and number of child deaths	108.8	2.7	750,111	32	560	3.1	40,000	No
Pakistan	2005	Under-five mortality rate and number of child deaths	81.1	2.1	431,568	56.7	170	3.6	7,900	Yes
Papua New Guinea	2005	Under-five mortality rate	57.3	1.8	11,963	42.9	220	3.3	460	Yes
Peru	2008	Maternal mortality ratio and number of maternal deaths	16.9	**6.2**	10,483	48.7	89	4.4	530	Yes
Philippines	2005	Number of child deaths	28	2.9	65,613	45.1	120	–0.6	3,000	No
Rwanda	2005	Under-five mortality rate and number of child deaths	41.7	**5.2**	14,207	44.3	320	**6.1**	1,300	Yes
São Tomé and Príncipe	2012	[c]	47.3	3.4	297	36.7	210	2.8	14	[c]
Senegal	2005	Under-five mortality rate and number of child deaths	47.2	**4.4**	27,059	44.6	320	2.2	1,700	Yes
Sierra Leone	2005	Under-five mortality rate and number of child deaths	120.4	3.1	26,466	28.8	1,100	3.3	2,400	No
Solomon Islands	2012	[c]	28.1	1.4	470	43.2	130	3.8	23	[c]
Somalia	2005	Under-five mortality rate and number of child deaths	136.8	1.1	60,537	29.2	850	1.8	3,900	No
South Africa	2005	Number of child deaths	40.5	1.6	41,930	26.6	140	0.4	1,500	Yes
South Sudan	2012	[d]	92.6	4.0	39,487	43.1	730	3.0	3,000	No
Sudan	2005	Under-five mortality rate and number of child deaths	70.1	2.4	89,488	43.1	360	3.8	4,600	No
Swaziland	2005	Under-five mortality rate	60.7	0.8	2,221	23.4	310	2.5	120	Yes
Tajikistan	2005	Under-five mortality rate	44.8	3.5	11,799	46.6	44	1.9	120	Yes
Tanzania, United Rep.	2005	Under-five mortality rate and number of child deaths	48.7	**4.9**	98,180	39.3	410	3.5	7,900	No
Togo	2005	Under-five mortality rate	78.4	2.5	19,512	34.3	450	1.6	1,100	Yes
Turkmenistan	2005	Under-five mortality rate	51.4	2.3	5,868	44	61	0.3	68	Yes
Uganda	2005	Under-five mortality rate and number of child deaths	54.6	**4.9**	85,291	34.9	360	3.2	5,900	No
Uzbekistan	2012	[c]	39.1	2.4	26,205	52.1	36	2.6	220	[c]
Viet Nam	2012	[c]	21.7	3.4	34,191	52.4	49	4.4	690	[c]
Yemen	2005	Under-five mortality rate and number of child deaths	41.9	**4.4**	34,351	53.1	270	2.3	2,100	Yes
Zambia	2005	Under-five mortality rate and number of child deaths	64	**4.4**	38,990	33.8	280	3.1	1,800	Yes
Zimbabwe	2005	Under-five mortality rate and number of child deaths	70.7	0.3	38,087	33.7	470	0.4	2,100	Yes

Note: In 2008 eight countries were added when *Countdown* began to track progress in countries with high maternal mortality: Bolivia, Democratic People's Republic of Korea, Eritrea, Guatemala, Lao People's Democratic Republic, Lesotho, Morocco and Peru.

a. Under-five mortality rate of 90 or more deaths per 1,000 live births in 2004, 50,000 or more child deaths a year in 2004, maternal mortality ratio of more than 550 maternal deaths per 100,000 live births in 2005, or maternal mortality ratio of more than 200 maternal deaths per 100,000 live births and 750 or more maternal deaths a year in 2005.

b. The 2005 *Countdown* report includes the under-five mortality rate but not the absolute number of deaths.

c. Added in 2012 to reconcile the *Countdown* and Global Strategy for Women's and Children's Health country lists.

d. Added based on its high burden of child and maternal mortality after it was formed in 2012.

Source: UN Inter-agency Group for Child Mortality Estimation 2015; Maternal Mortality Estimation Inter-agency Group 2014.

of more than 550 maternal deaths per 100,000 live births or more than 200 maternal deaths per 100,000 live births and 750 or more maternal deaths a year. Eight countries were added to the original 60, seven of which have "graduated" by reducing maternal mortality below the threshold. Seven other priority countries were added in 2008, to maintain consistency with the list of priority low-income countries included in the Global Strategy for Women's and Children's Health. South Sudan was also added based on its high burden of child and maternal mortality after it was formed in 2012.

Alternative estimates for maternal and child mortality are available from the Institute of Health Metrics and Evaluation. Although its estimates for specific countries may differ from those presented in table 1, the overall conclusions are the same: Only a small minority of low- and middle-income countries will achieve either Millennium Development Goal 4 or 5.

Nutrition is crucial—and far too many children are still hungry

The past 10 years have also witnessed a growing understanding of the role of nutrition in mortality and human development.[21] Undernutrition—including foetal growth restriction, stunting, wasting and deficiencies of vitamin A and zinc—

BOX 3

Breastfeeding: a life-saving practice with both short- and long-term health and development benefits

The importance of breastfeeding in preventing deaths of children in low- and middle-income countries is well recognized,[1] and scaling up breastfeeding could save about 800,000 deaths of children under age 5 a year.[2] But this is only part of the story. Recent research suggests that breastfeeding has long-lasting effects that go well beyond infancy, including the prevention of obesity and diabetes,[3] and of dental malocclusions.[4] Women who breastfeed are less likely to develop type 2 diabetes or breast or ovarian cancer.[5]

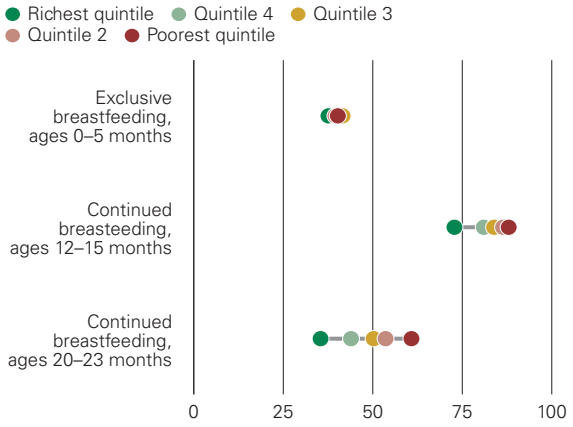
Evidence from many countries also shows that breastfeeding results in an average increase of 3–4 points in intelligence scores,[6] and a recent study from Brazil suggests that it also leads to better performance in school and higher incomes at age 30.[7] Thus breastfeeding is crucial not only for women and children in low-income countries, but also for all women and children in other settings. Improved breastfeeding practices will help prevent noncommunicable diseases and boost intellectual development around the world.

International organizations recommend that all children be exclusively breastfed for the first six months of life and continue to receive breast milk with appropriate complementary foods until at least age 2. Most countries are far from complying with these recommendations, and infant feeding indicators have shown little progress in the recent past. Exclusive breastfeeding at ages 0–5 months is increasing about 1 percentage point a year in *Countdown* countries (see table 3 in the main report), but the median coverage is still only 39% (see table 2 in the main report). Furthermore, most countries show reductions in the proportion of children who are still breastfed at ages 12–15 months and at ages 20–23 months.

Breastfeeding is the only recommended behaviour tracked by the *Countdown* for which children from poor families do better than children from rich families (see figure), possibly because breastfeeding is regarded as "not modern" in many countries, and better-off families are switching to artificial feeding. The gaps are particularly wide for continued breastfeeding. Because of the important protection afforded by breast milk against child deaths, the results suggest that the poor–rich gap in under-five mortality would be even wider in the absence of breastfeeding.

Breastfeeding is the only recommended behaviour tracked by the *Countdown* for which children from poor families do better than children from rich families

Mean prevalence of breastfeeding indicators for 43 *Countdown* countries with available data from national surveys, by wealth quintile, 2009 or later (%)



Source: Re-analysis of Demographic and Health Survey and Multiple Indicator Cluster Survey data sets at the International Center for Equity in Health at the Federal University of Pelotas.

International funding to promote breastfeeding has declined since the 1990s, in contrast to funding for other reproductive, maternal, newborn and child health interventions.[8] Improved breastfeeding practices will contribute to the achievement of several Sustainable Development Goals, including those related to child mortality, noncommunicable diseases, nutrition, child development and economic growth. Protecting, promoting and supporting breastfeeding, particularly among the poor, deserve renewed investments and increased prioritization in the post-2015 era.

Notes

1. Sankar and others forthcoming.
2. Black and others 2013.
3. Horta, de Mola and Victora forthcoming b.
4. Peres and others forthcoming.
5. Chowdhury and others forthcoming.
6. Horta, de Mola and Victor forthcoming a.
7. Victora and others 2015.
8. Lutter and others 2011.

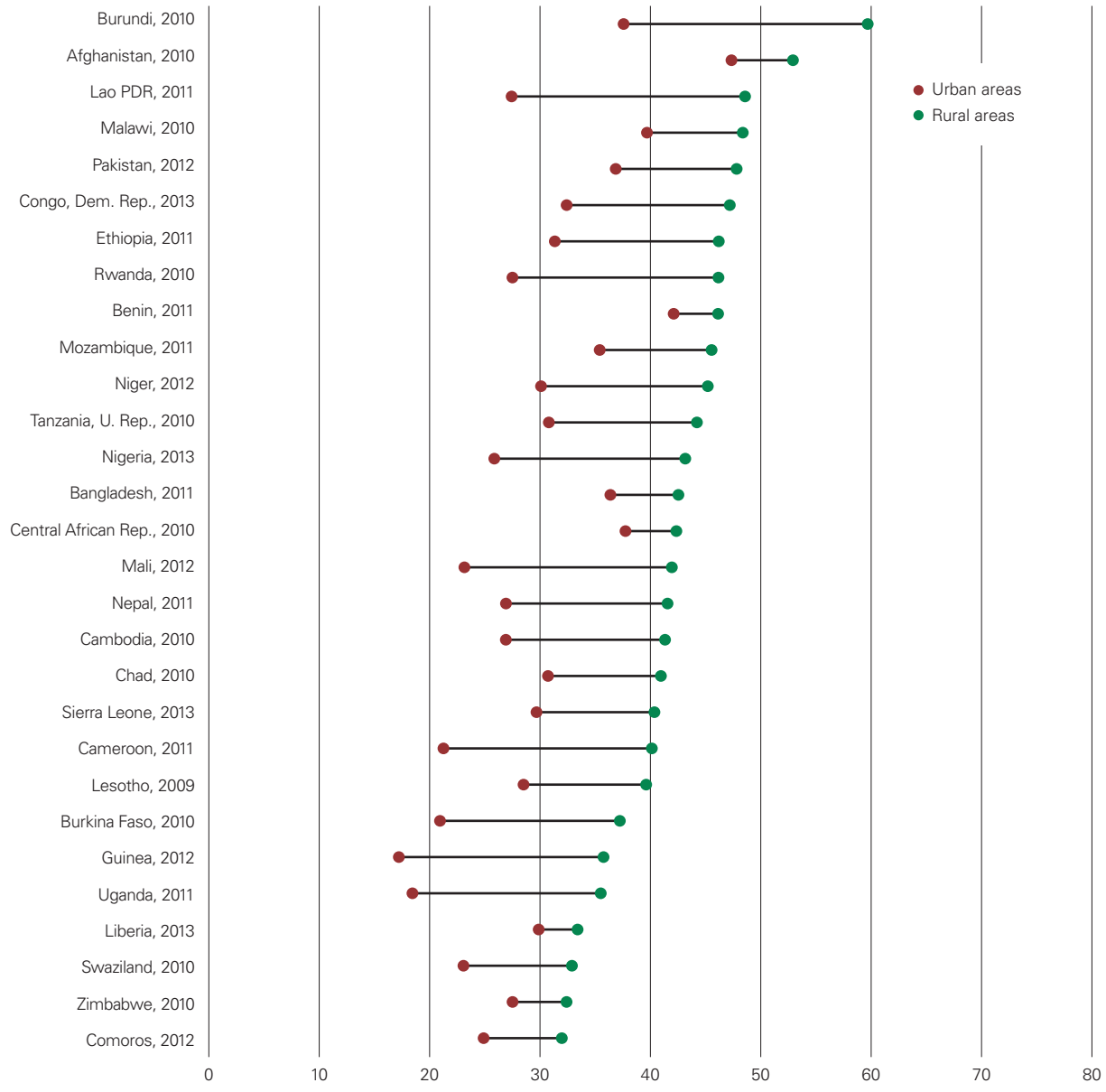
along with suboptimum breastfeeding (box 3) is an underlying cause of 45% of deaths of children under age 5,[22] and as many as 20% of newborn deaths are among babies with low birthweight.[23] Addressing undernutrition was critical to achieving the Millennium Development Goals and is embedded in the Sustainable Development Goals framework.

Reductions in stunting (inadequate length and height for age) and wasting (inadequate weight for height) are among the nutrition targets set by the World Health Assembly in 2012, and recent evidence shows that the world remains off track for reducing the number of children under age 5 who are stunted by 40% and childhood wasting to less than 5% by 2025.[24] Stunting is a

FIGURE 1

Stunting tends to be much more common in rural areas

Prevalence of stunting among children under age 5 in countries with national prevalence of 30% or higher and data for 2009 or later, urban and rural areas (%)



Source: Re-analysis of Demographic and Health Survey and Multiple Indicator Cluster Survey data sets at the International Center for Equity in Health at the Federal University of Pelotas.

key indicator of the quality of a child's life and reflects chronic exposure to an inadequate diet, possibly combined with repeat infections and poor child care.[25] The median prevalence of stunting in the 65 *Countdown* countries with data from 2009 or later is 32% and ranges from 9% in China to 58% in Burundi. Some 38 countries have a stunting prevalence of at least 30%.

Previous *Countdown* analyses have shown that stunting is concentrated among the poor and among children whose mothers have low levels of education.[26] Stunting also tends to be much more common in rural areas (figure 1). Some 43 *Countdown* countries have a wasting prevalence of 5% or higher, with a high of 23%. Wasting is a marker of acute malnutrition and can change rapidly by season and following catastrophic impacts such as natural or human-caused disasters.[27]

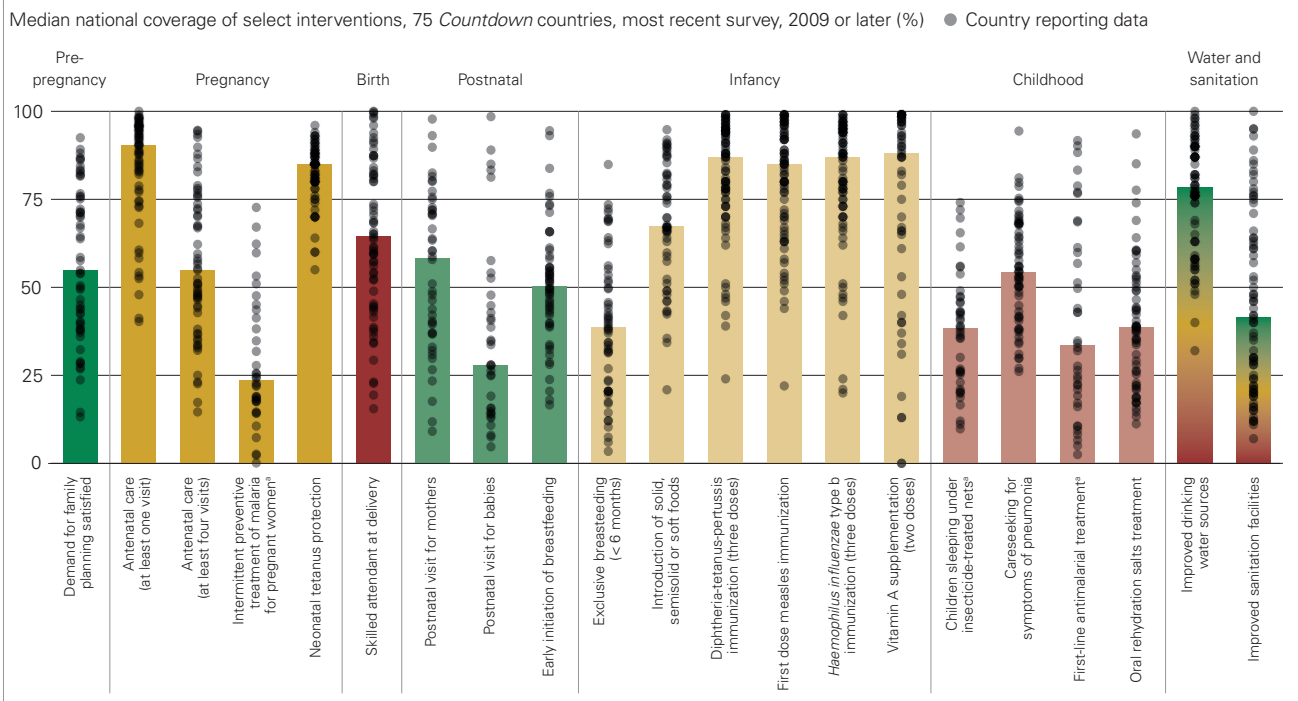
Intervention coverage is still too low for many interventions—and it matters!

Tracking intervention coverage—the proportion of a population in need of an intervention that actually receives it—is central to accountability. It provides information on how well countries are successfully implementing policies and programmes aimed at improving women's and children's health. Low coverage of proven interventions and large disparities in coverage across population groups should spark immediate action.

Most high-impact interventions and service contacts monitored by *Countdown* show unacceptably low coverage, with enormous ranges across countries around the median for *Countdown* countries (figure 2, table 2).[28] Even interventions for preventing malaria, which have shown greater accelerations in coverage than any other indicators in recent years,[29] are far from their full life-saving potential. In endemic countries

FIGURE 2

Coverage of interventions varies across the continuum of care



Note: Figure excludes data on Rwanda for 2014–15.

a. Analysis is restricted to countries where at least 75% of the population is at risk of malaria and where a substantial proportion (50% or more) of malaria cases is due to *Plasmodium falciparum* (n = 44) or where 50–74% of the population is at risk of malaria and where a substantial proportion (50% or more) of malaria cases is due to *P. falciparum* (n = 8).

Source: Immunization rates, World Health Organization (WHO) and United Nations Children's Fund (UNICEF); postnatal visit for mothers and postnatal visits for babies, Saving Newborn Lives analysis of Demographic and Health Surveys and Multiple Indicator Cluster Surveys; improved water and sanitation, WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation; all other indicators, UNICEF global database, July 2015, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

TABLE 2

National coverage of *Countdown* interventions, most recent data, 2009 or later

Indicator	Number of countries with data	Median coverage (%)	Range (%)	Low country	High country
Pre-pregnancy					
Demand for family planning satisfied	57	55	13–93	South Sudan	Viet Nam
Pregnancy					
Antenatal care (at least one visit)	64	90	40–100	South Sudan	Democratic People's Republic of Korea
Antenatal care (at least four visits)	59	55	15–95	Afghanistan	Kyrgyzstan
Intermittent preventive treatment of malaria for pregnant women[a]	36	24	0.1–73	Burundi	Zambia
Neonatal tetanus protection	67	85	55–96	Nigeria	Bangladesh
Birth					
Skilled attendant at delivery	66	65	16–100	Ethiopia	China, Democratic People's Republic of Korea
Postnatal					
Postnatal visit for mothers	44	58	9–98	Mauritania	Kyrgyzstan
Postnatal visit for babies	35	28	5–99	Rwanda	Kyrgyzstan
Early initiation of breastfeeding	57	50	17–95	Guinea	Malawi
Infancy					
Exclusive breastfeeding (< 6 months)	56	39	3–85	Chad	Rwanda
Introduction of solid, semisolid or soft foods	52	67	21–95	South Sudan	Mexico
Diphtheria-tetanus-pertussis (three doses)	75	87	24–99	Equatorial Guinea	China, Morocco, Rwanda, Uzbekistan
First dose measles immunization	75	85	22–99	South Sudan	China, Democratic People's Republic of Korea, Morocco, Turkmenistan, United Republic of Tanzania, Uzbekistan
Haemophilus influenzae type b immunization (three doses)	73	87	20–99	India	Morocco, Rwanda, Uzbekistan
Pneumococcal conjugate vaccine (three doses)[b]	45	78	2–99	Côte d'Ivoire	Rwanda
Rotavirus immunization[b]	35	63	1–99	Philippines	Bolivia
Vitamin A supplementation (two doses)	53	88	0–99	Rwanda, Sudan	Benin, Burkina Faso, Cameroon, Côte d'Ivoire, Mauritania, Mozambique, Nepal, Senegal, Sierra Leone, Uzbekistan
Childhood					
Children sleeping under insecticide-treated nets[a]	42	38	10–74	Chad	Rwanda
Careseeking for symptoms of pneumonia	61	54	26–94	Chad	Djibouti
First-line antimalarial treatment[a]	38	34	3–92	Chad	Rwanda
Oral rehydration salts treatment	61	39	11–94	Mali	Djibouti
Oral rehydration therapy with continued feeding[b]	54	48	12–67	Sudan	Kyrgyzstan
Water and sanitation					
Improved drinking water sources (total)	74	79	32–100	Somalia	Democratic People's Republic of Korea
Improved sanitation facilities (total)	74	42	7–100	South Sudan	Uzbekistan
Composite Coverage Index					
Composite Coverage Index[b,c]	54	64	31–89	South Sudan	Democratic People's Republic of Korea

a. Analysis is restricted to countries where at least 75% of the population is at risk of malaria and where a substantial proportion (50% or more) of malaria cases is due to *Plasmodium falciparum* ($n = 44$) or where 50–74% of the population is at risk of malaria and where a substantial proportion (50% or more) of malaria cases is due to *P. falciparum* ($n = 8$).

b. Indicator is not included in figure 2.

c. The Composite Coverage Index is a weighted average of eight interventions along the continuum of care that have been available in most countries for at least a decade. The interventions include demand for family planning satisfied, at least one antenatal care visit, skilled attendant at delivery, three immunization indicators (diphtheria-tetanus-pertussis, tuberculosis and first-dose measles), oral rehydration therapy for diarrhea and care-seeking for pneumonia. It is calculated as

$$\text{CCI} = ¼ \left(\text{FPS} + \frac{\text{SBA} + \text{ANCS}}{2} + \frac{\text{2DPT3} + \text{MSL} + \text{BCG}}{4} + \frac{\text{ORT} + \text{CPNM}}{2}\right).$$

This summary indicator used in Countdown's routine reporting covers reproductive, maternal and newborn health, as well as both preventive and curative interventions.

Note: Table excludes data on Rwanda for 2014–15. Bolded indicators are those recommended by the Commission on Information and Accountability for Women's and Children's Health.

Source: Immunization rates, World Health Organization (WHO) and United Nations Children's Fund (UNICEF); postnatal visit for mothers and postnatal visits for babies, Saving Newborn Lives analysis of Demographic and Health Surveys and Multiple Indicator Cluster Surveys; improved water and sanitation, WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation; all other indicators, UNICEF global database, July 2015, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

with available data, only 24% of women report receiving malaria prevention during pregnancy, and only 38% of children under age 5 were reported to be sleeping under an insecticide-treated net. Treatment interventions for the major killers of children are still reaching fewer than half of children with malaria or diarrhoea, and only 54% of children with symptoms of pneumonia are taken outside the home for care. Immunizations continue to be an exception, with median coverage generally above 85%, although these interventions —like all others—show high variation across countries.

The coverage indicators tracked by *Countdown* have evolved in response to changes in clinical recommendations and advances in coverage measurement. For example, indicators for rotavirus vaccine and pneumococcal conjugate vaccine were added in 2014 because of increased data availability following rapid policy adoption. Antibiotic treatment for childhood pneumonia is no longer tracked because validation studies have shown that it cannot be accurately measured by household surveys.[30] The indicator on oral rehydration therapy (oral rehydration solution or increased fluids and continued feeding) has been retained to allow the examination of trends and because it is a component of the Composite Coverage Index used by *Countdown*.[31] However, World Health Organization (WHO)/United Nations Children's Fund guidelines now recommend oral rehydration solution and zinc, so it will be important to track coverage for both going forward. In 2015, 37 countries had available data from population-based national surveys on the administration of zinc for treatment of childhood diarrhoea. The median coverage reported by these countries was 1%, with a high of 28% in Malawi.[32]

Figure 2 and table 2 reflect data from more countries than in previous years for all indicators measured through household surveys. The number of countries with population-based estimates of coverage for postnatal care visits for babies increased from 5 during 2000–06[33] to 35 during 2009–14. The rapid expansion of international household surveys during the Millennium Development Goals period has helped ensure that all countries have recent, high-quality data on coverage for high-impact interventions to guide their programmes and policies.[34]

Understanding country progress in reaching all population groups with needed services requires analysing changes in coverage over time. Trends in intervention coverage were featured in an earlier *Countdown* publication[35] and are updated in table 3 for countries with available data in both periods. Three broad patterns are evident:

- Key malaria and HIV interventions began at low coverage and increased markedly. The three malaria interventions that started below 20% in the earlier period showed substantial increases. HIV interventions are not shown in table 3 because baseline data were not available due to methodological changes, but the prevention of mother-to-child transmission with antiretrovirals increased from near zero to 53% in the most recent period, with a range of 1% to more than 95% across countries with data.

- Some interventions, which already showed high coverage by around 2000, increased modestly in absolute terms, partly because there was limited scope for increase. These include at least one antenatal care visit, access to an improved source of drinking water and the three vaccines (diphtheria-tetanus-pertussis, *Haemophilus influenzae* type B and first-dose measles). Nevertheless, a substantial proportion of the gap was closed for these interventions.

- All other interventions studied had coverage below 60% before 2009 and increased 10 percentage points or less: family planning, four or more antenatal care visits, skilled attendant at delivery, access to an improved sanitation facility, exclusive breastfeeding and case management interventions for diarrhoea and pneumonia.

These patterns suggest that rapid coverage increases are possible when interventions are prioritized and sufficiently funded, as for malaria or HIV. However, there was very limited progress for interventions that require multiple service contacts along the continuum of care or access to care 24/7, particularly during pregnancy and childbirth, and for the management of childhood diarrhoea and pneumonia.

Interpreting these summary measures and trends and assessing whether countries are achieving meaningful coverage gains require consideration of uncertainty around the estimates. The *Countdown* Coverage Technical Working Group is undertaking analytical work on this topic as part of its efforts to improve coverage measurement and to communicate clear actionable messages to decisionmakers (box 4).

Intervention coverage is closely related to maternal, newborn and child survival. Faster rates

TABLE 3

Changes in national coverage of *Countdown* interventions from 2000–2008 to 2009–2014 for countries with available data in both periods, by proportion of the coverage gap closed

Indicator	Number of countries with data	Median coverage[a] (%)		Change (percentage points)	Proportion of gap closed (%)
		2000–2008	2009–2014		
Haemophilus influenzae type b immunization (three doses)[b]	13	84	95	11	69
Diphtheria-tetanus-pertussis immunization (three doses)[b]	74	77	88	11	47
First dose measles immunization[b]	71	76	85	9	38
First-line antimalarial treatment[c]	21	8	43	35	38
Antenatal care (at least one visit)	63	85	90	6	36
Children sleeping under insecticide treated nets[c]	38	16	40	24	29
Vitamin A supplementation (two doses)	47	86	90	4	29
Improved drinking water sources[d]	73	73	79	6	22
Demand for family planning satisfied	43	54	64	10	21
Skilled attendant at delivery	66	55	65	9	21
Intermittent preventive treatment of for malaria during pregnancy[c]	26	7	25	18	19
Exclusive breastfeeding (< 6 months)	58	33	41	9	13
Careseeking for symptoms of pneumonia	57	48	54	6	12
Antenatal care (at least four visits)	44	50	56	6	12
Oral rehydration salts treatment	58	30	38	8	11
Oral rehydration therapy with continued feeding	49	42	48	6	10
Improved sanitation facilities	73	38	42[e]	4	6

a. Data are for the most recent year available during the period specified.

b. Data are for the midpoint of each period (2004 and 2012).

c. Analysis is restricted to countries where at least 75% of the population is at risk of malaria and where a substantial proportion (50% or more) of malaria cases is due to *Plasmodium falciparum* (n = 44) or where 50–74% of the population is at risk of malaria and where a substantial proportion (50% or more) of malaria cases is due to *P. falciparum* (n = 8).

d. Includes data for 2015.

Note: Table includes only indicators for which trend data are available in the global data sets shared by the United Nations Children's Fund (UNICEF), July 2015. Table excludes data on Rwanda for 2014–15.

Source: Immunization rates, World Health Organization (WHO) and UNICEF; improved water and sanitation, WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation; all other indicators, UNICEF global database, July 2015, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

of improvement in coverage have an impact on under-five mortality. For 29 countries with two or more surveys at least four years apart between 2000 and 2014 an annual increase of 1% in the Composite Coverage Index was associated with a decrease of 0.59% in the under-five mortality rate, after adjusting for changes in gross national product per capita and the baseline under-five mortality rate (95% confidence interval: 0.02%, 1.14%; P = 0.042; figure 3).

Despite considerable progress, important gaps remain in the availability and frequency of coverage data collected through household surveys. For example, the results in figure 3 could be calculated for only 29 of the 75 *Countdown* countries. Among these, the fastest increases in the Composite Coverage Index were observed for Cambodia, Ethiopia, Rwanda and Burkina Faso, and the slowest for Mozambique, Cameroon, Guinea and Benin. Box 5 shows the evolution of data availability, using coverage of skilled attendant at delivery as an example.

There are also technical limitations in the methods used to measure intervention coverage. For example, there is no guarantee that women and children who report a service contact actually receive the full complement of life-saving interventions that could and should be delivered during that contact. Reported coverage for antenatal care, postnatal care for mothers and babies, and skilled attendant at delivery therefore represent best case scenarios for actual coverage of interventions.[36] Redoubled efforts are needed to ensure that all women and children are in contact with health services and that those services include the delivery of life-saving interventions of sufficient quality. New secondary analyses of antenatal care patterns in

BOX 4

What constitutes a meaningful change in coverage of maternal, newborn and child health interventions?

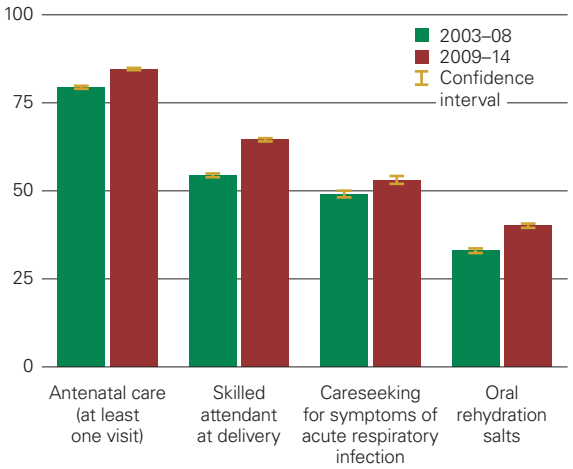
The *Countdown* Coverage Technical Working Group and the United Nations Children's Fund Data and Analytics team are addressing whether changes in aggregate median estimates across countries over time are meaningful in public health terms and sufficiently robust to guide decisionmaking on policies, programmes and investments and whether there is a standardized way to present uncertainty around these estimates that will improve the scientific basis for their interpretation. They are conducting a set of analyses using average coverage rates instead of median coverage rates as a basis for developing confidence intervals around each estimate.

Their work has yielded three features of data aggregation and assessment of change that should be considered when interpreting *Countdown* coverage estimates and trends:

- *Measures of uncertainty are essential.* Changes in the coverage of health interventions are better interpreted with some measure of uncertainty around the estimates, generally represented by a 95% confidence interval. Without a confidence interval, it is impossible to determine whether observed changes reflect real improvements or are an artefact of the random sampling procedure. Fortunately, sampling errors decrease when averages are computed using data from many countries because the aggregate coverage estimate can be thought of as based on pooled independent samples from all countries, which results in a large sample size and therefore better precision. Figure 1 shows changes in average coverage for four key indicators monitored by *Countdown* in 44 countries for which data were available during 2003–08 and 2009–14.[1] The confidence intervals are narrow for all four indicators, indicating that the estimates are very precise.[2] The results also show statistically significant increases in coverage for each indicator. Between the two time periods, coverage of at least one antenatal care visit increased 6 percentage points, skilled attendant at delivery 11 percentage points, oral rehydration solution for diarrhoea treatment 7 percentage points and careseeking for symptoms of acute respiratory infection 4 percentage points.
- *Aggregate measures based on multiple countries are more likely to show significant change than those based on one country.* Because aggregate measures are more efficient (smaller standard errors) than individual country estimates, it is possible to interpret a change in an aggregate measure as statistically significant even when the majority of countries in the analysis show no statistically significant improvement in the indicator of interest. Of the 44 countries included in the analysis in figure 1, 21 showed no statistically significant change in coverage of at least one antenatal care visit, and 2 showed a significant decrease. For skilled attendant at delivery, 15 countries showed no significant change in coverage, and 1 country showed a significant decline. For oral rehydration solution and symptoms of acute respiratory infection, more than half the countries did not show a statistically significant increase in coverage. These results indicate that caution is needed when applying the findings of the aggregate analyses to what is happening in individual countries.
- *Trends in aggregate coverage can conceal dramatic changes in absolute numbers of women and children receiving interventions.* To illustrate this point, the change in the number of annual births used to calculate coverage of at least one antenatal care visit and skilled attendant at delivery was estimated for the midyear of the two periods (2005 and 2011). Across the 44 countries in the analysis, the number of annual births increased from about 46 million in 2005 to 49 million in 2011 (figure 2).

Figure 1. Narrow confidence intervals indicate that estimates are very precise

Average coverage of selected maternal and child health interventions for 44 *Countdown* countries, 2003–08 and 2009–14 (%) and 95% confidence intervals



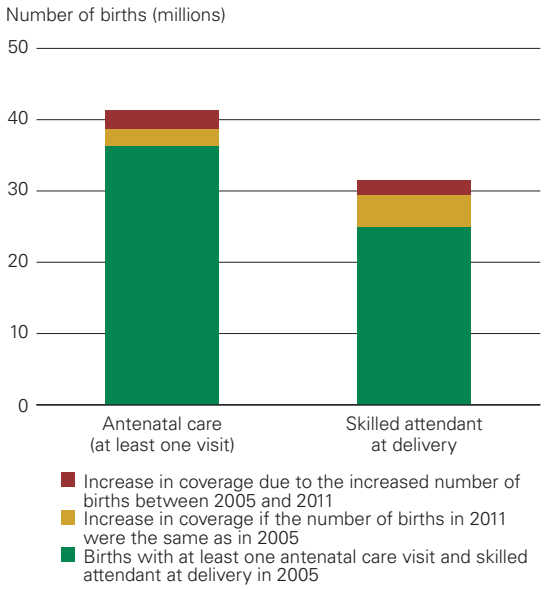
Source: United Nations Children's Fund analysis of data from Multiple Indicator Cluster Surveys and Demographic and Health Surveys.

(continued)

BOX 4 (CONTINUED)

What constitutes a meaningful change in coverage of maternal, newborn and child health intervention?

Figure 2. Trends in aggregate coverage can conceal dramatic changes in absolute numbers of services provided



Source: United Nations Children's Fund analysis of data from Multiple Indicator Cluster Surveys and Demographic and Health Surveys as well as data on births from UNDESA (2013).

Thus, although average coverage of at least one antenatal care visit increased only 6 percentage points, the absolute number of women receiving at least one antenatal care visit increased by about 5 million. Similarly, the number of women with a skilled attendant at delivery increased by 6.5 million, an accomplishment that is masked when progress is assessed only by looking at the modest 11 percentage point increase in coverage. These results emphasize that population change must be taken in to consideration when interpreting coverage values and highlight how increases in population add pressure to health systems.

Given the welcome and increasing focus on accountability, the global community has a responsibility to inform policymakers about how to interpret and use statistical evidence. Tools like the *Countdown* country profiles should include confidence intervals where feasible and relevant and find ways to incorporate population dynamics in the interpretation of results.

Notes

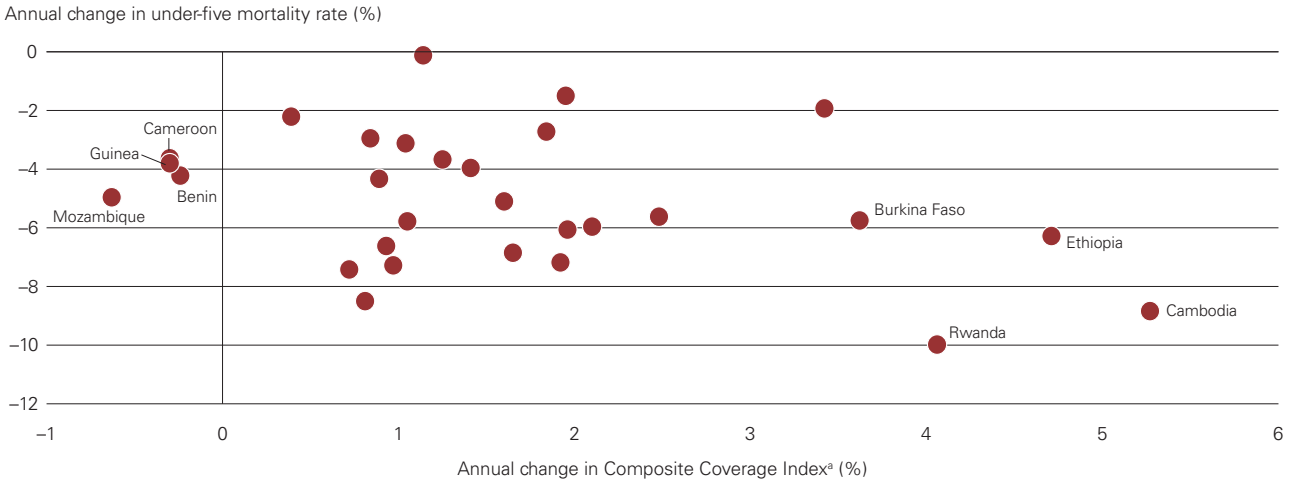
1. The analysis presented here is different from the results shown in table 3 on trends in coverage of health interventions along the continuum of care because the analysis here is based on consecutive periods of six years (2003–08 and 2009–14) and on average coverage instead of median coverage.
2. 95% confidence intervals are based on sampling errors and do not incorporate any additional measurement error. The actual uncertainty around the coverage estimates may be wider.

seven *Countdown* countries reflect an effort to dig deeper into available survey data to understand what interventions pregnant women are actually receiving and where dropoffs in attendance occur in different contexts (box 6).

New approaches to measuring coverage for interventions that women are unable to accurately report on (that is, services provided around the time of birth when the majority of maternal and newborn deaths occur) during household survey interviews are being developed and tested and should help increase available data and stimulate efforts to improve the quality of service delivery.[37] Efforts to link household surveys and health facility survey data are under way in order to generate the data on service quality needed to monitor progress in reaching women and children with the care they need. *Countdown* has also undertaken a programme of secondary analysis to increase the use of household survey data (box 7).

FIGURE 3

Increases in coverage of high-impact interventions are associated with decreases in under-five mortality



a. As calculated by the *Countdown* Equity Working Group.

Note: Data are for countries with two or more surveys during 2000–14. The Composite Coverage Index is a weighted average of eight interventions along the continuum of care.

Source: Re-analysis of Demographic and Health Survey and Multiple Indicator Cluster Survey data sets at the International Center for Equity in Health at the Federal University of Pelotas and estimates from the UN Inter-agency Group for Child Mortality Estimation.

BOX 5

Tracking progress in intervention coverage for reproductive, maternal, newborn and child health: more and better data

The past two decades have witnessed steady improvements in the availability of country-specific data on service contacts and intervention coverage for reproductive, maternal, newborn and child health. The maps in this box provide an example using the service contact indicator for skilled attendant at delivery. They show the availability of data and coverage for three periods. Two points are clear:

- More countries have available data than before 2000. Or, conversely, fewer countries have no data for the past decade on which to base assessments of progress.
- There has been steady progress, if slower than desired, in moving from lower coverage to higher coverage.

Important challenges remain. Countries need help from the global measurement community to move beyond tracking service contacts to assessments of coverage for specific interventions delivered during those service contacts. This is particularly urgent for interventions that mothers cannot report on accurately in household survey interviews and will require innovative measurement approaches that link reports of where care was sought to assessments of the readiness and quality of care provided in those settings.

The post-2015 landscape holds promise, focusing more attention and resources on ensuring that countries have the capacity to develop and implement sound measurement approaches and the commitment to use the resulting information to improve their programmes.

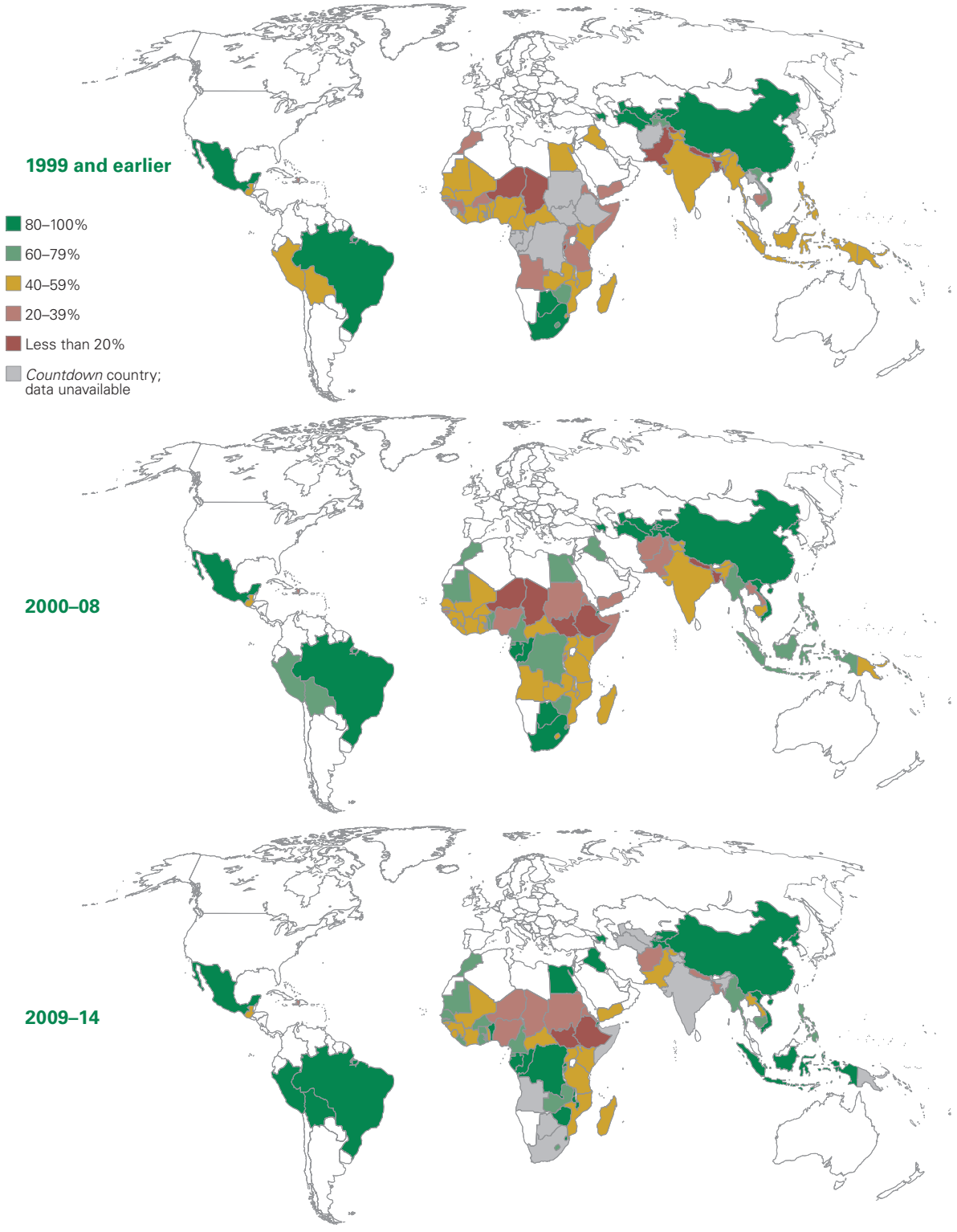
(continued)

BOX 5 (CONTINUED)

Tracking progress in intervention coverage for reproductive, maternal, newborn and child health: more and better data

More countries have available data on skilled attendant at delivery than before 2000, and there has been steady progress in moving from lower coverage to higher coverage

Coverage of skilled attendant at delivery in Countdown countries, 1999 and earlier, 2000–08, and 2009–14 (%)



Note: Maps include data on Rwanda for 2014–15.

Source: United Nations Children's Fund global database, July 2015, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

BOX 6

Unpacking coverage for antenatal care visits: capturing information on services actually provided

Antenatal care is critical for improving maternal and newborn health.[1] The World Health Organization recommends that pregnant women complete at least four antenatal care visits.[2] *Countdown* and other global monitoring efforts track the proportion of women who complete one or more visits to a skilled provider and four or more visits to any provider. This box discusses antenatal care use patterns in seven *Countdown* countries. It uses Demographic and Health Survey data to analyse the frequency of antenatal care use by provider and interventions received and by three dimensions of inequality (household wealth quintiles, women's education and place of residence). It also uses multivariate analysis to identify determinants of use and reviews contextual data on antenatal care–related policies, guidelines and programmes.

Women generally reported at least one antenatal care visit to a skilled provider, except in Bangladesh and Nepal (see figure). A noticeable drop-off between three and four visits was visible in Senegal and Uganda.

The content of visits—that is, the types of interventions or procedures women reported receiving (such as blood sample taken, blood pressure taken and being told about pregnancy complications)—was also examined. More content was reported among women who had four or more visits than among women who reported one to three visits, but coverage was far from universal for the specific interventions examined, even in countries with high use. Analyses of country-specific inequalities indicated large disparities in antenatal care use by household wealth, women's education and residence, except in Peru and Uganda. As the number of visits increases to four or more, the disparities within each dimension of inequality widen, albeit at a different pace in each country. The multivariate analysis results showed a strong, significant positive association between both woman's education and seeking four or more antenatal care visits and between household wealth and seeking four or more antenatal care visits. Gestational age at first visit and parity were significantly negatively associated with seeking four or more visits.

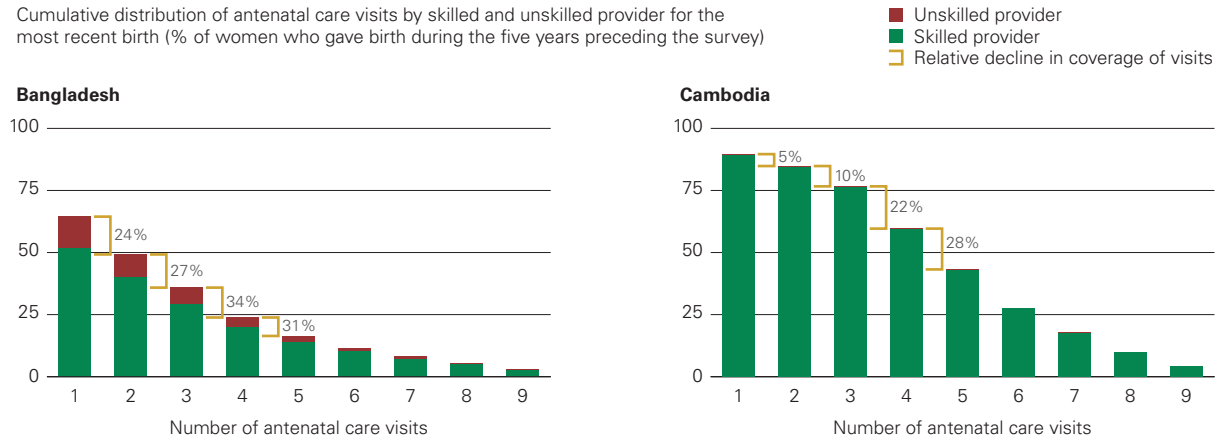
Improving maternal and newborn health remains an important priority in the move to the post-2015 era. More concentrated efforts are needed to achieve full, equitable and sustained coverage of antenatal care. In-country quantitative and qualitative assessments are necessary to identify underserved women and the reasons behind low antenatal care use.

Notes

1. USAID 2015.
2. WHO 2007b.

Wide variations across and within countries on the number of antenatal care visits women report completing

Cumulative distribution of antenatal care visits by skilled and unskilled provider for the most recent birth (% of women who gave birth during the five years preceding the survey)



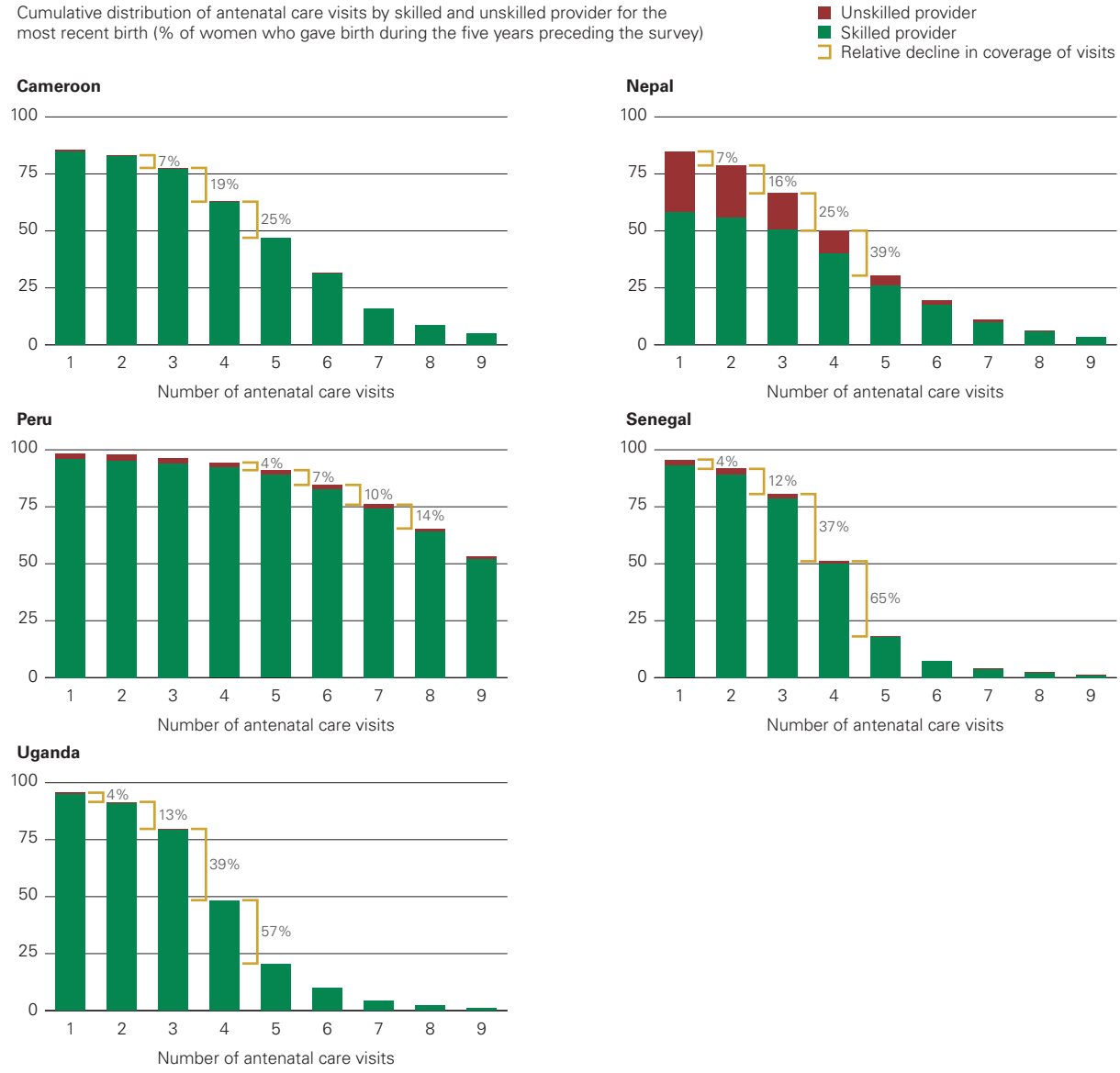
(continued)

BOX 6 (CONTINUED)

Unpacking use of antenatal care

Wide variations across and within countries on the number of antenatal care visits women report completing (continued)

Cumulative distribution of antenatal care visits by skilled and unskilled provider for the most recent birth (% of women who gave birth during the five years preceding the survey)



Source: Demographic and Health Surveys.

BOX 7

Targeted secondary analysis for stronger programmes: an example from management of childhood diarrhoea

Countdown strives to synthesize available data as a basis for promoting accountability and improving programmes. Too often, existing country datasets on intervention coverage are underused, with missed opportunities for programme-relevant analyses. Over the past two years, the *Countdown* Coverage Technical Working Group has engaged young investigators, including those from low- and middle-income countries, in secondary analyses projects focused on specific questions related to coverage of high-impact interventions. The priority analysis topics, arrived at through a consultative process involving all working group members, are antenatal care, led by researchers at the American University of Beirut (see box 6); family planning, led by the United Nations Population Fund and the Lives Saved Tool team based at Johns Hopkins University; and diarrhoea case management, led by the United Nations Children's Fund and the Coverage Technical Working Group support team based at Johns Hopkins University.

One aim of this work is to increase the engagement of young scientists in making full use of national household surveys, complemented by focused documentation efforts where appropriate. This box reports the results of the secondary analyses of diarrhoea case management, as an example:

- *Systematic reviews point to gaps in the evidence base.* A systematic review of English language literature published since 1990 found numerous studies documenting the prevalence of harmful practices in diarrhoea case management, including the restriction of fluids and food during diarrhoea episodes. These practices can result in treatment failure, sustained nutritional deficits and increased mortality due to diarrhoea. This suggests that programme action is needed, but the evidence base is flawed by a lack of consistency in sampling, measurement and reporting across studies and over time.[1]
- *Cross-country analyses highlight important needs for a broader programme focus.* National survey data were used to quantify the extent of fluid curtailment in children with diarrhoea in six high–diarrhoea burden *Countdown* countries in Sub-Saharan Africa. The results were alarming. Fluid curtailment was reported by 55% of caregivers in Nigeria, 49% in Ethiopia, 44% in Uganda, 37% in Tanzania, 36% in the Democratic Republic of Congo and 32% in Burkina Faso. Children whose fluids were curtailed were also 3.51 (95% confidence interval: 2.66, 4.64) times more likely to have food withheld during the diarrhoea episode. Particularly at risk were children whose mothers were poor or had little education, rural children, children taken to nongovernment providers for care and children who were breastfed.[2]
- *Follow-up analyses provide information needed to target effective programmes.* Since the first set of analyses showed that even children with diarrhoea who were taken for care to public health facilities were often unlikely to receive appropriate treatment, the set of countries was expanded from 6 to 12, and patterns of treatment were examined by type of provider. Case management practices were defined as "good," "fair" or "poor" using World Health Organization/United Nations Children's Fund guidelines (see table). Children with diarrhoea for whom no care was sought outside the home were also considered. Programme efforts related to diarrhoea case management in each country were documented in collaboration with United Nations Children's Fund health staff.

  The reported prevalence of good diarrhoea management is low and variable across countries, ranging from 17% in Côte d'Ivoire to 67% in Sierra Leone. Even among children taken for care to health facilities, the median prevalence of good management was 52% (ranging from 34% to 64%). The odds of a child receiving good diarrhoea management were equivalent for community versus

Definitions of "good", "fair" and "poor" diarrhoea case management practices, as used in this analysis

Practice	Oral rehydration salts or oral rehydration salts and zinc	Increased fluids	Continued feeding
Good	Yes	Yes	Yes
Good	Yes	Yes	No
Good	Yes	No	Yes
Fair	Yes	No	No
Fair[a]	No	Yes	Yes
Fair[a]	No	Yes	No
Poor	No	No	Yes
Poor	No	No	No

a. Defined as good practice for children ages 6 months and younger.

(continued)

BOX 7 (CONTINUED)

Targeted secondary analysis for stronger programmes: an example from management of childhood diarrhoea

facility providers in six countries and higher for community providers than for facility providers in Niger and Uganda. The figure shows summary results by type of provider.

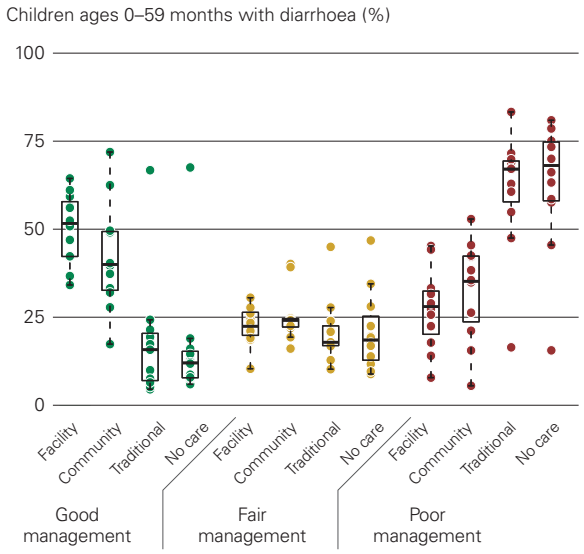
Diarrhoea has always been—and continues to be—an important cause of death among children under age 5. The programme of secondary analyses carried out by the Coverage Technical Working Group has provided new evidence that will help country programmes improve their supply-side efforts to train health workers, strengthen community case management where appropriate and ensure continuous availability of oral rehydration solutions and zinc and to complement these efforts with direct efforts to reduce harmful family practices and promote appropriate careseeking and management for childhood diarrhoea.

More broadly, this work underscores the importance of making full use of available datasets to generate programme-relevant results. Building capacity for the analysis of coverage data among young scientists from low- and middle-income countries is an urgent priority.

Notes

1. Carter and others 2015.
2. Perin and others 2015.

The reported prevalence of good diarrhoea management is low and variable across countries, even among children taken for care to health facilities



Source: Re-analysis of Demographic and Health Surveys conducted since 2009.

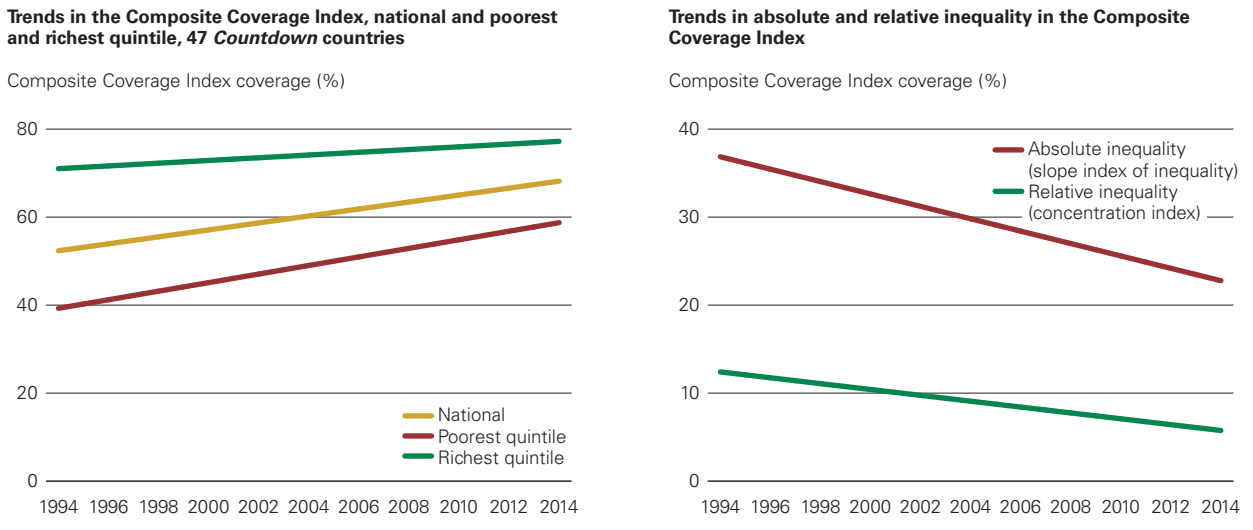
Equity—targeting the underserved

Equity was noticeably absent in the original formulation of the Millennium Development Goals.[38] Since its first report, *Countdown* has provided original analyses of inequalities in intervention coverage by wealth, sex of the child, place of residence and other social determinants. These analyses consistently show systematic pro-rich inequalities for virtually all coverage indicators.[39] The gaps are wider for interventions that require access to fixed health facilities or repeat contacts with a health provider(such as four or more antenatal care visits and skilled attendant at delivery) than for interventions that can be delivered through outreach strategies at the community level (such as immunization).[40] The countries that have made rapid progress in coverage are those that effectively reached the poorest families.[41] The *Countdown* Equity Technical Working Group prepares equity profiles for each *Countdown* country (see www.countdown2015mnch.org).

The growing number of countries with repeated surveys allows analyses of global trends in coverage not only at the national level, but also for the poorest and richest quintiles of mothers and children. Globally, the Composite Coverage Index[42] increased for both the richest and poorest quintiles, but the increase was steeper among the poorest (1.0 percentage point per year; 95% confidence interval: 0.8, 1.1) than for the richest (0.3 percentage point; 95% confidence interval: 0.2, 0.4; left panel of figure 4). The rich–poor gap declined from 28 percentage points in 2000 to 19 in 2014, indicating an increase in coverage equity in both absolute and relative terms (both trends with $P < 0.001$; right panel of figure 4).

FIGURE 4

Greater data availability permits global tracking of declining inequalities



Source: Re-analysis of Demographic and Health Survey and Multiple Indicator Cluster Survey data sets at the International Center for Equity in Health at the Federal University of Pelotas.

Despite the persistent coverage gap between rich and poor mothers and children, the gap has been closing, at least for the eight long-standing interventions that are part of the Composite Coverage Index (box 8).

Like coverage, data availability for equity analyses has improved, but much scope for progress remains. Repeated surveys using consistent measurement of equity stratifiers, such as wealth, gender, residence or ethnicity, are required to identify priority groups and track subnational progress over time.

BOX 8

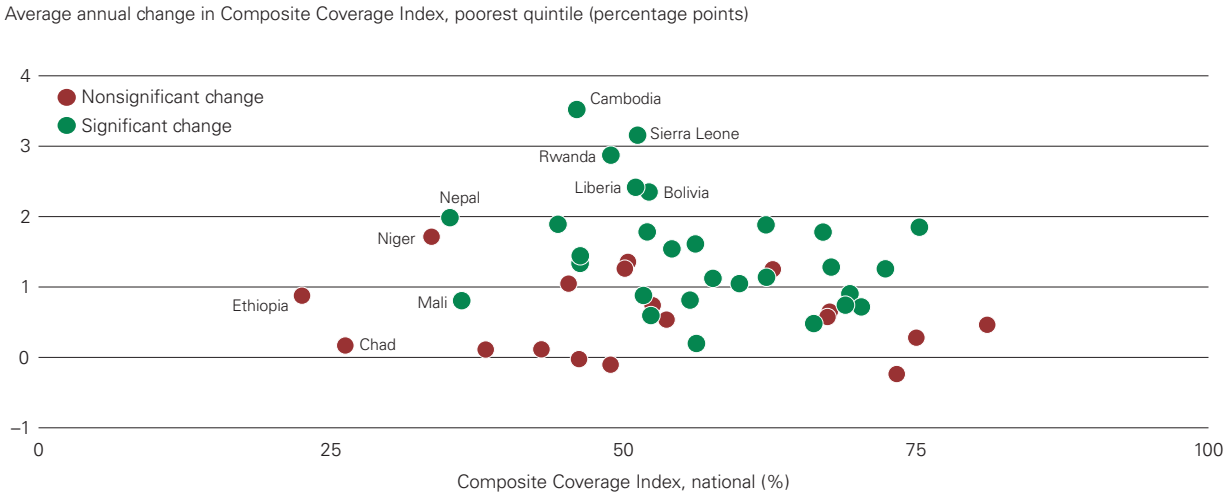
How does equity change as coverage increases in *Countdown* countries?

Focusing on coverage at the national level can mask large differences in access to services among different population groups within and across countries. Understanding country progress in reaching all population groups and determining strategies for improving coverage require exploring how inequalities in reproductive, maternal, newborn and child health interventions have changed over time.

Countries with higher average annual change on the Composite Coverage Index between 2000 and 2014 among the poorest quintile had national coverage around 50% at the baseline—Bolivia, Cambodia, Liberia, Rwanda and Sierra Leone (figure 1). Countries with high baseline national coverage are expected to make slower progress because they have less room for improvement. But several countries with lower baseline coverage had slow progress as well (Mali and Nepal). And countries with the lowest baseline coverage did not make progress at all (Chad and Ethiopia).

Liberia achieved the biggest reductions in both absolute and relative inequalities by increasing the Composite Coverage Index value for all wealth quintiles, except for the richest, for whom coverage remained around 70% (figure 2). Bolivia presented a somewhat similar pattern, but with coverage for the richest just over 80%. In the other three countries the Composite Coverage Index value increased for all wealth quintiles but more rapidly for the poorer ones. In Cambodia (and in Sierra Leone to a lesser extent) top inequality (the richest have much higher coverage then the rest) at the baseline disappeared, while in Niger it remained.

Figure 1. Rapid increases in coverage among the poor were observed in several countries, particularly those with national baseline coverage around 50 percent



Source: Re-analysis of Demographic and Health Survey and Multiple Indicator Cluster Survey data sets at the International Center for Equity in Health at the Federal University of Pelotas.

(continued)

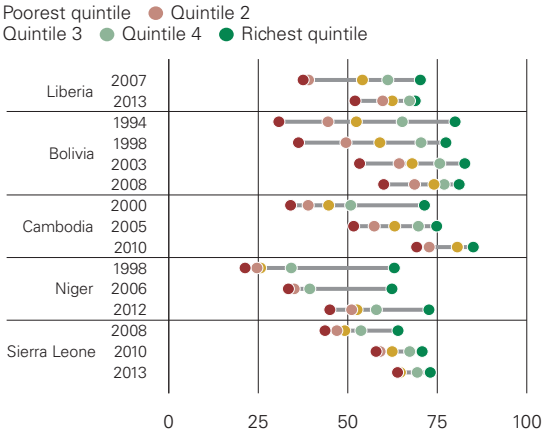
BOX 8 (CONTINUED)

How does equity change as coverage increases in *Countdown* countries?

These examples indicate that rapid reductions in inequities in coverage are possible but that some countries are lagging behind and should be encouraged to introduce pro-poor strategies. Renewed efforts for increasing health intervention coverage should be based on locally designed equity-oriented policies to avoid favouring the rich first and thus increasing inequalities. This is especially important in places where baseline inequalities are already high.

Figure 2. Reducing coverage inequalities is possible through targeting the poorest women and children

Composite Coverage Index score for the five countries with biggest reduction in Composite Coverage Index inequality since 2000, by wealth quintile and in order of magnitude in reducing inequality



Source: Re-analysis of Demographic and Health Survey and Multiple Indicator Cluster Survey data sets at the International Center for Equity in Health at the Federal University of Pelotas.

Determinants of coverage and equity—policies, systems and financing

Countdown recognizes that country ability to achieve high and equitable coverage of proven interventions depends on sufficient financial investments in women's and children's health, supportive legislative frameworks and resilient health systems. Broader contextual factors such as progress in social and economic determinants of health and political stability also influence access to and use of health services. This section provides an update on country progress in adopting key policies and improving human resources for health, as well as trends in official development assistance for reproductive, maternal, newborn and child health.

Progress depends on adopting key policies and strong health systems

Supportive policy environments and functional health systems with adequate human resources are prerequisites for high and equitable coverage. The number of policy and systems indicators tracked in *Countdown* has increased, from 5 policies that promote child survival in the first report to 11 policies that cover the full reproductive, maternal, newborn and child health continuum of care in this year's report, including four measures of systems that are critical to effective service delivery for women and children. These indicators are consistent with the WHO health system building block framework[43] and the Essential Policies Compendium.[44] Although further work is needed to develop comparable metrics for implementation strength at the national and subnational levels, *Countdown* has developed a set of tools that can be used to generate descriptions of relevant policies and aspects of reproductive, maternal, newborn and child health programme implementation across countries and over time (box 9).

Notable progress in adopting supportive policies has occurred across the *Countdown* countries.[45] The number of countries that adopted each of six policies for which trend data are available increased markedly between 2008 and 2014 (figure 5). However, gaps remain, and more progress is needed, particularly for policies that are lagging. Two policies where uptake has been slow are maternity protection in accordance with Convention 183 of the International Labour Organization (which includes maternal leave and employment protection during pregnancy and the postnatal period) and adoption of the International Code of Marketing for Breastmilk Substitutes. Although the increase in adoption of policies on the notification of maternal deaths has been impressive, more effort is needed to strengthen country capacity to record and analyse the causes of maternal and perinatal deaths. Such information is critical for improving the quality of care in the Sustainable Development Goals era (box 10).

Increased investment in information systems and a growing demand to understand the association between human resources and health have expanded available data on skilled health professionals.[46] Three-quarters of *Countdown* countries have fewer than 22.8 physicians, nurses and midwives per 10,000 people, the threshold that the WHO considers necessary to achieve high coverage of essential health interventions in high-burden countries.[47] The most recent estimates show a median density of 10.2 skilled health professionals per 10,000 people in the *Countdown* countries, ranging from 1.6 in Madagascar and Niger to 142 in Uzbekistan.

Ethiopia's rapid expansion of its human resource capacity for health through the Health Extension Program introduced in 2003 shows that countries can successfully address shortfalls in their health workforce through intensive political commitment and investments.[48] Although gaps remain in the country's health workforce, in less than five years Ethiopia trained and deployed more than 30,000 health extension workers and substantially increased the number of nurses, physicians, health officers and midwives. However, more health workers is only one of several essential steps

BOX 9

What can systematic tools to track health systems and policy change contribute to understanding progress for ending preventable maternal, newborn and child deaths?

Capturing information on adoption and implementation of policies and programmes is key to understanding how countries accelerate progress in maternal, newborn and child survival. However, few multicountry assessments on policy change and programme implementation have been undertaken, partly because of a lack of data and standardized methods for collecting and analysing this information. To address this gap, *Countdown* developed a tool set for use in country case studies to systematically analyse and compare national trends in policy adoption and programme implementation for reproductive, maternal, newborn and child health.

The tool set builds on policy-tracking approaches developed for the Decade of Change for Newborn Survival series[1] and inputs from more than 100 policymakers in *Countdown* countries[2] to help in monitoring four phases of the policy process—agenda setting, policy formulation, policy implementation and evaluation. It will be available at www.countdown2015mnch.org in 2016 and includes four tools: the policy and programme timeline tool, the health policy tracer indicators dashboard, the health systems tracer indicators tool and the programme implementation assessment.

Figure 1 shows the timeline developed for Tanzania spanning 1990–2015,[3] which identifies all major policy and systems changes related to reproductive, maternal, newborn and child health. Tanzania has experienced a complex policy and strategy environment since 1990. Child health has received consistent attention, with a focus on scaling up high-impact interventions at lower health system levels, such as the community level. Prioritization of maternal health started in the mid-1990s, with programmes and polices targeted at secondary and tertiary levels of the health system. Specific attention to newborn health started later in 2005, but programmes are being rapidly scaled up at the facility and community levels. Reproductive health lost momentum over 1990–2000s, with recent re-investment.

These tools can help tell the story of when changes in policies and programmes took place within and across countries, a starting point for understanding strategies adopted by countries to end preventable maternal, newborn and child deaths. They can also provide important lessons to guide countries in their efforts to achieve the post-2015 development goals. Further work is needed in developing standardized approaches to measure the strength of programme implementation that go beyond the *Countdown* tool set, which is critical for monitoring programme performance and impact on health outcomes.

Notes

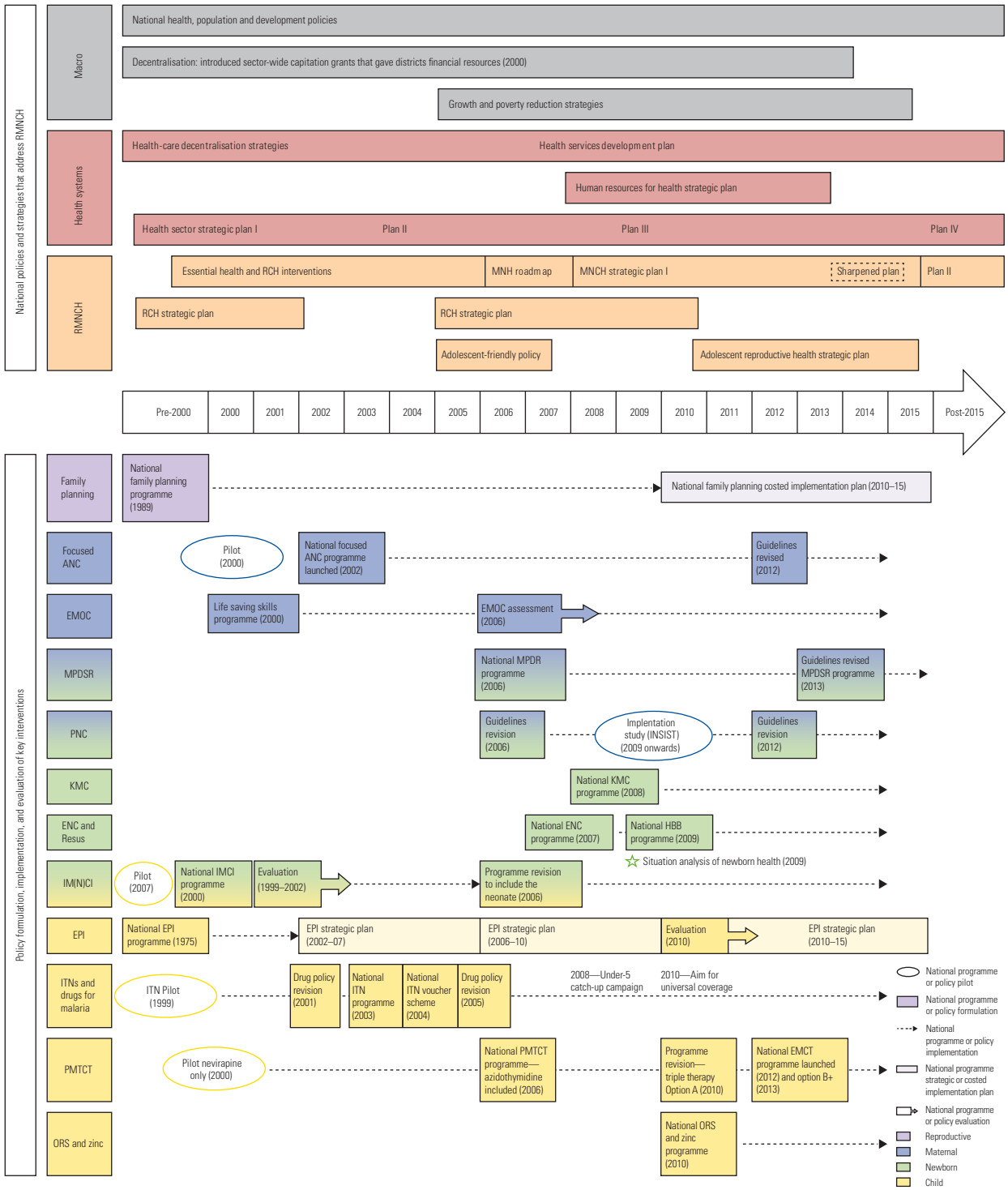
1. Brewer and DeLeon 1983.
2. Moran and others 2012.
3. Afnan-Holmes and others 2015.

(continued)

BOX 9 (CONTINUED)

What can systematic tools to track health systems and policy change contribute to understanding progress for ending preventable maternal, newborn and child mortality?

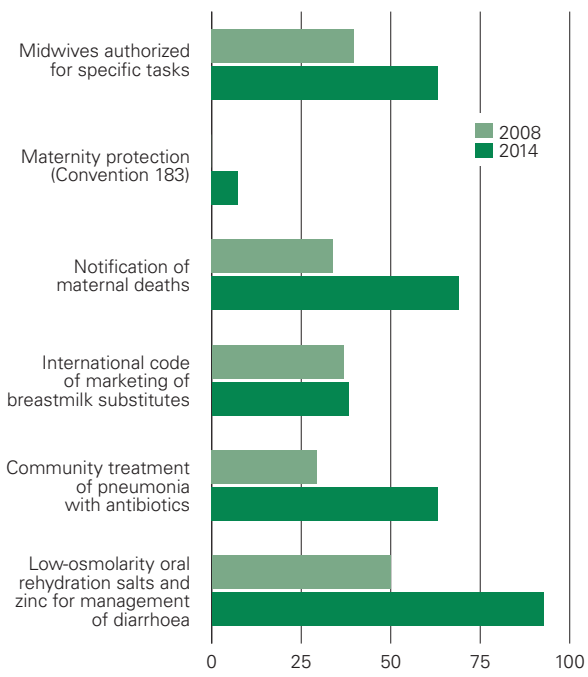
Tanzania's timeline of major policy and systems changes related to reproductive, maternal, newborn and child health, 1990–2015



Source: Afnan-Holmes and others 2015.

FIGURE 5

The number of countries that adopted each of six supportive policies for which trend data are available increased markedly between 2008 and 2014



Source: World Health Organization Global Maternal Newborn Child and Adolescent Health Policy Indicator Surveys.

for increasing service access, quality and use.[49] The next steps in Ethiopia are to introduce health worker policies that will improve motivation and reduce turnover by ensuring a reasonable task load and supportive supervision, to strengthen the supply chain system in order to reduce stockouts of equipment and supplies, to develop a robust information system with a feedback loop in order to monitor the extent to which services are being delivered, and to improve the referral chain. The country is aiming to boost demand for services through its Health Development Army, whose tasks include disseminating health messages at the community level.

Countdown has contributed to substantial increases in data availability on policies by helping shape the contents of the WHO's biennial policy survey. More work is needed to overcome the limitations of using a survey-based approach in order to ensure more timely and accurate information and to explore associations between policy implementation and changes in coverage.

Countdown's tracking of country progress in including key reproductive, maternal, newborn and child health commodities on the essential medicine list and in having costed national plans for women's and children's health is aligned with global efforts such as the Commission on Life-Saving Commodities to improve supply chain systems and the quality of care. The WHO is leading efforts to assess the feasibility of collecting data on selected tracer indicators for measuring quality of care for maternal, newborn and child health (box 11).

Increases in funding are encouraging, but reliable financing for reproductive, maternal, newborn and child health remains a concern

The establishment of the Millennium Development Goals framework led to a major upswing in political prioritization of women's and children's health,[50] and official development assistance surged after the Millennium Development Goal summit in 2000.[51] Although the growth in official development assistance slowed substantially following the economic crisis in 2007–08, official development assistance to maternal, newborn and child health in the *Countdown* countries tripled over 2003–12, from $2 billion to $6 billion.[52] Most of the investment was for general health care (including health systems support), reproductive health, malaria programmes and immunization programmes. During the same period, official development assistance for projects that mention newborns grew exponentially, from $33 million to $1 billion, reflecting the greater visibility of newborn health.[53] But these investments are far too little given that neonatal causes account for almost half of deaths among children under age 5.

Government expenditures for reproductive, maternal, newborn and child health in *Countdown* countries increased approximately 31% between 2010 and 2013.[54] Although the increased commitments and funding associated with the UN Every Woman Every Child Initiative are encouraging, further increases are needed to accelerate progress in reducing preventable maternal and child deaths. In particular, better targeting of resources to assist countries with the greatest burden and to support the scale-up of high-impact interventions would help narrow inequities between and within countries and promote the achievement of the next set of global goals. Box 12 outlines disbursements for reproductive, maternal, newborn and child health in 2013, describing the largest donors and how aid is targeted to the *Countdown* countries.

BOX 10

Positive policy changes for maternal death notification—but more action is needed for stillbirths and neonatal deaths

There is widespread acknowledgment of the need for more and better data on deaths of women and newborns around the time of birth. New guidelines and tools for maternal death surveillance are now available, and many countries have adopted policies related to maternal death notification. Figure 5 in the main report shows that of the 68 countries with available trend data, 47 (69%) reported having a policy on maternal death notification in 2013–14, up from 23 (34%) in 2008. Progress has been slower for policies requiring all stillbirths and neonatal deaths to be reviewed. Only 16 Countdown countries reported having such a policy for stillbirths, and only 30 reported having one for neonatal deaths, according to a 2013–14 World Health Organization Global Maternal, Newborn Child and Adolescent Health Policy Indicator Survey.

Adoption of policies for maternal, stillbirth and neonatal death notification and review is only a first step; it must be followed by full implementation, which includes the scale-up of maternal and perinatal audits. As a complement to a country's civil and vital registration system, maternal and perinatal mortality audits can provide essential evidence to guide programmatic changes, leading to better quality of care.[1] However, many low- and middle-income countries lack a systematic approach for reviewing the causes and factors linked to maternal and perinatal deaths and "near-miss events" occurring in facilities and in the community. The large number of stillbirths and neonatal deaths, particularly in comparison to maternal deaths, presents a challenge to already weak health information systems that are not equipped to capture, let alone review, the quality of services provided to each baby who died. However, some countries are making an effort towards registering every birth and death and promoting review of select stillbirth and neonatal death cases in order to improve the quality of intrapartum care.

To increase political prioritization of notification and review of stillbirths and neonatal deaths, the Every Newborn Action Plan includes a milestone for developing perinatal mortality audit guidelines. These guidelines will help clarify who is responsible for recording and reviewing stillbirths and neonatal deaths and how to use the information to improve health worker and health system performance.

The benefit of audit and feedback is well recognized, and countries need to be supported in their efforts to adopt policies related to civil and vital registration and to implement both maternal and perinatal audits as critical actions towards preventing future deaths of mothers and their babies.[2]

Notes

1. Commission on Information and Accountability for Women's and Children's Health 2011b.
2. Mathai and others forthcoming.

Each *Countdown* case study includes a detailed analysis of trends in financial flows to reproductive, maternal, newborn and child health and illustrates the complexity of the funding environment (see box 1). For example, the Peru[55] and Ethiopia case studies both showed rapid growth in reproductive, maternal, newborn and child health expenditures over the past decade, which their authors suggest was an important contributor to accelerations in child survival. But the two countries used different resources and financing mechanisms to fund their programmes. Peru, an upper middle-income country, relied mostly on domestic funding, while Ethiopia, a low-income country, relied heavily on external funding. Both countries have high out-of-pocket spending, which must be addressed to make health care more affordable to disadvantaged population groups (box 13).

The general consensus across the panoply of resource-tracking efforts is that official development assistance and domestic expenditures for reproductive, maternal, newborn and child health are increasing.[56] Data on domestic spending on reproductive, maternal, newborn and child health are insufficient to estimate trends for the *Countdown* countries. The work of the Lancet Global Commission on Investing in Health, which emphasizes the centrality of reproductive, maternal, newborn, child and adolescent health for achieving global development, and the World Bank's recently announced Global Financing Facility in support of Every Woman Every Child are signs that investments in reproductive, maternal, newborn, child and adolescent will continue to grow.[57] Such investments will focus on child and adolescent development in addition to survival.

BOX 11

Measuring quality of care: challenges and solutions

Services for women and children must meet quality standards to be effective in saving lives. Assessing care quality and using the results to strengthen service delivery are urgent priorities. Numerous tools exist for these purposes, ranging from readiness assessments that determine whether trained personnel and system supports are available (such as the World Health Organization's [WHO] Service Availability and Readiness Assessments and Demographic and Health Surveys Service Provision Assessments) to full observation-based evaluations of the care received (such as the Maternal and Child Health Integrated Program's Rapid Health Facility Assessment, the World Health Organization's Health Facility Survey for the Integrated Management of Childhood Illness and MEASURE Evaluation's Quick Investigation of Quality).

However, a remaining challenge is to define a standard set of core quality indicators and associated measurement tools that can produce comparable data across programmes and countries. Ideally, information on these indicators should be captured through existing systems and not through special studies or surveys. In 2013 the WHO convened a technical meeting that recommended 19 quality indicators across the continuum of care.[1] The WHO is now assessing the feasibility of collecting comparable data on them in different settings.

The potential of routine systems to generate needed data on quality was assessed through two efforts over 2012–14. Both the U.S. Agency for International Development–funded Maternal and Child Survival Program[2] and the Centre for Maternal and Newborn Health at the Liverpool School of Tropical Medicine[3] assessed the availability of relevant routine data on service quality in selected countries in Sub-Saharan African and South Asia. The Maternal and Child Survival Program focused on national health management and information systems, and the Centre for Maternal and Newborn Health focused on health facilities. The results were sobering and suggest that standalone tools will be needed to complement routine sources in order to generate data on service quality for some time, especially for newborn care.

Even using specific tools, however, generating data to support measurement of the 19 indicators may not be feasible in most settings, as found in a recent exercise conducted by the World Council of Churches in 24 mostly second-level health care facilities in rural areas of five African countries.[4] The exercise also found that some of the recommended child and newborn indicators may need to be reformulated so that the information collected is more useful for informing efforts to improve the performance of health worker systems. Strong leadership and a focused development programme will be needed to generate technical consensus on a limited number of quality indicators across the continuum of care that are feasible for measurement in low- and middle-income countries and to generate timely information useful for both programme monitoring and global reporting. The Sistema Informático Perinatal that has been implemented by the Latin American Perinatal Center in many countries of the region may provide a good model, especially because it illustrates the importance of tempering an aspirational list of indicators with concrete realities about the information actually available and able to be tracked routinely at the country level.[5]

Notes

1. WHO and Partnership for Maternal, Newborn and Child Health 2014.
2. Formerly the Maternal and Child Integrated Program. See www.mcsprogram.org and Dwivedi and others (2014).
3. Liverpool School of Tropical Medicine, Centre for Maternal and Newborn Health 2015.
4. Roos and others 2015.
5. PAHO 2010.

However, the very large number of goals and targets in the Sustainable Development Goals framework could detract from a sustained and accelerated focus on reproductive, maternal, newborn and child health, leaving many countries short of funds, particularly those that depend heavily on donors. The most important strategies in the coming years may be those that shore up the contribution of national sources to reproductive, maternal, newborn and child health. Country-level mechanisms such as concrete investment cases and accountability procedures that strengthen collaboration between citizens and governments can build more sustainable and efficient funding for reproductive, maternal, newborn and child health at the local level.

BOX 12

Official development assistance: 2013 updates

Tracking commitments and disbursements of official development assistance is valuable for holding donors to account for their commitments. This box presents data on flows of official development assistance disbursements in 2013 for reproductive, maternal, newborn and child health to the 75 *Countdown* countries. The term ODA+ is used to encompass disbursements from all donors reporting to the Organisation for Economic Co-operation and Development Creditor Reporting System, including official flows that are not official development assistance as well as private grants.[1] All values are in 2013 U.S. dollars.

ODA+ to health to all recipients was estimated at $25.8 billion in 2013, accounting for 12% of total ODA+ and up 13% in real terms from 2012. ODA+ to health among the *Countdown* countries was $17.4 billion, up 15% in real terms from 2012. Over 2003–13 ODA+ to health nearly tripled among all recipients and more than tripled in the *Countdown* countries (figure 1).[2]

An estimated $13.4 billion of ODA+ was disbursed to the *Countdown* countries for reproductive, maternal, newborn and child health in 2013, up 34% from $9.9 billion in 2012. The $13.4 billion included $2.5 billion for maternal and newborn health (19% of the total and up 28% from 2012), $6.4 billion for child health (48% of the total and up 35% from 2012) and $4.5 billion for reproductive health (including family planning, sexual health and sexually transmitted infections, including HIV; 33% of the total and up 38% from 2012). The 75 *Countdown* countries received 91.5% of the $14.6 billion in ODA+ for reproductive, maternal, newborn and child health disbursed in 2013 to 148 countries worldwide.

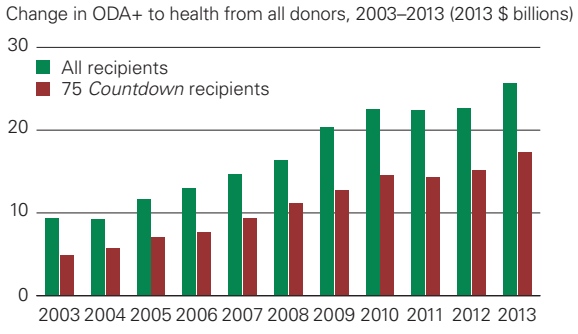
From whom?

In 2013, as in previous years, more than half of ODA+ to reproductive, maternal, newborn and child health to the 75 *Countdown* came from bilateral agencies (58%), 14% came from multilateral agencies, 23% came from global health initiatives and 5% came from private foundations. The relative prominence of donor types varied across health areas: bilateral agencies provided three-quarters of funding to reproductive health, global health initiatives provided a third of funding to child health and multilateral agencies provided a quarter of funding to maternal and newborn health (figure 2).

Global health initiatives and private foundations gave the majority of their reproductive, maternal, newborn and child health funding to child health projects (two-thirds by global health initiatives and three-quarters by private foundations). Multilateral agencies gave just over half their reproductive, maternal, newborn and child health funding to child health and a third to maternal and newborn health, and bilateral agencies gave over two-fifths to reproductive health (figure 3).

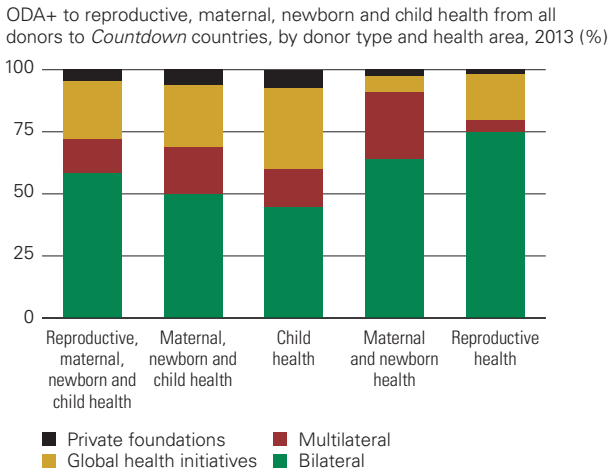
The largest donor to reproductive, maternal, newborn and child health in 2013 was the United States, providing 30% of the total ODA+ disbursed. The largest

Figure 1. Over 2003–13 ODA+ to health nearly tripled among all recipients and more than tripled in the *Countdown* countries



Source: Organisation for Economic Co-operation and Development–Development Assistance Committee Creditor Reporting System and Aid Activities Database.

Figure 2. The relative prominence of donor types varied across health areas

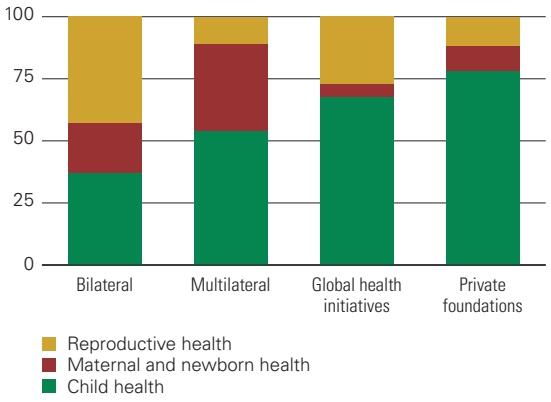


Source: Organisation for Economic Co-operation and Development–Development Assistance Committee Creditor Reporting System and Aid Activities Database.

(continued)

Figure 3. Global health initiatives and private foundations gave the majority of their reproductive, maternal, newborn and child health funding to child health projects

Distribution of the focus areas of ODA+ to reproductive, maternal, newborn and child health disbursements by type of donor (%)



Source: Organisation for Economic Co-operation and Development–Development Assistance Committee Creditor Reporting System and Aid Activities Database.

donors by health area were Gavi, the Vaccine Alliance, to child health (21%) and the United States to maternal and newborn health (15%) and to reproductive health (62%). The total proportion provided by the 10 largest donors in each health area varied from 69% of ODA+ to maternal and newborn health to 94% of ODA+ to reproductive health, and was 84% of ODA+ to reproductive, maternal, newborn and child health (see table). The increase in funding to reproductive, maternal, newborn and child health between 2012 and 2013 was driven primarily by increases in disbursements of 37% from the United States ($3.0 billion to $4.1 billion), 75% from the United Kingdom ($754 million to $1.3 billion) and 60% from Gavi, the Vaccine Alliance ($858 million to $1.4 billion), as well as by large increases from the Bill & Melinda Gates Foundation, the Global Fund to Fight AIDS, Tuberculosis and Malaria, the International Development Association and Norway.

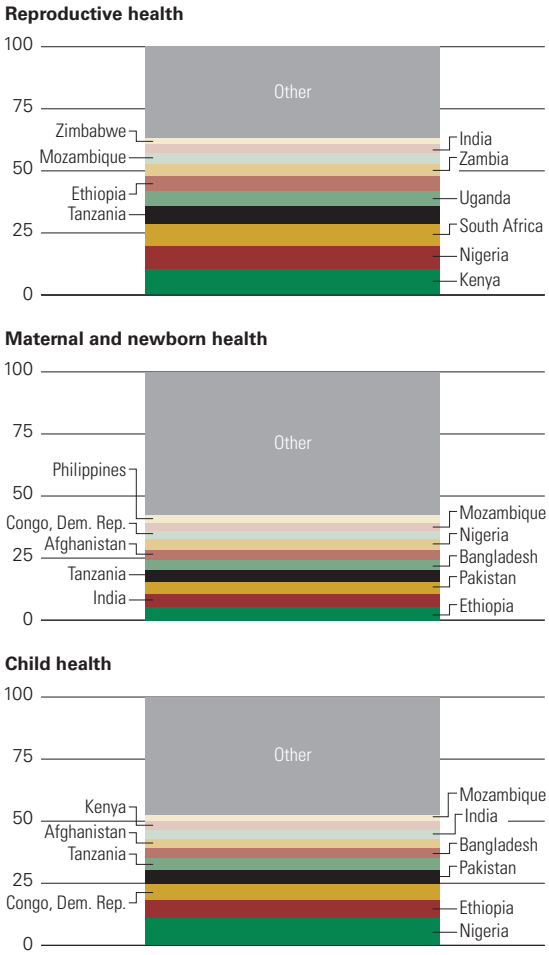
As a proportion of national gross domestic product, the largest disbursements to reproductive, maternal, newborn and child health in 2013 came from Norway (0.07%), the United Kingdom (0.05%), Sweden (0.04%), Luxembourg (0.04%) and Canada (0.04%).[3]

To whom?

As in previous years, in 2013 more-populous countries received greater absolute disbursements, and countries with smaller populations received more funding per capita. Kenya, Nigeria, South Africa and Tanzania received the most funding for reproductive health, with the 10 largest recipients receiving 63% of ODA+ to reproductive health (figure 4). Ethiopia, India and Pakistan received the most funding for maternal and newborn health, with the 10 largest recipients receiving 42% of ODA+ to maternal and newborn health. Nigeria, Ethiopia and the Democratic Republic of Congo received the most funding for child health, with the 10 largest recipients receiving 52% of ODA+ to child health.

Figure 4. In 2013 the 10 largest recipients received 42% of all ODA+ to maternal and newborn health, 52% of all ODA+ to child health and 63% of all ODA+ to reproductive health

Recipients of the largest disbursements of ODA+ to reproductive, maternal, newborn and child health from all donors to *Countdown* countries, by health area, 2013 (%)



Source: Organisation for Economic Co-operation and Development–Development Assistance Committee Creditor Reporting System and Aid Activities Database.

(continued)

BOX 12 (CONTINUED)

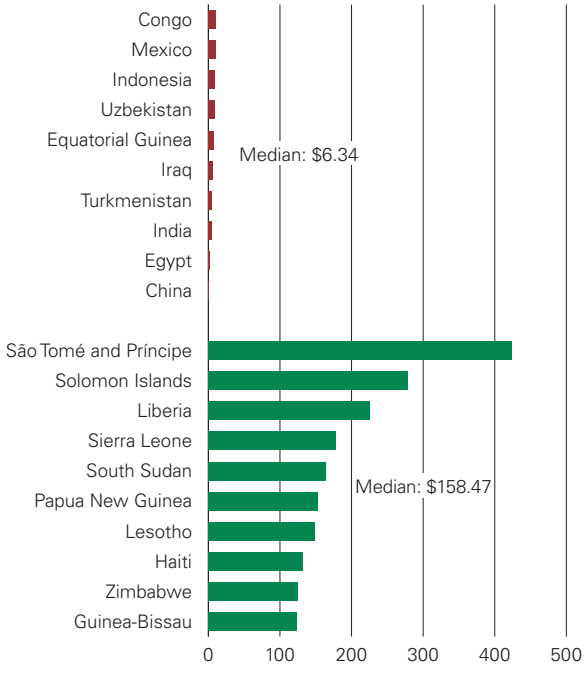
Official development assistance: 2013 updates

ODA+ to maternal, newborn and child health per capita

Across *Countdown* countries, ODA+ to reproductive, maternal, newborn and child health varies widely, even after adjusting for the size of the population. For example, the median ODA+ to maternal and newborn health per live birth was $6.34 for the 10 countries receiving the least and $158.47 for the 10 countries receiving the most (figure 5). The median ODA+ to child health per child under age 5 was $2.50 for the 10 countries receiving the least ODA+ and $54.68 for the 10 countries receiving the most (figure 6). Nigeria received the most ODA+ to child health in absolute terms ($697 million) but ranked 37th in ODA+ to child health per child under age 5 ($22.91). Conversely, São Tomé and Príncipe ranked 71st in total ODA+ to child health received (under $5 million) but had the highest disbursement per child under age 5 ($162.23).

Figure 5. The median ODA+ to maternal and newborn health per live birth was $6.34 for the 10 countries receiving the least and $158.47 for the 10 countries receiving the most

Ten highest and ten lowest disbursements of ODA+ for maternal and newborn health per live birth among *Countdown* countries (%)



Source: Organisation for Economic Co-operation and Development–Development Assistance Committee Creditor Reporting System and Aid Activities Database.

Figure 6. Median ODA+ to child health per child under age 5 was $2.50 for the 10 countries receiving the least ODA+ and $54.68 for the 10 countries receiving the most

Ten highest and ten lowest disbursements of ODA+ for child health per child under age 5 among *Countdown* countries ($)

Source: Organisation for Economic Co-operation and Development–Development Assistance Committee Creditor Reporting System and Aid Activities Database.

Funding by type of health activity

The largest share of ODA+ to child health supported immunization activities, excluding polio (27%, $1.7 billion), followed by generic malaria programming benefitting children (16%, $1.0 billion) and primary health care benefitting children (14%, $892 million). Maternal and neonatal health benefitted most from activities specifically focused on maternal and neonatal health (28%, $695 million), on maternal and child health spending (21%, $526 million), nutrition programming (13%, $327 million) and generic malaria programming (11%, $284 million). Disbursements for reproductive health were overwhelmingly for HIV programming (77%, $3.4 billion), followed by family planning (17%, $753 million).

(continued)

BOX 12 (CONTINUED)

Official development assistance: 2013 updates

Sources of 10 largest disbursement totals by health area, 2013

	Reproductive, maternal, newborn and child health		Maternal, newborn and child health		Child health		Maternal and newborn health		Reproductive health	
	$ millions	Share of ODA+ to repro-ductive, maternal, newborn and child health (%)	$ millions	Share of ODA+ to maternal, newborn and child health (%)	$ millions	Share of ODA+ to child health (%)	$ millions	Share of ODA+ to maternal and newborn health (%)	$ millions	Share of ODA+ to repro-ductive health (%)
Australia							91.4	4	49.4	1
Bill & Melinda Gates Foundation	617.0	5	543.4	6	481.5	7			73.5	2
Canada	547.7	4	522.7	6	353.5	5	169.3	7		
EU institutions	491.4	4	465.1	5	296.1	5	164.2	7		
Gavi, the Vaccine Alliance	1,369.6	10	1,364.8	15	1,354.4	21				
Germany	312.3	2	251.5	3	154.1	2	97.3	4	60.8	1
Global Fund to Fight AIDS, Tuberculosis and Malaria	1,725.7	13	893.3	10	735.0	11	158.4	6	832.4	19
International Development Association	556.3	4	496.3	6	366.5	6	129.9	5	59.9	1
Japan	228.2	2	216.9	2	129.6	2	87.3	4		
Netherlands									79.1	2
Norway							93.4	4	58.6	1
Sweden									49.0	1
United Kingdom	1,322.2	10	1,159.7	13	816.5	13	343.3	14	162.4	4
United States	4,050.9	30	1,304.1	15	921.5	14	382.7	15	2746.8	62
Other donors	21,51.4	16	1,700.7	19	829.1	13	759.0	31	282.0	6
Total	13,372.6	100	8,918.6	100	6,442.6	100	2,476.0	100	4,454.0	100

Source: Organisation for Economic Co-operation and Development's Development Assistance Committee.

Notes

1. The 2014 *Countdown* report used the same methodology, but the term "ODA+" was not introduced until the publication of Arregoces and others (2015). Prior to 2014, *Countdown* reports included only the 31 donors that had consistently reported to the Creditor Reporting System for all years. The 2014 report and the present report include all donors.

2. ODA+ to health is the total disbursement reported to the Creditor Reporting System under sector codes 120 (health) and 130 (population and reproductive health). It is not strictly a denominator for the projects included as ODA+ to reproductive, maternal, newborn and child health in the present report, which includes projects outside those sector codes that benefitted reproductive, maternal, newborn and child health and excludes some projects in those sector codes. However, the vast majority of reproductive, maternal, newborn and child health expenditure by value (94% in 2013) is from projects in those sector codes.

3. Based on 2013 GDP values from the Organisation for Economic Co-operation and Development (https://data.oecd.org/gdp/gross-domestic-product-gdp.htm).

BOX 13

Financing for women's and children's health in Ethiopia and Peru

As part of *Countdown*'s efforts to better understand country progress towards Millennium Development Goals 4 and 5, analyses of domestic health care financing and official development assistance were completed for each country case study. These analyses documented trends in reproductive, maternal and child health expenditures, tracked government, external and out-of-pocket health expenditures and examined how health spending correlated with reproductive, maternal, newborn and child health outcomes. Below are summaries of the findings from Peru and Ethiopia, two countries that achieved Millennium Development Goal 4.

Health financing in Peru

Peru has made remarkable achievements in the last two decades to reduce under-five, maternal and neonatal mortality; these achievements were accompanied by increased health financing. Over the past 15 years total health expenditure more than doubled in real terms, boosting per capita health expenditure from $195 in 1995 to $333 in 2012.[1] However, health expenditure as a percentage of GDP changed little, fluctuating around 4% to 5%, because of the country's rapid economic growth.[2]

Peru experienced a similar increase for reproductive, maternal, newborn and child health financing: from $72 in 1999 to $2,135 in 2012.[3] Reproductive, maternal and newborn health expenditure per pregnant woman rose from $828 in 2006 to $1,644 in 2012, and child health expenditure per child rose from $119 in 2006 to $319 in 2012. The increase in reproductive, maternal, newborn and child health expenditure was funded mainly domestically, as donor funding as a form of official development assistance averaged only 4% of total reproductive, maternal, newborn and child health expenditure between 2003 and 2012. Government expenditures grew from 24% of reproductive, maternal, newborn and child health expenditures in 2006 to 40% in 2012; however, household out-of-pocket spending remains high, at 26% in 2012. For child health in particular, Peru saw a rapid increase in government contributions, which rose from 24% of child health expenditures in 2006 to 47% in 2012. Consequently, the contribution of household out-of-pocket spending fell from 34% in 2006 to 23% in 2012.

Several main policies and movements can be linked to the rise in reproductive, maternal, newborn and child health spending in the past 15 years. During the 1990s increased focus on social assistance and family planning policies and programmes appears to have fuelled increases in reproductive, maternal, newborn and child health expenditure. In the 2000s stronger civil society advocacy further spurred political commitments on maternal and child health, leading to increased government expenditure on reproductive, maternal, newborn and child health interventions. From 2007 onwards, Peru also adopted results-based budgeting policies, which likely improved efficient spending with the potential to translate into better reproductive, maternal, newborn and child health outcomes now and in the future.

Health spending in Ethiopia

Although Ethiopia will not achieve Millennium Development Goal 5, the country achieved Millennium Development Goal 4 before the 2015 deadline. Over the past 15 years (1995/96–2010/11) Ethiopia has invested heavily in health. Total health expenditure as a percentage of GDP increased from 3.8% in 1995/96 to 5.2% in 2010/11.[4] This led to an increase in per capita health expenditure of about 400%, from $4.09 in 1995/96 to $20.77 in 2010/11.

Ethiopia's spending on reproductive, maternal, newborn and child health experienced a similar increase from 2004/05 to 2010/11. Per capita reproductive and maternal health spending tripled (from $3.69 to $12), and per capita child health spending doubled (from $8 to $16) in nominal terms. The rapid growth in reproductive and maternal health funding between 2005 and 2011 was due mostly to continued high external support (outside sources accounted for 44% of total reproductive and maternal health expenditures in 2004/05 and 47% in 2010/11). The government's contribution also increased from 19% in 2004/05 to 25% in 2010/11. These funding increases reduced household out-of-pocket spending for reproductive and maternal health 10 percentage points. By contrast, household out-of-pocket spending for child health increased, from 42% of total child health spending in 2004/05 to 48% in 2010/11, while contributions to child health from government and external resources stagnated or decreased.[5]

(continued)

BOX 13 (CONTINUED)

Financing for women's and children's health in Ethiopia and Peru

Ethiopia mobilized more external resources for health (especially for reproductive and maternal health) through its harmonization initiative to enhance donor effectiveness. Acceleration in reproductive, maternal, newborn and child health funding between 2005 and 2011 enabled some health sectorwide changes, including the expansion of service delivery programmes such as the Health Extension Program and the community-based nutrition programme.

* * *

The Peru and Ethiopia case studies show that both countries had strong political support for reproductive, maternal, newborn and child health and experienced rapid growth in total health expenditure and reproductive, maternal, newborn and child health expenditure in the past decade. Yet that growth resulted from different sources, perhaps related to the two countries' development status. Peru, an upper middle-income country, relied mostly on domestic funding, while Ethiopia, a low-income country, relied heavily on external funding. Despite these differences, both countries have high out-of-pocket spending, which should be addressed to make health care more affordable to lower income groups and to improve the sustainability of health gains achieved.

Notes

1. All dollar values in the discussion of Peru are in 2012 U.S. dollars.
2. WHO Global Health Expenditure Database.
3. Peru Ministry of Economy and Finance, Organisation for Economic Co-operation and Development Creditor Reporting System, Encuesta Nacional de Hogares andInstituto Nacional de Estadística e Informática (INEI).
4. All dollar values in the discussion of Ethiopia are in nominal U.S. dollars.
5. Ethiopian Public Health Institute 2015.

Monitoring and accountability: how the *Countdown* experience can inform the Sustainable Development Goals

The Millennium Development Goals encouraged global political consensus, provided a focus for advocacy and visibility, improved the targeting and flow of aid and strengthened monitoring of process and outcome indicators.[58] Within the context of the health Millennium Development Goals, *Countdown* played a unique role as a multistakeholder initiative aimed at monitoring and accountability. The country profiles and the global report linked to peer-reviewed journal articles in *The Lancet,* coupled with dissemination through a global event, represented *Countdown*'s persistent efforts to galvanize evidence-based advocacy for women's and children's health. Its success in advocacy and in country-level monitoring and accountability for Millennium Development Goals 4 and 5 was complemented by other initiatives, such as the independent Expert Review Group on Information and Accountability for Women's and Children's Health,[59] that relied heavily on *Countdown*'s analysis and interpretation of data to push for global accountability.

Countdown's experience has inspired others. For example, advocates for the Non-Communicable Diseases Countdown 2025 wrote, "Lessons from Countdown to 2015 include the importance of collaboration and inclusiveness; adaptation of global targets to the national situation; regular measurement; transparent review and publication of progress on priority interventions and outcomes; strong engagement of academia and civil society; regular reports based on fairly simple summaries of country progress; and adequate resources. Countdown to 2015, while retaining a core of basic information, has evolved to include detailed country reports and shows the value of a strong and independent partnership for global health."[60] Leaders of global initiatives developed to track physical activity[61] and nutrition[62] also acknowledge that *Countdown* has inspired their work.

This final *Countdown* report focuses on trends over the past 15 years. Intervention coverage increased for most interventions, and particularly for interventions that received substantial donor investment, such as those against malaria and HIV.[63] The gap in intervention coverage between rich and poor seems to be narrowing, at least for interventions that have been available in low-income countries for many years, as well as for some interventions introduced more recently that benefit from strong political support and do not require functional health systems such as insecticide-treated nets and new vaccines (rotavirus and pneumococcal). More countries are adopting supportive policies, and financing for reproductive, maternal, newborn and child health has increased.

But each of these positive statements about general trends must be qualified. Cost-effective interventions still fail to reach a large proportion of those who need them. Socioeconomic inequities in coverage remain rampant. Political conflict severely disrupts health service delivery in many *Countdown* countries. Most countries still lack essential policies and sufficient and equitably distributed human resources and commodities. And despite increased funding, there is still a huge shortfall of reliable, sustainable resources for reproductive, maternal, newborn, child and adolescent health, plus a tendency for donors and governments to favour a few types of interventions (such as vaccines and family planning) over others (such as promoting breastfeeding and managing diarrhoea and pneumonia).

The Sustainable Development Goals are unquestionably much broader and more complex than the Millennium Development Goals—and will bring about substantive challenges to monitoring and accountability. This final section discusses how lessons from the *Countdown* process may be relevant to the Sustainable Development Goals era.

- *Establish clear, consistent baseline data.* The Millennium Development Goals were launched

in 2000 with a baseline of 1990, a peculiar choice implying that signatory countries were accountable for trends in the intervening decade. In addition, the absence of consistent, comparable, timely data on births and deaths led to complex modelling procedures for estimating current and past maternal and child mortality in many countries. Reliance on these methods meant that historical trends were revised every time new data became available. Baseline values therefore kept changing, and countries seemed to be aiming at moving targets. Fortunately, the starting date for the Sustainable Development Goals is fixed in 2015, but substantial investments in data collection are urgently needed to provide valid and precise baseline values.[64]

- *Solve the modelled mortality problem.* Whereas child mortality estimates are modelled based on actual mortality data from censuses, surveys or civil registration, maternal mortality was, until 2015, modelled for most low- and middle-income countries based on predictor variables such as gross domestic product per capita, general fertility rate and coverage of skilled attendants at delivery due to lack of sufficient data points.[65] The model only changed in 2015 to take better account of the gradually increasing number of data points from death registration systems, censuses and surveys. Despite important problems with the acceptability of modelled estimates in many countries, very few countries have invested in large-scale data collection efforts able to accurately measure maternal mortality,[66] and even fewer countries have developed full-scale registration systems that yield reliable mortality statistics.[67] Stillbirths should also not be forgotten—and must be included in efforts to collect better mortality data.

- *Improve measurement and data collection.* In addition to dependence on modelled mortality estimates during the Millennium Development Goals era, coverage measurements were derived from infrequent household surveys and ad hoc systems for tracking policies, health system measures and funding flows. The Millennium Development Goals framework has also been justly criticized for its neglect of equity. The international community must invest now in improving measurement. Measuring effective coverage and quality of preventive and curative interventions deserves special attention. Regular surveys using consistent measurement of equity stratifiers, such as wealth, residence or ethnicity, are also essential for tracking progress over time in reaching priority and disadvantaged groups with life-saving interventions. Much more should be done to obtain subnational statistics, a major gap identified by countries. Doing so will likely involve a mix of population-based, facility-based and administrative data sources.

- *Ensure that common standards of measurement and reporting are used.* Some of the larger Countdown countries (including China, Brazil, Mexico and South Africa) conducted their own surveys or substantially modified existing surveys such as Demographic and Health Surveys and Multiple Indicator Cluster Surveys. This has resulted in a lack of comparability of data from these countries on several core indicators. It is strongly recommend that countries measure and report on core indicators using international standards.

- *Set relative targets to complement fixed targets for assessing country progress.* Countdown's experience with monitoring progress towards the Millennium Development Goals shows the importance of setting targets as proportional improvements in outcomes over time that thus have universal relevance. For example, Millennium Development Goals 4 and 5 were clearly defined, with quantitative goals for relative mortality reductions. The corresponding Sustainable Development Goals (3.1 and 3.2) propose absolute targets of 25 deaths per 1,000 live births or less at the national level for under-five mortality, 12 deaths per 1,000 live births or less at the national level for neonatal mortality and 70 deaths per 100,000 live births or less at the global level for maternal mortality by 2030. According to 2015 estimates, 8 Countdown countries already meet the target for the under-five mortality rate below 25, and 11 meet the target for the maternal mortality ratio (see table 1). What type of progress, if any, should these countries be aiming for? Based on Countdown's interaction with countries regarding progress towards global goals, the provisional Sustainable Development Goal targets must be urgently revisited and improved. The targets need to be more country-specific and to consider equity, so that progress can be assessed against baselines.

- *Set targets that are aspirational but also achievable.* That only 25 Countdown countries will achieve Millennium Development Goal 4 and only 6 will achieve Millennium Development

Goal 5 suggests that the original targets were too ambitious, particularly in view of the progress in financial flows to reproductive, maternal, newborn and child health and health system strengthening (such as addressing the human resource crisis and adopting and implementing supportive policies). Targets should still be set that push countries to strive to achieve them but that are realistic and take into consideration country contexts.

- *Track specific coverage indicators and a composite coverage index.* The Countdown experience highlights the importance of focusing on interventions with an evidence-based impact on health status and of tracking how coverage for these interventions changed over time on a country-by-country basis. Although a huge task, monitoring 73 coverage indicators provides specific feedback on what needs to be improved and where. Such detail is essential but is complemented by a summary measure—the Composite Coverage Index. Rigorous tests have shown that it is robust, stable and highly associated with measures of mortality. In fact, the Composite Coverage Index provides a promising approach to measuring universal health coverage and includes a focus on equity, two pillars at the heart of the health Sustainable Development Goal.

- *Choose indicators carefully and balance focus with breadth.* The large number of Sustainable Development Goal targets—recently estimated at 169—has brought about substantial criticism.[68] Each target will require specific indicators, often two or more. The *Countdown* experience shows that an initial, short list of goals, targets and associated indicators can expand rapidly over time, as new interventions become available and as interest groups lobby —often with strong justification—for additional indicators. A rigorous technical process must be in place for ensuring the validity and reliability of new indicators, for ensuring that monitoring efforts stay coordinated and focused, for minimizing the reporting burden on countries and for ensuring that indicators are relevant to policymakers and program managers.

Countdown's niche has been country-level intervention coverage. This focus recognizes that biomedical interventions are one of the most important pathways through which broader contextual and health systems factors affect women's and children's health. During the Sustainable Development Goals era, with its focus on a wider set of health challenges and emphasis on universal health care, tracking progress in social and environmental determinants—including understanding the multiple pathways through which these determinants impact health and development—will be just as important as tracking progress in coverage and health status. These efforts will likely face data availability challenges similar to those faced by *Countdown*.

Several aspects of the *Countdown* experience may be relevant to similar initiatives in the Sustainable Development Goals era. Involving multiple stakeholders is essential for ensuring that data lead to action. Retaining scientific independence while forging a partnership of stakeholders with different interests and agendas is not always a smooth process, but *Countdown* achieved and maintained consensus about the indicators that should be monitored and disseminated based on the evidence. Positive pressure from stakeholders led to *Countdown*'s expansion from child survival in 2003 to the full reproductive, maternal, newborn and child health continuum of care. Balancing focus with breadth is not easy, and will likely be even harder in the Sustainable Development Goals era, both within the health goal and across all 17 Sustainable Development Goals.

Regardless of what lies ahead, *Countdown*'s experience over the past 10 years has established the importance and feasibility of a vibrant multistakeholder initiative with independence and a strong technical component in accelerating progress for the world's women and children. The launch and growth of Every Woman Every Child under the auspices of the UN Secretary-General, further supported by a new Global Financing Facility,[69] increase the relevance of *Countdown*'s work, challenging it to rise to the occasion by continuing its independent monitoring role and innovative technical work at the global and country levels, with the ultimate aim of holding all to account for saving women's and children's lives over the next 15 years. *Countdown* stands ready to begin.

Annex A
About *Countdown to 2015* for Maternal, Newborn and Child Survival

Countdown to 2015 for Maternal, Newborn and Child Survival is a global movement to track, stimulate and support country progress towards achieving the health-related Millennium Development Goals, particularly goals 4 (reduce child mortality) and 5 (improve maternal health). Established in 2003,[70] *Countdown* includes academics, governments, international agencies, professional associations, donors, nongovernmental organizations and other members of civil society, with *The Lancet* as a key partner. Members of the *Countdown* community share a common goal of using data to increase accountability for women's and children's health. *Countdown* specifically focuses on tracking coverage of a core set of evidence-based interventions proven to reduce maternal, newborn and child mortality.

What *Countdown* does

Countdown produces periodic publications, reports and other materials on key aspects of reproductive, maternal, newborn and child health, using data to hold stakeholders to account for global and national action.[71] At the core of *Countdown* reporting are two-page country profiles, updated approximately every two years, that present key demographic, nutritional status and mortality statistics; coverage levels and trends for proven reproductive, maternal, newborn and child health interventions; and policy, health system, financial and equity indicators to enable assessment of country progress in improving reproductive, maternal, newborn and child health. *Countdown* plays a central role in the follow-up to the UN Secretary-General's Global Strategy for Women's and Children's Health by annually updating one-page profiles showcasing the 11 indicators selected by the Commission on Information and Accountability for Women's and Children's Health.[72] *Countdown* also prepares equity profiles highlighting disparities in coverage in each of the 75 priority countries.

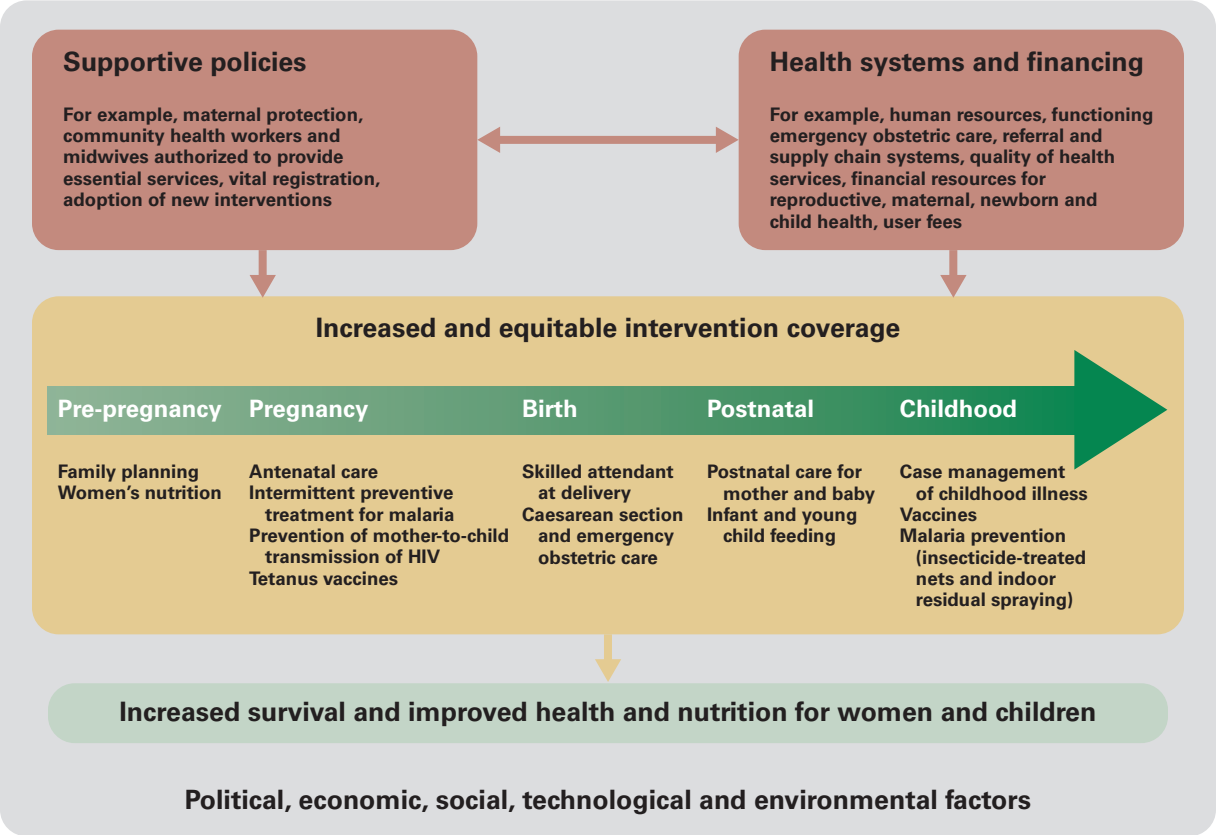
Countdown analyses are guided by a conceptual model (figure A1) consistent with the results-based evaluation framework for health systems strengthening that was developed by a working group of members from *Countdown*, the World Health Organization, the World Bank, the GAVI Alliance and the Global Fund to Fight AIDS, Tuberculosis and Malaria.[73] The model shows the range of indicators included in *Countdown's* four linked datasets on coverage, equity, policies and systems, and financial flows and illustrates possible pathways through which policy, systems and financing measures in a given context impact levels and trends in coverage of proven reproductive, maternal, newborn and child health interventions.

Countdown recognizes the paramount role of social, political, economic, cultural and environmental determinants in shaping population health. Many of these broader determinants influence health outcomes by increasing access, utilization and coverage with available life-saving interventions. Intervention coverage is thus the specific niche occupied by *Countdown* in the array of initiatives aimed at monitoring the Millennium Development Goals.

Countdown harnesses the global learning potential of its datasets through cross-cutting research and country case studies that allow for an in-depth exploration of the "how" and "why" of progress in reproductive, maternal, newborn and child health. These have been completed to date in Niger for child survival[74] and in Bangladesh for maternal survival,[75] with additional work nearing completion in Afghanistan, Pakistan, Ethiopia, Tanzania, Malawi and Peru.

FIGURE A1

Summary impact model guiding Countdown work



Annex B
Summary of *Countdown* data sources and analysis methods

Data sources

Most *Countdown* coverage, equity and nutrition data are from standardized, nationally representative household surveys, primarily Demographic and Health Surveys and Multiple Indicator Cluster Surveys. For national coverage estimates, *Countdown* reviews databases provided by stakeholder organizations, particularly the United Nations Children's Fund but also the United Nations Population Division and Save the Children, and extracts the data for the 75 *Countdown* countries.

Cause of death profiles are abstracted from World Health Organization statistical databases based on work by the Child Health Epidemiology Reference Group. As in past *Countdown* reports, the child mortality estimates are based on the work of the UN Inter-agency Group for Child Mortality Estimation—led by the United Nations Children's Fund and including the World Health Organization, the World Bank, the Population Division of the United Nations Department of Economic and Social Affairs and the United Nations Economic Commission for Latin America and the Caribbean Population Division—and are the official UN estimates for measuring progress towards Millennium Development Goal 4. The maternal mortality estimates are based on the work of an interagency group comprising the World Health Organization, the United Nations Children's Fund, the United Nations Population Fund and the World Bank.

Data for the *Countdown* health systems and policies indicators are abstracted from global databases maintained by the World Health Organization and other groups such as the International Labour Organization, routine monitoring data from UN organizations, national service delivery surveys (for emergency obstetric care data) and surveys administered to government authorities by the World Health Organization with responses validated by UN agencies at the country level. *Countdown* financing data are abstracted from datasets maintained by the Development Assistance Committee of the Organisation for Economic Co-operation and Development.

Analysis methods

Countdown assesses progress at the country level, so it uses the country as the unit of analysis when summarizing results across databases. The summary measure used for the coverage indicators is the median, which gives each of the 75 *Countdown* countries equal weight, and the range, which illustrates the extent of variation across countries. *Countdown* coverage data are compiled and analysed by the Institute for International Programs at the Johns Hopkins University in collaboration with the Countdown Coverage Working Group and the United Nations Children's Fund.

Summary estimates of coverage for 2015 include *Countdown* countries with available estimates for 2009–2014. To track coverage trends, subsets of countries with at least two data points for each indicator, one from 2000–2008 and one from 2009–2014, were used. The difference between the two summary point estimates were calculated for each indicator, as well as the proportion of the gap closed between the earlier estimate and 100% coverage.

Countdown tracks coverage ("the proportion of women and children in need of interventions who actually receive them") in preference to measures of "effective coverage" that include estimates of intervention effectiveness, access, use and service quality. Effective coverage metrics are difficult to use in global monitoring because they typically require data that are rarely available in *Countdown* countries and sometimes rely on modelling procedures that must then be unpacked to guide decisionmaking.

Two summary metrics of coverage are used in presenting the results. The first, the Composite Coverage Index, is a weighted average of eight interventions and reflects the performance of each *Countdown* country in achieving coverage along the continuum of care.[76] The second, the co-coverage index, reflects the extent to which individual women and their children are receiving eight well established preventive interventions. These interventions have been available in most if not all countries—even the poorest—for at least a decade.[77]

The equity analyses require that indicators be estimated for subgroups of the country population. Results are presented for selected individual coverage indicators as well as the two summary indices stratified by wealth quintiles.[78] Equity analyses are conducted by the International Center for Equity in Health at the University of Pelotas, Brazil, in collaboration with the *Countdown* Equity Technical Working Group.

Information on country-specific policies and systems indicators related to maternal and newborn health is reviewed and confirmed by technical staff at World Health Organization headquarters and country offices and maintained by the World Health Organization with inputs from the *Countdown* Health Systems and Policies Technical Working Group. The data on financial flows are compiled and analysed by a team at the London School of Hygiene and Tropical Medicine in collaboration with the *Countdown* Financial Flows Technical Working Group.

Additional information

Further detail on *Countdown's* data sources and methods are available in the published literature[79] and on the *Countdown* website (www.countdown2015mnch.org). *Countdown* databases are publicly available for free through the *Countdown* website (http://countdown2015mnch.org/about-countdown/countdown-data).

Annex C
Country profile indicators and data sources

Indicator		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
	Births	United Nations Population Division	United Nations Population Division
	Birth registration	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national household surveys, censuses and vital registration systems	United Nations Children's Fund
	Total fertility rate	United Nations Population Division	United Nations Population Division
	Adolescent birth rate	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Surveys, other national surveys, civil registration systems and censuses	United Nations Population Division, United Nations Population Fund
Child mortality	Total under-five deaths	The UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)	The UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)
	Neonatal deaths as a share of all under-five deaths*	The UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)	The UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)
	Neonatal mortality rate	The UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)	The UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)
	Infant mortality rate	The UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)	The UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)
	Under-five mortality rate*	The UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)	The UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)
	Causes of under-five deaths	World Health Organization, Child Health Epidemiology Reference Group	World Health Organization, Maternal and Child Health Estimation
	Stillbirth rate	Cousens and others 2011	Cousens and others 2011
Maternal mortality	Total maternal deaths	Maternal Mortality Estimation Inter-agency Group (World Health Organization, United Nations Children's Fund, United Nations Population Fund, World Bank)	Maternal Mortality Estimation Inter-agency Group (World Health Organization, United Nations Children's Fund, United Nations Population Fund, World Bank)
	Lifetime risk of maternal death	Maternal Mortality Estimation Inter-agency Group (World Health Organization, United Nations Children's Fund, United Nations Population Fund, World Bank)	Maternal Mortality Estimation Inter-agency Group (World Health Organization, United Nations Children's Fund, United Nations Population Fund, World Bank)
	Maternal mortality ratio (adjusted)*	Maternal Mortality Estimation Inter-agency Group (World Health Organization, United Nations Children's Fund, United Nations Population Fund, World Bank)	Maternal Mortality Estimation Inter-agency Group (World Health Organization, United Nations Children's Fund, United Nations Population Fund, World Bank)
	Causes of maternal deaths (regional)	World Health Organization	World Health Organization
Maternal and newborn health			
Delivery care	**Skilled attendant at delivery***	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Surveys, other national surveys	United Nations Children's Fund
AIDS	**Pregnant women living with HIV receiving antiretroviral therapy for their own health***	Country reporting through the Global AIDS Response Progress Report and Universal Access joint reporting process by the World Health Organization, the United Nations Children's Fund and the Joint United Nations Programme on HIV/AIDS and UNAIDS Spectrum estimates	Joint United Nations Programme on HIV/AIDS, United Nations Children's Fund, World Health Organization
	Pregnant women living with HIV receiving antiretroviral drugs for prevention of mother-to-child transmission*	Country reporting through the Global AIDS Response Progress Report and Universal Access joint reporting process by the World Health Organization, the United Nations Children's Fund and the Joint United Nations Programme on HIV/AIDS and UNAIDS Spectrum estimates	United Nations Children's Fund
Antenatal care	Antenatal care (at least one visit)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Surveys, other national surveys	United Nations Children's Fund
	Antenatal care (four or more visits)*	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Surveys, other national surveys Demographic and Health Surveys, Reproductive Health Survey, other national surveys	United Nations Children's Fund

Indicator		Data source	Global database
Demand for family planning satisfied	**Demand for family planning satisfied***	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Surveys, other national surveys	United Nations Population Fund
Intermittent preventive treatment of malaria during pregnancy	Intermittent preventive treatment of malaria during pregnancy	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Malaria Indicator Surveys, other national surveys	United Nations Children's Fund
Caesarean section	Caesarian section rate	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Survey, other national surveys	United Nations Children's Fund
Neonatal tetanus protection	Neonatal tetanus vaccine	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	United Nations Children's Fund, World Health Organization
Postnatal care	**Postnatal visit for babies***	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Saving Newborn Lives
Postnatal care	**Postnatal visit for mothers***	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Saving Newborn Lives
Equity			
	Demand for family planning satisfied*	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
	Antenatal care (at least one visit)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
	Antenatal care (four or more visits)*	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
	Skilled attendant at delivery*	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
	Early initiation of breastfeeding	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
	Insecticide-treated net use among children under age 5	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
	Three doses of combined diphtheria/tetanus/ pertussis vaccine immunization coverage*	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
	Measles immunization coverage	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
	Vitamin A (past 6 months)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
	Oral rehydration therapy and continued feeding	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
	Careseeking for pneumonia	Multiple Indicator Cluster Surveys, Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
Child Health			
Immunization	Measles immunization coverage	World Health Organization and United Nations Children's Fund estimates of national immunization coverage	World Health Organization and United Nations Children's Fund estimates of national immunization coverage
	Three doses of combined diphtheria/tetanus/ pertussis vaccine immunization coverage*	World Health Organization and United Nations Children's Fund estimates of national immunization coverage	World Health Organization and United Nations Children's Fund estimates of national immunization coverage
	Haemophilus influenzae type B immunization coverage	World Health Organization and United Nations Children's Fund estimates of national immunization coverage	World Health Organization and United Nations Children's Fund estimates of national immunization coverage
	Rotavirus vaccine coverage	World Health Organization and United Nations Children's Fund estimates of national immunization coverage	World Health Organization and United Nations Children's Fund estimates of national immunization coverage
	Pneumococcal conjugate vaccine coverage	World Health Organization and United Nations Children's Fund estimates of national immunization coverage	World Health Organization and United Nations Children's Fund estimates of national immunization coverage
Pneumonia treatment	Careseeking for symptoms of pneumonia	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund
	Antibiotic treatment for symptoms of pneumonia*	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund
Diarrhoeal disease treatment	Oral rehydration therapy and continued feeding	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund
	Oral rehydration salts	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund
	Zinc treatment for diarrhoea	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund

Indicator		Data source	Global database
Malaria prevention and treatment	Children receiving first-line treatment among those receiving any antimalarial	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Malaria Indicator Surveys, other national surveys	United Nations Children's Fund
	Insecticide-treated net use	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Malaria Indicator Surveys, other national surveys	United Nations Children's Fund
Nutrition			
Anthropometry	Underweight prevalence	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund, World Health Organization, World Bank
	Stunting prevalence*	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund, World Health Organization, World Bank
	Wasting prevalence	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund, World Health Organization, World Bank
Infant feeding	Early initiation of breastfeeding	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund
	Exclusive breastfeeding rate (< 6 months)*	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund
	Introduction of solid, semi-solid and soft foods (ages 6–8 months)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund
Low birthweight	Low birthweight incidence	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys, routine reporting	United Nations Children's Fund
Micronutrient supplementation	Vitamin A two dose coverage	United Nations Children's Fund	United Nations Children's Fund
Body mass index	Women with low body mass index	Demographic and Health Surveys	Demographic and Health Surveys, STATCompiler (accessed March 2014)
Water and sanitation			
Water	Improved drinking water coverage	Joint Monitoring Programme for Water Supply and Sanitation (World Health Organization and United Nations Children's Fund)	Joint Monitoring Programme for Water Supply and Sanitation (World Health Organization and United Nations Children's Fund)
Sanitation	Improved sanitation coverage	Joint Monitoring Programme for Water Supply and Sanitation (World Health Organization and United Nations Children's Fund)	Joint Monitoring Programme for Water Supply and Sanitation (World Health Organization and United Nations Children's Fund)
Policies, systems and financing			
Policies	Laws or regulations that allow adolescents to access contraceptives without parental or spousal consent	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health
	Legal status of abortion	United Nations Population Division policy database	United Nations Population Division policy database http://esa.un.org/poppolicy/about_database.aspx (Accessed January 2014)
	Midwives authorized for specific tasks	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health
	Maternity protection (Convention 183)	International Labour Organization	International Labour Organization, NORMLEX Information System on International Labour Standards, at: https://www.ilo.org/dyn/normlex/en (Accessed March 2014)
	Maternal deaths notification	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health
	Postnatal home visits in first week after birth	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health
	Kangaroo mother care in facilities for low-birthweight and preterm newborns	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health
	Antenatal corticosteroids as part of management of preterm labour	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health
	International Code of Marketing of Breastmilk Substitutes	World Health Organization	World Health Organization and United Nations Children's Fund special data compilation

Indicator		Data source	Global database
	Community treatment of pneumonia with antibiotics	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health
	Low-osmolarity oral rehydration salts and zinc for management of diarrhoea	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health
Systems	Costed national implementation plans for maternal, newborn and child health available	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health
	Reproductive lifesaving commodities in essential medicines list: emergency contraceptives, implants and female condoms	U.S. Agency for International Development Deliver Project and World Health Organization	Emergency contraceptives and implants information: U.S. Agency for International Development Deliver Project, http://deliver.jsi.com/dhome/whatwedo/commsecurity/csmeasuring/csindicators/csindicatordashboards (Accessed March 2014) Female condoms information: World Health Organization EML database www.who.int/medicines/publications/essentialmedicines (Accessed March 2014)
	Maternal lifesaving commodities in essential medicines list: oxytocin, misoprostol and magnesium sulfate	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health
	Newborn lifesaving commodities in essential medicines list: injectable antibiotics, antenatal corticosteroids, chlorhexidine and resuscitation equipment	World Health Organization and the Chlorhexidine Working Group	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health and the Chlorhexidine Working Group
	Child lifesaving commodities in essential medicines list: amoxicillin, oral rehydration salts and zinc	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 2013 by the World Health Organization Department of Maternal Child and Adolescent Health
	Density of doctors, nurses and midwives	World Health Organization	Global Health Observatory 2013
	National availability of emergency obstetric care services	Averting Maternal Death and Disability, United Nations Children's Fund, United Nations Population Fund	Averting Maternal Death and Disability, United Nations Children's Fund, United Nations Population Fund special data compilation
Financing	Per capita total expenditure on health	World Health Organization	Global Health Expenditure Database http://apps.who.int/gho/data/node.main.484?lang=en (Accessed February 2014)
	General government expenditure on health as share of total government expenditure	World Health Organization	Global Health Expenditure Database http://apps.who.int/gho/data/node.main.484?lang=en (Accessed February 2014)
	Out-of-pocket expenditure as share of total expenditure on health	World Health Organization	Global Health Expenditure Database http://apps.who.int/gho/data/node.main.484?lang=en (Accessed February 2014)
	Reproductive, maternal, newborn and child health expenditure by source	World Health Organization	World Health Organization
	Official development assistance to child health per child	Organisation for Economic Co-operation and Development's Development Assistance Committee	London School of Health and Tropical Medicine
	Official development assistance to maternal and neonatal health per live birth	Organisation for Economic Co-operation and Development's Development Assistance Committee	London School of Health and Tropical Medicine

* Indicators in bold are those recommended by the Commission on Information and Accountability for Women's and Children's Health. The commission indicator for under-five mortality includes the proportion of neonatal deaths, also tracked by *Countdown*.

Annex D
Definitions of *Countdown* coverage indicators

Intervention	Indicator definition	Numerator	Denominator
Maternal and newborn health			
Skilled attendant at delivery*	Percentage of live births attended by skilled health personnel	Number of women ages 15–49 with a live birth in the X years prior to the survey who were attended during delivery by skilled health personnel	Total number of women ages 15–49 with a live birth in the X years preceding the survey
Treatment of pregnant women living with HIV*	Percentage of eligible pregnant women with HIV who received antiretroviral therapy	Number of pregnant women living with HIV who are receiving lifelong antiretroviral therapy	Estimated number of pregnant women living with HIV[a]
Prevention of mother-to-child transmission of HIV*	Percentage of pregnant women living with HIV who received most efficacious regimens of antiretrovirals to prevent mother-to-child transmission of HIV	Number of pregnant women living with HIV who received most efficacious regimens of antiretrovirals to prevent mother-to-child transmission of HIV	Estimated number of pregnant women living with HIV[a]
Antenatal care (at least one visit)	Percentage of women attended at least once during pregnancy by skilled health personnel	Number of women ages 15–49 who were attended at least once during the pregnancy that led to their last birth in the X years preceding the survey by skilled health personnel	Total number of women ages 15–49 with a live birth in the X years preceding the survey
Antenatal care (four or more visits)*	Percentage of women attended four or more times during pregnancy by any provider	Number of women ages 15–49 who were attended four or more times during the pregnancy that led to their last birth in the X years preceding the survey by any provider	Total number of women ages 15–49 with a live birth in the X years preceding the survey
Demand for family planning satisfied*	Percentage of women ages 15–49, either married or in union, who have their need for family planning satisfied	Women who are married or in union and currently using any method of contraception	Women who are married or in union and who are currently using any method of contraception or who are fecund, not using any method of contraception but report wanting to space their next birth or stop childbearing altogether
Intermittent preventive treatment for malaria during pregnancy	Percentage of women who received intermittent preventive treatment for malaria during their last pregnancy	Number of women ages 15–49 at risk for malaria who received two or more doses of a sulfadoxine-pyrimethamine (Fansidar™), at least one of which was received during antenatal care, to prevent malaria during their last pregnancy that led to a live birth	Total number of women ages 15–49 with a live birth in the X years preceding the survey
Caesarean section rate	Percentage of live births delivered by Caesarean section	Number of women ages 15–49 with a live birth in the X years preceding the survey delivered by caesarean section	Total number of women ages 15–49 with a live birth in the X years preceding the survey
Neonatal tetanus protection	Percentage of newborns protected against tetanus	Number of live births in the year who are protected from tetanus at birth	Number of live births in the year
Postnatal care for mothers*[b]	Percentage of mothers who received postnatal care within two days of childbirth	Number of women ages 15–49 who received a health check while in a facility or at home following delivery or a postnatal care visit within two days of delivery of their most recent live birth in the X years prior to the survey	Total number of women ages 15–49 with a last live birth in the x years prior to the survey (regardless of place of delivery)
Postnatal care for babies*	Percentage of babies who received postnatal care within two days of childbirth	Number of last live births in the X years prior to the survey who received a health check while in a facility or at home following delivery or a postnatal care visit within two days of delivery	Total number of live births in the X years prior to the survey
Child health			
First-dose measles immunization coverage	Percentage of infants immunized with a first dose of measles-containing vaccine	Number of surviving infants who receive the first dose of measles-containing vaccine by their first birthday (or as recommended in the national immunization schedule)	Total number of surviving infants
Three doses of combined diphtheria with tetanus toxoid and pertussis containing vaccine coverage*	Percentage of infants who received three doses of diphtheria with tetanus toxoid and pertussis containing vaccine	Number of surviving infants receiving three doses of diphtheria with tetanus toxoid and pertussis containing vaccine	Total number of surviving infants
Three doses of *Haemophilus influenzae* type B immunization coverage	Percentage of infants who received three doses of *Haemophilus influenzae* type B vaccine	Number of surviving infants receiving three doses of *Haemophilus influenzae* type B vaccine	Total number of surviving infants
Careseeking for symptoms of pneumonia	Percentage of children ages 0–59 months with symptoms of pneumonia taken to an appropriate health provider	Number of children ages 0–59 months with symptoms of pneumonia (cough with fast breathing due to problem in the chest or problem in the chest and blocked nose) in the two weeks prior to the survey who were taken to an appropriate health provider	Total number of children ages 0–59 months with symptoms of pneumonia (cough with fast breathing due to problem in the chest or problem in the chest and blocked nose) in the two weeks prior to the survey

Intervention	Indicator definition	Numerator	Denominator
Zinc treatment for diarrhoea	Percentage of children ages 0–59 months with diarrhoea receiving zinc treatment	Number of children ages 0–59 months with diarrhoea in the two weeks prior to the survey receiving zinc	Total number of children ages 0–59 months with diarrhoea in the two weeks prior to the survey
Oral rehydration therapy and continued feeding	Percentage of children ages 0–59 months with diarrhoea receiving oral rehydration therapy and continued feeding	Number of children ages 0–59 months with diarrhoea in the previous two weeks receiving oral rehydration therapy (oral rehydration salts packet, pre-packaged oral rehydration salts fluid, recommended homemade fluid or increased fluids) and continued feeding	Total number of children ages 0–59 months with diarrhoea in the previous two weeks
Oral rehydration salts treatment	Percentage of children ages 0–59 months with diarrhoea receiving oral rehydration salts	Number of children ages 0–59 months with diarrhoea in the two weeks prior to the survey receiving oral rehydration salts	Total number of children ages 0–59 months with diarrhoea in the two weeks prior to the survey
First-line antimalarial treatment	Percentage of children ages 0–59 months receiving first-line antimalarial treatment	Number of children ages 0–59 months who had a fever in the two weeks prior to the survey who received first line treatment according to national policy	Total number of children ages 0–59 months who had a fever in the two weeks prior to the survey who received any antimalarial drugs
Insecticide-treated net use	Percentage of children ages 0–59 months sleeping under an insecticide-treated mosquito net	Number of children ages 0–59 months sleeping under an insecticide-treated mosquito net the night before the survey	Total number of children ages 0–59 months surveyed
Nutrition			
Early initiation of breastfeeding	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 one hour of birth	Total number of women with a live birth in the X years prior to the survey
Exclusive breastfeeding (< 6 months)*	Percentage of infants ages 0–5 months who are exclusively breastfed	Number of infants ages 0–5 months who were exclusively breastfed during the previous day	Total number of infants ages 0–5 months surveyed
Introduction of solid, semi-solid and soft foods (ages 6–8 months)	Percentage of infants ages 6–8 months who receive solid, semi-solid or soft foods	Number of infants ages 6–8 months who received solid, semi-solid or soft foods during the previous day	Total number of infants ages 6–8 months surveyed
Vitamin A supplementation	Percentage of children ages 6–59 months who received two doses of vitamin A during the calendar year	Estimated number of children ages 6–59 months who received two doses of vitamin A during the calendar year	Total number of children ages 6–59 months
Water and sanitation			
Use of improved drinking water sources	Percentage of the population using improved drinking water sources	Number of household members using improved drinking water sources (including piped on premises, public standpipe, borehole, protected dug well, protected spring, rainwater collection)	Total number of household members
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) not shared with other households	Total number of household members

* Indicators in bold are those recommended by the Commission on Information and Accountability for Women's and Children's Health. The commission indicator for under-five mortality includes the proportion of neonatal deaths, also tracked by *Countdown*.

Note: The indicator definitions use "in the X years prior to the survey" to indicate the different time periods for which Demographic and Health Surveys and Multiple Indicator Cluster Surveys collect information on births occurring prior to the survey.

a. More details on the HIV estimates methodology can be found at www.unaids.org.

b. As used for postnatal care in the graph on coverage along the continuum of care on the first page of each country profile.

Annex E
Definitions of health policies, systems and finance indicators

Indicator	Definition	Criteria for ranking
Policy indicators		
Family planning for adolescents	Laws or regulations allow adolescents (married or unmarried) to access contraception without parental or spousal consent.	Yes = legislation is available that allows adolescents to access contraception without parental or spousal consent. Partial = legislation is available that allows either married adolescents to access contraception without spousal consent or allows unmarried adolescents to access contraception without parental consent. No = no legislation is available that allows adolescents to access contraception without parental or spousal consent.
Legal status of abortion	Legal grounds under which abortion is allowed.	Abortion allowed on the following grounds: I = to save a woman's life. II = to preserve physical health and above. III = to preserve mental health and above. IV = for economic and social reason and the above. V = on request and above. R = in case of rape or incest. F = in case of foetal impairment. — = data are not available.
Midwives authorized for specific tasks	Midwifery personnel are authorized to deliver basic emergency obstetric and newborn care.	Number of the seven lifesaving interventions tasks authorized: • Parental antibiotics. • Parenteral oxytocin. • Parental anticonvulsants. • Manual removal of placenta. • Removal of retained products of conception. • Assisted vaginal delivery. • Newborn resuscitation.
Maternity protection (Convention 183)	Country has ratified International Labour Organization Convention 183 or has passed national legislation that is in compliance with the three key provisions of the convention (14 weeks of maternity leave, paid at 66% of previous earnings by social security or general revenue)	Yes = International Labour Organization Convention 183 ratified (maternity leave of at least 14 weeks with cash benefits of previous earnings paid by social security or public funds). Partial = International Labour Organization Convention 183 not ratified but previous maternity convention ratified (maternity leave of at least 12 weeks with cash benefits of previous earnings paid by social security or public funds). No = no ratification of any maternal protection convention.
Maternal deaths notification	National policy has been adopted requiring health professionals to notify any maternal death to a responsible national body.	Yes = national policy adopted and implemented. Partial = national policy adopted but no systematic implementation. No = no national policy adopted.
Postnatal home visits in the first week after birth	National policy recommending home visits to mother and newborn in the first week after childbirth by a trained provider have been adopted and implemented.	Yes = national policy or guidelines recommending postnatal home visits adopted and implemented. No = no national policy or guidelines on postnatal home visits adopted.
Kangaroo mother care for low birthweight newborns	National policy recommends kangaroo mother care for low-birthweight newborns.	Yes = national policy recommends kangaroo mother care for low-birthweight newborns. No = national policy does not recommend kangaroo mother care for low-birthweight newborns.
Antenatal corticosteroids for preterm labour	National policy recommends antenatal corticosteroids for preterm labour.	Yes = national policy recommends use of antenatal corticosteroids for preterm labour. No = national policy does not recommend use of antenatal corticosteroids for preterm labour.
International Code of Marketing of Breastmilk Substitutes	National policy has been adopted on all provisions stipulated in International Code of Marketing of Breastmilk Substitutes.	Yes = all provisions stipulated in International Code of Marketing of Breastmilk Substitutes adopted in legislation. Partial = voluntary agreements or some provisions stipulated in International Code of Marketing of Breastmilk Substitutes adopted in legislation. No = no legislation and no voluntary agreements adopted in relation to the International Code of Marketing of Breastmilk Substitutes.
Community treatment of pneumonia with antibiotics	National policy or guidelines authorizing case management of pneumonia in the community by a trained provider has been adopted and implemented.	Yes = national policy or guidelines adopted on the identification and treatment of pneumonia by trained providers in the community. No = no national policy or guidelines on the identification and treatment of pneumonia by trained providers.

Indicator	Definition	Criteria for ranking
Low-osmolarity oral rehydration salts and zinc for management of diarrhoea	National policy on management of diarrhoea with low osmolality oral rehydration salts and zinc has been adopted and implemented.	Yes = national policy or guidelines adopted on use of low osmolality oral rehydration salts and zinc for management of diarrhoea. No = no national policy or guidelines adopted on use of low osmolality oral rehydration salts and zinc for management of diarrhoea
Systems indicators		
Costed national implementation plan for maternal, newborn and child health	National plan for scaling up maternal, newborn and child health interventions is available and costed.	Yes = costed plan or plans to scale up maternal, newborn and child health interventions available at the national level. Partial = costed plan available for either maternal and newborn health or child health. No = no costed implementation plan for maternal, newborn and child health available.
Reproductive lifesaving commodities in essential medicines list	Emergency contraceptives, implants and female condoms are in the essential medicines list.	Number of the three listed commodities that are included in the essential medicines list.
Maternal lifesaving commodities in essential medicines list	Oxytocin, misoprostol and magnesium sulfate are in the essential medicines list.	Number of the three listed commodities that are included in the essential medicines list.
Newborn lifesaving commodities in essential medicines list	Injectable antibiotics, antenatal corticosteroids, chlorhexidine and resuscitation equipment are in the essential medicines list.	Number of the four listed commodities that are included in the essential medicines list.
Child lifesaving commodities in essential medicines list	Amoxicillin, oral rehydration salts and zinc are in the essential medicines list.	Number of the three listed commodities that are included in the essential medicines list.
Density of health workers	Proportion of physicians, nurses and midwives who are available per 10,000 population.	Percentage
National availability of emergency obstetric care services	At least five emergency obstetric care facilities per 500,000 people, including one comprehensive and four 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 emergency obstetric care facilities. The minimum acceptable number of emergency obstetric care facilities (comprehensive and basic) is calculated by dividing the population by 500,000 and multiplying by 5. The percentage of recommended minimum number of emergency obstetric care facilities is calculated by dividing the number of functioning emergency obstetric care facilities by the recommended number and multiplying by 100. To qualify as a fully functioning basic or comprehensive emergency obstetric care facility, a facility must provide a standard set of signal functions
Finance indicators		
Per capita total expenditure on health		Numerical
General government expenditure on health as a share of total government expenditure		Numerical
Out-of-pocket expenditure as a share of total expenditure on health		Numerical

Annex F
Technical annex for the Health Systems and Policies Technical Working Group and the Financing Technical Working Group

Health systems and policies indicators

Most of the policy indicators compiled by the *Countdown* Health Systems and Policies Technical Working Group are the result of a biannual survey implemented by the World Health Organization's Department of Maternal, Newborn, Child and Adolescent Health. Indicators are developed as a composite measure summarizing the presence and implementation of a given policy. If a policy is endorsed and implemented, the value of the indicator is marked as "Yes". If the policy is not endorsed, the value of the indicator is marked as "No". If the policy is endorsed but lacks implementation, the value of the indicator is marked as "Partial". For policies such as midwifery personnel authorized to deliver basic emergency obstetric and newborn care or reproductive, maternal, newborn and child health lifesaving commodities in essential list of medicines, the value of the indicator is the number of policy components endorsed or present in the policy document. Respondents to the survey are ministry of health officials responsible for maternal, newborn, child and adolescent health in their country. The information reported is independently validated by the World Health Organization country office and at least one other UN organization that operates in the country. Data analysis and compilation are done by the World Health Organization. Data reported are collected from the 2013–14 survey. The legal status of abortion indicator is a result of the analysis of legal grounds under which abortion is legally allowed, as per the information reported in the United Nations Population Division policy database.

The Health Systems and Policies Technical Working Group regularly reviews the evidence base for all the systems and policy measures that *Countdown* tracks. For example, a small working group has been formed to review the competencies related to the indicator on emergency obstetric care, including on care for newborns.

Financing Technical Working Group

Financing indicators

The *Countdown* Financing Working Group analysed 2013 official development assistance disbursements, as well as non–official development assistance official flows and private grants, reported to the Organisation for Economic Co-operation and Development's Development Assistance Committee's Creditor Reporting System aid activities database, using previously implemented methods.[80] Data were downloaded on 12 January 2015 and included 231,398 records of aid disbursement.

Researchers reviewed all records and manually coded them against a framework defining reproductive, maternal, newborn and child health activities. Broadly, maternal and newborn health activities were defined as those that aim to restore, improve or maintain the health of women and their newborn during pregnancy, childbirth and the postnatal period. Child health activities were defined as those that aim to restore, improve or maintain the health of children ages 1 month to 5 years. Additional activities considered as reproductive health include family planning and those related to sexual health and sexually transmitted infections, including HIV. Based on the codes assigned, a proportion of each record from 0% to 100% was allocated to child health, maternal and newborn health and reproductive health. These proportions were established after reviewing the literature and current estimates of health care financing (for example, general government expenditure on health as a percentage of total government expenditure), epidemiology (for example, percentage of a population group with HIV) and population structure (for example, percentage of population under age 5). The analysis included official development assistance and other official aid flows and private grants from 31 bilateral donors; 30 multilateral organizations GAVI, the Vaccine Alliance; the Global Fund to Fight AIDS, Tuberculosis and Malaria; and the Bill & Melinda Gates Foundation.[81]

The Institute for Health Metrics and Evaluation estimated total development assistance to maternal, newborn and child health to all countries at $9.7 billion in 2013, with 69% going to newborn and child health ($6.7 billion) and the remaining 31% going to newborn health ($3.0 billion).[82] It also estimated an 8.7% increase in funding to maternal, newborn and child health relative to 2012. However, these estimates

are preliminary based on early reports to the Creditor Reporting System; where data were incomplete, projections were made based on trends over time and commitments. The estimates do not include investments in malaria. The *Countdown* Financing Technical Working Group estimates are $9.8 billion for maternal, newborn and child health in 2013, $2.8 billion for maternal and newborn health and $7.1 billion for child health, covering 148 recipient countries. This is a 17% increase on the $8.4 billion estimated for maternal, newborn and child health in 2012 ($2.4 billion for maternal and newborn health and $6.0 billion for child health). The most recent Partnership for Maternal, Newborn and Child Health estimates of total official development assistance to reproductive, maternal, newborn and child health among the 75 priority countries is $12.1 billion.[83] This compares to the *Countdown* Financing Technical Working Group's estimate of $13.4 billion in ODA+ to reproductive, maternal, newborn and child health.

Some variation between the estimation exercises is not surprising, given differences in the methods used. The main differences are summarized in table F1.

TABLE F1

Overview of key differences in methods to resource tracking among *Countdown,* the Institute for Health Metrics and Evaluation and the Partnership for Maternal, Newborn and Child Health

Source of variation	*Countdown*	Institute for Health Metrics and Evaluation	Partnership for Maternal, Newborn and Child Health
Values tracked	Official development assistance disbursements, other official aid flows and private grants	Development assistance for health disbursements and commitments	Official development assistance disbursements and commitments
Recipients	All countries and 75 *Countdown* countries	Low- and middle-income countries, as classified by the World Bank	49 target countries for the Global Strategy for Women's and Children's Health and 75 *Countdown* countries
Data sources	All Organisation for Economic Co-operation and Development–Development Assistance Committee Creditor Reporting System disbursement data, including from within health, population, humanitarian, and all other sectors	Organisation for Economic Co-operation and Development–Development Assistance Committee Creditor Reporting System data on official development assistance within health and population sectors, donor and nongovernmental organization databases, and communication with donors	Organisation for Economic Co-operation and Development–Development Assistance Committee Creditor Reporting System data within health, population, and water sectors, and general budget support
Health areas tracked	Reproductive, maternal, newborn and child health; child health; maternal and newborn health; maternal, newborn and child health; and reproductive health	Eight health areas: maternal health, child and newborn health, HIV/AIDS, tuberculosis, malaria, noncommunicable diseases, sectorwide approaches and health sector support, and other infectious diseases	Reproductive, maternal, newborn and child health only
Coding approach	Researchers assign one of 27 activity-based codes to each disbursement record by reading project descriptions, Creditor Reporting System purpose codes and donor names	Automated, using theme-based key term searching and channel-specific rules	Use existing Creditor Reporting System purpose codes
How codes are used to generate estimates	A proportion of the value of records within each activity-based code is assigned to child health, maternal and newborn health or reproductive health; in some cases they are based on recipient country–specific data; in others the same allocation factor is used for all recipients.	The full value of a record containing a key term is allocated to the associated health area; if a record contains key terms for more than one health area, the value is divided across health areas according to the number of key terms.	Allocate a fixed proportion of the value of funding within each Creditor Reporting System purpose code to maternal, newborn and child health
Disease-specific spending	Allocates a proportion of disease-specific funding to maternal, newborn and child health	Excludes HIV, tuberculosis and malaria from the maternal, newborn and child health estimate	Allocates a proportion of each purpose code, including those specific to malaria, HIV and tuberculosis, to maternal, newborn and child health
Budget support and health systems funding	Allocates a proportion of budget support and health systems support to maternal, newborn and child health	Excludes health sector support from estimates	Allocates a proportion of budget support to maternal, newborn and child health

Annex G
Countdown countries prioritized for malaria intervention coverage analysis and *Countdown* countries considered vitamin A priority countries

Table G1 organizes the *Countdown* countries according to a set of criteria related to malaria transmission risk:

- The left column includes 44 countries where at least 75% of the total population is at risk of malaria transmission and where a substantial proportion (50% or more) of malaria cases is due to *Plasmodium falciparum.* Only the countries meeting these criteria were included in the analyses for the malaria indicators in this report.

- The right column includes 8 countries where 50–74% of the population is at risk of malaria transmission and where a substantial proportion (50% or more) of malaria cases is due to *Plasmodium falciparum.* When available, malaria intervention coverage data are included in the *Countdown* profiles.

Table G2 identifies the *Countdown* countries considered priority countries for vitamin A.

TABLE G1
Countdown countries by malaria transmission risk

Countries where at least 75% of the population is at risk of malaria and where a substantial proportion (50% or more) of malaria cases is due to *Plasmodium falciparum* (*N* = 44)		Countries where 50–74% of the population is at risk of malaria and where a substantial proportion (50% or more) of malaria cases is due to *Plasmodium falciparum* (*N* = 8)
Angola	Madagascar	Botswana
Benin	Malawi	Cambodia
Burkina Faso	Mali	Djibouti
Burundi	Mauritania	Ethiopia
Cameroon	Mozambique	Indonesia
Central African Republic	Niger	Lao People's Democratic Republic
Chad	Nigeria	Myanmar
Comoros	Papua New Guinea	Zimbabwe
Congo	Philippines	
Congo, Dem. Rep.	Rwanda	
Côte d'Ivoire	Saõ Tomé and Príncipe	
Equatorial Guinea	Senegal	
Eritrea	Sierra Leone	
Gabon	Solomon Islands	
Gambia	Somalia	
Ghana	South Sudan	
Guinea	Sudan	
Guinea-Bissau	Tanzania, United Republic	
Haiti	Togo	
India	Uganda	
Kenya	Yemen	
Liberia	Zambia	

Source: WHO 2014b.

TABLE G2
Countdown countries considered priority countries for Vitamin A

Afghanistan	Congo	Haiti	Morocco	South Africa
Angola	Congo, Dem. Rep.	India	Mozambique	South Sudan
Azerbaijan	Côte d'Ivoire	Indonesia	Myanmar	Sudan
Bangladesh	Djibouti	Kenya	Nepal	Swaziland
Benin	Egypt	Kyrgyzstan	Niger	Tajikistan
Bolivia	Equatorial Guinea	Korea, Dem. People's Rep.	Nigeria	Tanzania, U. Rep.
Botswana	Eritrea	Lao People's Dem. Rep.	Pakistan	Togo
Burkina Faso	Ethiopia	Lesotho	Papua New Guinea	Turkmenistan
Burundi	Gabon	Liberia	Philippines	Uganda
Cambodia	Gambia	Madagascar	Rwanda	Uzbekistan
Cameroon	Ghana	Malawi	São Tomé and Príncipe	Viet Nam
Central African Republic	Guatemala	Mali	Senegal	Yemen
Chad	Guinea	Mauritania	Sierra Leone	Zambia
Comoros	Guinea-Bissau	Mexico	Somalia	Zimbabwe

Annex H
Details on estimates produced by interagency groups used in the *Countdown* report—mortality, immunization, and water and sanitation

Mortality

Countdown to 2015 aims to stimulate progress towards Millennium Development Goals 4 and 5, so it relies on UN interagency estimates on child and maternal mortality that are produced for official Millennium Development Goal reporting. These estimates are used to monitor progress at the global level because they are made comparable across countries and over time by applying standard methods to generate country, regional and global estimates. The UN mortality estimates are generated based on national data but may not always correspond precisely to the results from the most recent available data source or to country official estimates due to differences in the methods applied.

Child mortality. The child mortality estimates in this report (neonatal mortality rate, infant mortality rate, under-5 mortality rate and under-5 deaths) are based on the work of the UN Inter-agency Group for Child Mortality Estimation (UN IGME), which includes the United Nations Children's Fund, the World Health Organization, the United Nations Population Division and the World Bank. The UN IGME estimates are the official UN estimates for measuring progress towards Millennium Development Goal 4 (reduce child mortality). The UN IGME compiles available data from all possible nationally representative sources for a country, including household surveys, censuses and vital registration systems, and uses a model to fit a regression line to the data to produce the mortality estimates. Estimates are updated every year after a detailed review of all newly available data points. The review may result in adjustments to previously reported estimates as new data become available and provide more information on past trends.

The data inputs, methods and full time series of the UN IGME estimates for all countries are available at www.data.unicef.org and www.childmortality.org.

Maternal mortality. Maternal mortality estimates for 1990–2013 are based on the work of the Maternal Mortality Estimation Inter-agency Group, which comprises the World Health Organization, the United Nations Children's Fund, the United Nations Population Fund and the World Bank. Maternal mortality data—more sparse than child mortality data—are from sources such as vital registration systems, surveys and censuses. Maternal mortality estimates from these sources are subject to serious misclassification and underreporting. These data are therefore adjusted to account for these errors, and multilevel regression models are fit to predict levels and trends in maternal mortality between 1990 and 2013. Covariates used in the models include gross domestic product per capita, general fertility rate and skilled birth attendance. For more information, see Maternal Mortality Estimation Inter-agency Group (2014).

Immunization

The immunization data published in this report are based on the work of the World Health Organization and the United Nations Children's Fund. The estimates should not be confused with other sources of information, such as Demographic and Health Surveys, Multiple Indicator Cluster Surveys or administratively reported data from ministries of health. The World Health Organization and United Nations Children's Fund use data reported by national immunization programmes as well as surveys and other sources to obtain estimates of national immunization coverage each year. A draft report is sent to each country for review and comment. Final reports are published in July with coverage estimates for the preceding calendar year. All new evidence, such as final survey reports received after publication, are taken into consideration during production of the following year's estimates. For each country's final report for 2015 as well as methods, data sources and brief description of trends, see www.data.unicef.org.

Water and sanitation

The drinking water and sanitation coverage estimates are produced by the World Health Organization–United Nations Children's Fund Joint Monitoring Programme for Water Supply and Sanitation. The estimates are the official UN estimates for measuring progress towards the Millennium Development Goal

targets for drinking water and sanitation. They use a standard classification of what constitutes coverage. The Joint Monitoring Programme does not report the findings of the latest nationally representative household survey or census. Instead, it estimates coverage using a linear regression line that is based on coverage data from all available household sample surveys and censuses. For specific country data, see www.childinfo.org and www.wssinfo.org.

Notes

1. Countdown to 2015 2005.
2. https://sustainabledevelopment.un.org/topics/sustainabledevelopmentgoals.
3. The Bellagio Study Group on Child Survival 2003.
4. Countdown to 2015 2005, 2008, 2010, 2012, 2013, 2014.
5. Independent Expert Review Group 2015.
6. The Bellagio Study Group on Child Survival 2003.
7. The Bellagio Study Group on Child Survival 2003; Black and others 2008; Lawn, Cousens and Zupan 2005; Ronsmans and Graham 2006.
8. Requejo, Victora and Bryce 2014.
9. Victor and others forthcoming.
10. Maternal Mortality Estimation Inter-agency Group 2014.
11. Requejo and others 2015.
12. Say and others 2014.
13. Ahmed and others 2012.
14. Dean and others 2014; Mason and others 2014.
15. Lawn and others 2011.
16. UN Inter-agency Group for Child Mortality Estimation 2015; You and others 2015.
17. UN Inter-agency Group for Child Mortality Estimation 2015.
18. Black, Morris and Bryce 2003.
19. You and others 2015; UN Inter-agency Group for Child Mortality Estimation 2015.
20. Liu and others 2015.
21. Black and others 2008, 2013.
22. Black and others 2013; Liu and others 2015.
23. Lawn and others 2014.
24. IFPRI 2015; WHO 2012.
25. Black and others 2013.
26. Countdown to 2015 2013, 2014.
27. Summary data on stunting and wasting prevalence in the *Countdown* countries are available in the web appendix at www.countdown2015mnch.org.
28. A league table and summary measures for HIV, caesarean-section and zinc treatment tracked by *Countdown* are available in the web appendix at www.countdown2015mnch.org.
29. Walker and others 2013.
30. Hazir and others 2013.
31. The Composite Coverage Index is a weighted average of eight interventions along the continuum of care that have been available in most countries for at least a decade. The interventions include demand for family planning satisfied, at least one antenatal care visit, skilled attendant at delivery, three immunization indicators (diphtheria-tetanus-pertussis, tuberculosis and first-dose measles), oral rehydration therapy for diarrhea and care-seeking for pneumonia. It is calculated as

$$CCI = ¼\left(FPS + \frac{SBA + ANCS}{2} + \frac{2DPT3 + MSL + BCG}{4} + \frac{ORT + CPNM}{2}\right).$$

This summary indicator used in *Countdown*'s routine reporting covers reproductive, maternal and newborn health, as well as both preventive and curative interventions.
32. Data are available in the web appendix at www.countdown2015mnch.org.
33. Countdown to 2015 2008.
34. Hazir and others 2013; Requejo, Newby and Bryce 2013.
35. Walker and others 2013.
36. UNICEF 2014, 2015.
37. Bryce and others 2013.
38. UNICEF 2015.
39. Victora and others 2003, 2012.
40. Barros and others 2012.
41. Victora and others 2012.
42. WHO 2007a.
43. See note 31 for the definition of the Composite Coverage Index.
44. Partnership for Maternal, Newborn and Child Health 2014.
45. See the web appendix at www.countdown2015mnch.org for adoption rates of 10 essential policies tracked by *Countdown,* based on a 2013–14 WHO survey developed in consultation with *Countdown* technical experts, as well as the latest available data on the legal status of abortion in the *Countdown* countries.
46. Global Health Workforce Alliance and WHO 2014.
47. Global Health Workforce Alliance and WHO 2014.
48. Ethiopian Public Health Institute 2015.
49. Miller and others 2014.
50. Waage and others 2010.
51. Waage and others 2010; Arregoces and others 2015.
52. Arregoces and others 2015.
53. Arregoces and others 2015.
54. Partnership for Maternal, Newborn and Child Health 2015.
55. Huicho and others forthcoming.
56. Arregoces and others 2015; Partnership for Maternal, Newborn and Child Health 2015; Dieleman and others 2015. See annex F for a description of the different methods

used by *Countdown,* the Institute for Health Metrics and Evaluation and the Partnership for Maternal, Newborn and Child Health and a discussion of the new Organisation for Economic Co-operation and Development policy marker.

57. Desalegn, Solberg and Kim 2015.
58. Jamison and others 2015.
59. Independent Expert Review Group 2015.
60. Beaglehole and others 2014.
61. Personal communication with P.C. Hallal.
62. Personal communication with L. Haddad.
63. Countdown 2008 Equity Analysis Group 2008; Dieleman and others 2015.
64. Handley and others 2015.
65. UN Inter-agency Group for Child Mortality Estimation 2015; Maternal Mortality Estimation Inter-agency Group 2014.
66. El Arifeen 2014.
67. WHO 2014a.
68. Stokstad 2015; *The Economist* 2015.
69. Desalegn, Solberg and Kim 2015.
70. The Bellagio Study Group on Child Survival 2003.
71. Bhutta and others 2010.
72. Commission on Information and Accountability for Women's and Children's Health 2011a.
73. Monitoring and Evaluation Working Group of the International Health Partnership and Related Initiatives n.d.; Bryce and others 2011.
74. Amouzou, Habi and Bensaïd 2012.
75. El Arifeen and others 2014.
76. Barros and Victora 2013.
77. Victora and others 2001.
78. Filmer and Pritchett 2001.
79. Requejo, Victora and Bryce 2014.
80. Arregoces and others 2015.
81. See www.oecd.org/dac/stats/methodology.htm for notes on the methodology used to calculate these values.
82. In 2013 prices. Dieleman and others 2015.
83. In 2013 prices. Partnership for Maternal, Newborn and Child Health 2015.

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