

Tracking progress towards universal coverage for women's, children's and adolescents' health



Countdown to 2030

Maternal, Newborn & Child Survival



This report was written in support of Every Woman Every Child.

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Tracking progress towards universal coverage for women's, children's and adolescents' health

The 2017 Report



Countdown to 2030

Maternal, Newborn & Child Survival

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Countdown headlines for 2017



This is the first *Countdown* report in the context of the 2030 agenda for sustainable development and the Every Woman Every Child Global Strategy for Women's, Children's and Adolescent's Health (2016–2030). It synthesizes data on the current situation and trends in reproductive, maternal, newborn and child health and nutrition from a wide array of sources, including the profiles on the 81 *Countdown* priority countries, which together account for 95% of maternal deaths and 90% of deaths among children under age 5.

Countdown to 2030 builds off the strengths of *Countdown to 2015* and has evolved to best contribute to assessing progress towards universal coverage for women's, children's and adolescents' health. It has retained a partnership-based governance model with three main objectives: monitoring progress in the highest burden countries; improving the measurement of intervention coverage, equity and drivers of coverage; and strengthening capacity to collect, generate and use evidence at the regional and country levels. *Countdown's* primary focus is the continuum of care, with some expansion into nutrition, adolescent health (currently limited to adolescent girls' reproductive health), early childhood development, quality of care and effective coverage, and conflict settings. Annexes A–H provide more detail on the *Countdown* structure, the conceptual model guiding its analyses, the technical review process that resulted in the 81 priority countries and the indicators included in the country profiles, the definitions and data sources for those indicators, and the list of *Countdown* countries considered malaria endemic and included in analyses of the malaria indicators.

The Sustainable Development Goals include ambitious targets—including ending all preventable maternal, newborn and child deaths by 2030. Neonatal and under-five mortality in the 81 *Countdown* countries rapidly declined during 2000–15. But the rate of decline must substantially

accelerate for countries to reach the Sustainable Development Goals targets for neonatal mortality (12 deaths per 1,000 live births) and under-five mortality (25 deaths per 1,000 live births). The average annual rate of reduction in the 50 *Countdown* countries with the highest mortality levels will need to more than double for neonatal mortality during 2015–30 and nearly double for under-five mortality compared with 2000–15. Reaching the Sustainable Development Goal global target for maternal mortality (70 maternal deaths per 100,000 live births) will also require accelerating the annual rate of reduction.

Although the prevalence of stunting among children under age 5 has dropped considerably in the past decade, it remains 30% or higher in about half of the *Countdown* countries with available data. All major population groups have seen improvement, but stunting remains much more common among the poorest children, and the absolute gap between rich and poor children has not changed. More than half of *Countdown* countries have wasting prevalence of 5% or higher, and in 14 countries, including several affected by conflict, the prevalence is over 10%, which is a level considered a serious public health emergency in need of immediate action. The nutrition transition is well under way in *Countdown* countries, many of which face the double burden of continued high prevalence of undernutrition and growing rates of overweight and obesity among children, adolescents and women. The median prevalence of low body mass index among women ages 20 and older in the *Countdown* countries with available data is 8% (with a range of 1–24%). In 25 countries the prevalence of low body mass index is 10% or higher. The median prevalence of obesity among women ages 20 and older is 14% (with a range of 5–41%), and in 22 countries prevalence is 25% or higher.

Most of the intervention coverage indicators that *Countdown* tracks—which span the continuum of care from pregnancy prevention and planning to pregnancy to childbirth to the postnatal

period and infancy to childhood and including environmental factors—showed strong progress in recent years. Coverage increased sharply for new vaccines, use of insecticide-treated nets for malaria prevention, pregnant women living with HIV receiving antiretroviral therapy and postnatal care for mothers and for babies. Indicators that did not show large increases include demand for family planning satisfied with modern methods; four or more antenatal care visits; infant and young child feeding behaviours, including early initiation of breastfeeding and exclusive breastfeeding (used as proxies for indicators of coverage of nutrition programmes); and indicators for the treatment of childhood illnesses (such as careseeking for pneumonia and use of oral rehydration salts and zinc for diarrhoea).

In *Countdown* countries national coverage of many essential interventions is still far from universal. For example, median national coverage for countries with available data is still below 50% for demand for family planning satisfied with modern methods (48%), exclusive breastfeeding (47%), access to basic sanitation services (44%), treatment of diarrhoea with oral rehydration salts (43%) and postnatal care for babies (36%). And across *Countdown* countries demand for family planning satisfied was much lower among adolescent girls (ages 15–19) than among women ages 20 and older.

Only immunization indicators and continued breastfeeding at one year (12–15 months) have rates that average above 80% across the *Countdown* countries.

Many of the coverage indicators that *Countdown* tracks and that countries routinely monitor provide information on contact with health services but provide little information on the quality of care received. Low-quality services are unlikely to result in the expected health improvements. Assessments of healthcare inputs (such as human resources, supplies and equipment), service delivery processes (that is, the content of care provided), outcomes and impact (effective coverage) indicate major deficiencies in the quality of care in all settings. For example, a set of studies in low- and middle income countries found that coverage of antenatal care visits dropped around 30–45 percentage points when appropriate inputs needed for delivering effective services were considered—and was closer to 50 percentage points lower after factoring in appropriate processes that should take place during antenatal care visits. Addressing missed opportunities

such as increasing the delivery of recommended evidence-based interventions during service contacts (such as breastfeeding counselling during postnatal care visits) and improving the quality of care provided at service contacts would help *Countdown* countries reach high coverage levels for all essential interventions across the continuum of care.

Countdown tracks inequalities in individual interventions for reproductive, maternal, newborn and child health and through the well-tested composite coverage index, which cuts across four intervention areas. Wealth-related and urban–rural inequalities in the composite coverage index are falling in most *Countdown* countries, yet variations persist. Some countries, such as Angola and Nigeria, have massive inequalities between rich and poor people, while others, such as Malawi, Swaziland and Turkmenistan, have almost none. Data on within-country inequality across geographic regions, which is very large in several *Countdown* countries, also provide critical information for programmatic action.

Viewed together, these results demonstrate the need for countries to set medium-term coverage targets (such as for 2020 and 2025) for selected indicators and to include an inequality dimension so that progress towards universal health coverage and the Sustainable Development Goal targets can be closely monitored.

Context matters in driving health outcomes. Governance and political stability directly affect the composite coverage index. Greater women’s empowerment also has a positive association with the coverage of interventions. And based on 17 indicators tracked by *Countdown* that represent four main drivers of change in intervention coverage along the implementation spectrum, major gaps remain in the adoption of supportive policies and legislation; good governance (such as widescale introduction of costed national health plans or civil society engagement in planning and review processes); sufficient financing for reproductive, maternal, newborn, child and adolescent health and nutrition (including domestic financing); and adequate health system inputs (such as health workers).

Despite the data on interventions for women’s, children’s and adolescents’ health, lack of timely data and major data gaps preclude disaggregation for better targeting of programmes and services to the populations most in need. The gaps are particularly serious for causes of death, quality of

care, nutrition programmes, adolescent health, and financial and health system inputs. The complex statistical models that are increasingly being relied on for informing progress are useful for predicting global disease burden trends, but they can mask data scarcity, and their utility for local monitoring, decisionmaking and accountability is limited. *Countdown* has prioritized regional initiatives and country case studies to enhance local capacity to generate and use data to improve women's, children's and adolescents' health while still producing regular global analyses on progress.

Key messages

- The 81 *Countdown* countries have made progress but remain far from universal coverage for most essential interventions for reproductive, maternal, newborn, child health and nutrition.
- Major investment is needed to achieve the Sustainable Development Goal targets for women's, children's and adolescents' health. Investment must be guided by reliable and timely data on intervention coverage, inequities in coverage and quality of care (including in conflict settings).
- To address the broader Sustainable Development Goal agenda, measurement improvements should focus on strengthening vital statistics, understanding drivers of intervention coverage change and generating better data on early childhood development and adolescent health.
- Strengthening country analytical capacity to collect and use data, a priority for *Countdown*, is crucial to improve monitoring and accountability for women's, children's and adolescents' health.





1. Introduction



In September 2015 the UN General Assembly adopted the Sustainable Development Goal framework, which specifies 17 global goals and 169 targets to be achieved by 2030, along with 230 indicators for monitoring progress.¹ Sustainable Development Goal 3 (ensure healthy lives and promote well-being for all at all ages) is dedicated to health and includes 13 targets. Health-related targets are also interspersed throughout the other 16 goals—for example, ending malnutrition, part of Sustainable Development Goal 2. The Sustainable Development Goal framework positions health and well-being as foundational to economic and social development and environmental protection. It emphasizes reaching universal health coverage and addressing social and environmental determinants to reduce inequalities and ensure that no one is left behind. Central to achieving this are an enabling environment and resilient health systems that can deliver high-quality services to all women and children.

The Every Woman Every Child Global Strategy for Women's, Children's and Adolescents' Health (2016–2030) was launched in 2015 to translate the broad agenda of the Sustainable Development Goals into concrete guidance on how to accelerate progress in women's, children's and adolescents' health through a multisectoral approach.² The Global Financing Facility was also launched in 2015 in support of Every Woman Every Child to ensure scaled and sustained financing for women's, children's and adolescents' health through country-driven investment.³

This report is *Countdown's* first effort to track progress towards universal health coverage for reproductive, maternal, newborn, child and adolescent health and nutrition. The findings are based on independent analyses by and collaboration among dedicated individuals and institutions and should be used to catalyse efforts to achieve the vision of the Every Woman Every Child Global Strategy, to inform Global Financing Facility decisions and to hold the world to account

for greater action for women's, children's and adolescents' health everywhere.

Countdown to 2030 builds off the strengths of *Countdown to 2015*. It has retained a multi-institutional and participatory governance structure⁴ and aims to promote accountability and action through better monitoring and measurement of coverage and its key determinants and through strengthening of regional and country capacity for generating and using evidence. *Countdown* is designed to be flexible and responsive to changes in the evidence base and to tackle critical questions on how countries can best achieve universal health coverage for reproductive, maternal, newborn, child, adolescent health and nutrition as they arise.

Countdown's five priority areas of action are:

- Publishing independent high-quality comprehensive analyses of progress towards the Sustainable Development Goals that are related to reproductive, maternal, newborn, child and adolescent health and nutrition—with a focus on coverage and equity of cost-effective interventions for the main causes of maternal and child deaths.
- Providing analytic inputs to progress reports towards the Global Strategy for Women, Children's and Adolescents' Health (2016–2030); reports prepared by the Independent Accountability Panel; global efforts to monitor nutrition, adolescent health and early childhood development; and other global and regional reports.
- Improving the measurement of coverage of interventions, including more and better disaggregation of available data and quality of care.
- Improving the measurement and analyses of key drivers of intervention coverage, such as

governance, civil society representation and conflict settings.

- Strengthening regional and country analytical capacity to collect, analyse and use data for accountability for women's, children's and adolescents' health in the context of the Sustainable Development Goals and universal health coverage.

To address today's broader agenda, *Countdown* has expanded its indicators and analyses on the reproductive health and nutrition dimensions of the continuum of care and is undertaking more analyses on quality of care and effective coverage. For adolescent health *Countdown* is currently focusing on the reproductive health of adolescent girls and is working closely with the Lancet Standing Commission on Adolescent Health. Equity continues to be a cornerstone of *Countdown's* work, and *Countdown* has added more stratifiers (such as ethnicity) to its analyses and begun work on double disaggregation (such as comparing coverage among urban poor people and rural poor people). In response to the multisectoral emphasis in the Sustainable Development Goals, *Countdown* has increased its work on drivers of intervention coverage, including examination of women's, children's and adolescents' health in conflict situations. *Countdown* draws on household survey data and the global databases maintained by such partners as the United Nations Children's Fund and the World Health Organization. *Countdown* is also making greater use of facility surveys and routine administrative data sources, particularly for regional and country-level work.

In recognition of the substantial yet uneven progress during the Millennium Development Goal era, *Countdown* revised its country list and now tracks the 81 countries where 90% of child deaths and 95% of maternal deaths occur. In 2015 these 81 countries were home to 3.6 billion people—47% of the world's population—and 64% of births worldwide.

Having learned from the portfolio of 10 case studies completed under *Countdown to 2015* and from a decade of preparing country profiles

for its priority countries, *Countdown to 2030* has introduced a regional network approach to further devolve the effort to the country level, where action is most urgent. The networks focus on building country capacity to undertake multicountry and in-depth country research and to use the findings in shaping national policies and plans. The first network was established at the Federal University of Pelotas, Brazil, and others are being spearheaded in East and Southern Africa by the African Population and Health Research Center and in West and Central Africa by the West African Health Organization.

More information on *Countdown*, including the technical review process for selecting the 81 priority countries, the three-tiered set of indicators that *Countdown* tracks, the explanatory framework guiding *Countdown's* work, and the data sources and methods that *Countdown* uses are included in annexes A–H and on the *Countdown* website (www.countdown2030.org), which also includes *Countdown* databases and interactive country profiles.

The 2017 report begins with a summary of results from the 81 country profiles and other data sources, and closes with two-page country profiles for each of the 81 countries. It takes a critical look at how far *Countdown* countries are from universal coverage for reproductive, maternal, newborn, child and adolescent health and nutrition and highlights possible solutions for addressing gaps. It presents levels and trends in maternal, neonatal and under-five mortality across *Countdown* countries (including changes in the causes of maternal and child deaths); the nutritional status of women, children and adolescent girls and approaches for improving their nutrition; intervention coverage across the continuum of care; inequalities in intervention coverage; and key drivers of intervention coverage. It also addresses strategies for measuring effective coverage and quality of care and examines the impact of conflict on women's, children's and adolescent's health and the many challenges in measuring intervention coverage in conflict settings. It concludes with priority recommendations on the way forward in 2018 and beyond.

2. Mortality



Survival is a key indicator of progress. The Sustainable Development Goals specify targets for neonatal, under-five and maternal mortality to be achieved by 2030, and the Every Woman Every Child Global Strategy for Women's, Children's and Adolescents' Health includes five mortality indicators among its 16 core indicators for monitoring progress towards its survive–thrive–transform agenda: maternal mortality, stillbirths, neonatal mortality, under-five mortality and adolescent mortality.

Achieving the mortality targets

The Millennium Development Goals era saw a substantial decline in maternal and child mortality in almost all countries during 2000–15.¹ In 2015, according to the latest update of UN estimates, the unweighted average of neonatal mortality for the 81 *Countdown* countries was 24 deaths per 1,000 live births, and the unweighted average of under-five mortality for the 81 *Countdown* countries was 59 deaths per 1,000 live births.² But for countries to reach the Sustainable Development Goal targets for neonatal mortality (12 deaths per 1,000 live births) and under-five mortality (25 deaths per 1,000 live births), the rate of decline must accelerate, especially in the 50 *Countdown* countries with the highest mortality levels. The average annual rate of reduction in those countries will need to more than double for neonatal mortality and nearly double for under-five mortality during 2015–30 compared with 2000–15 (figure 2.1). Reaching the Every Newborn Action Plan global target for stillbirths (12 or fewer per 1,000 births)³ and the Sustainable Development Goal global target for maternal mortality (fewer than 70 maternal deaths per 100,000 live births) by 2030 will also require accelerating the annual rate of reduction.⁴

Neonatal mortality continues to decline but at a slower pace than mortality among children ages 1–59 months. Thus the proportion of child deaths worldwide occurring in the first month of life has increased, to 46% in 2016. The slower decline

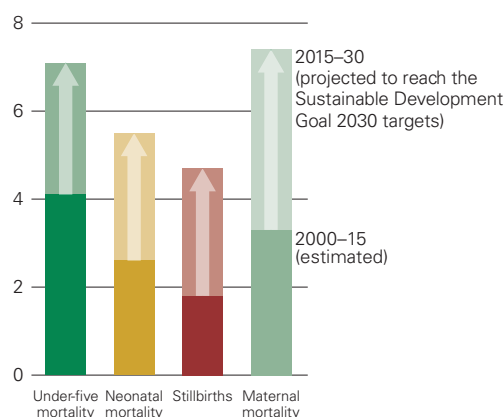
in neonatal mortality has focused attention on newborn interventions and led to greater inclusion of newborn care in global and country strategies. In the 50 *Countdown* countries with the highest mortality levels the decline in stillbirth rates was even slower than the decline in neonatal mortality (see figure 2.1).⁵

The last UN update of maternal mortality levels and trends was completed in 2015 to inform the final assessment of the Millennium Development Goals, and it acknowledged the large uncertainty with the estimates because of a lack of recent data. The average annual rate of reduction in maternal mortality in the 50 *Countdown* countries with the highest maternal mortality levels was 3.3%

FIGURE 2.1

To reach the Sustainable Development Goal targets, the average annual rate of reduction during 2015–30 in the 50 highest mortality *Countdown* countries will need to more than double the rate during 2000–15 for neonatal mortality, stillbirths and maternal mortality

Average annual rate of reduction during 2000–15 (estimated) and 2015–30 (projected to reach the Sustainable Development Goal 2030 targets), 50 *Countdown* countries with the highest mortality levels (%)



Source: Based on analysis of data from Alkema and others 2016; Blencowe and others 2016; UN Interagency Group for Child Mortality Estimation 2017.

during 2000–15 and will need to more than double to reach the 2030 target (see annex F for country estimates for the 81 *Countdown* countries).⁶

There is no global target for mortality among adolescents ages 10–19. In general, adolescent mortality is relatively low and therefore more difficult to measure in the absence of complete death registration systems. Globally, adolescent mortality has been estimated at 1.1 deaths worldwide per 1,000 adolescents ages 10–19, with a much higher rate in Sub-Saharan Africa (2.8 deaths per 1,000 adolescents ages 10–19) and large uncertainty.⁷ Because the adolescent population is large, these rates translated into 1.3 million adolescent deaths in 2012. The UN Inter-agency Group on Child Mortality Estimates produced its first set of country estimates on mortality for children ages 5–14 in 2017. The median mortality among children ages 5–14 in the 81 *Countdown* countries was 11 deaths per 1,000 children age 5 (with an interquartile range of 5–16), with an estimated average annual rate of reduction of 3.5–4.5% in South Asia and Sub-Saharan Africa during 2000–15.⁸

Patterns in causes of death

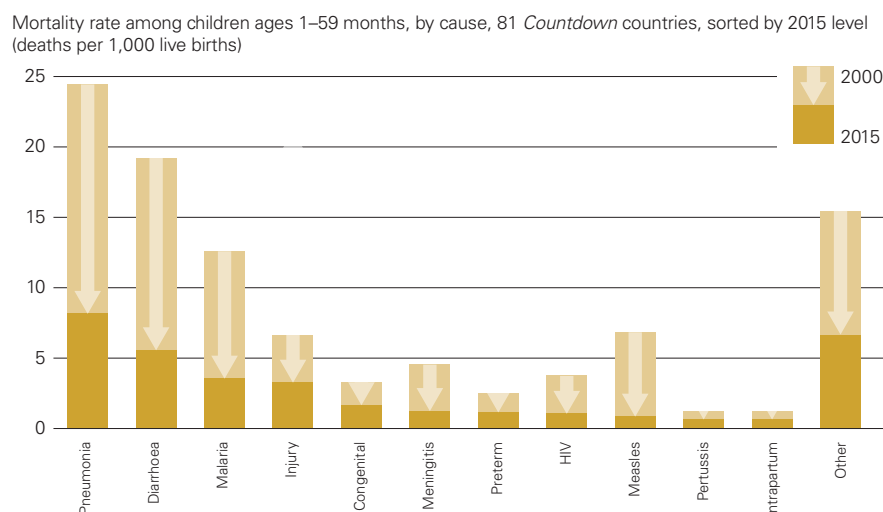
Without information on the causes of preventable child deaths, resources cannot be properly allocated to programmes and interventions that seek to eliminate such deaths. But in 2015 only 5 of 81 *Countdown* countries had good-quality cause of death data from national civil registration

systems.⁹ In 2010–14, 14 countries had national data on causes of death in childhood (mostly from verbal autopsy studies), 20 countries had subnational information only and 47 countries had no information. Assessing the leading causes of child death in *Countdown* countries thus depends heavily on statistical modelling that yields only a general picture. The leading causes of deaths in children under five years in the 81 *Countdown* countries are shown in figure 2.2 (children ages 1–59 months) and figure 2.3 (neonates), with reductions in cause-specific mortality per 1,000 live births during 2000–15. The stacked bar shows the mortality level in 2000 (the full bar), the reduction during 2000–15 (the light colouring), and the level in 2015 (the dark colouring).

Under-five mortality due to vaccine-preventable diseases such as measles declined the most in *Countdown* countries during 2000–15, and deaths due to diarrhoea, pneumonia and malaria were also more than halved (see figure 2.2).¹⁰ The declines in neonatal mortality were less pronounced—and were nonexistent for some causes (such as congenital malformations; see figure 2.3). In 2015 the leading causes of death among children under age 5 in *Countdown* countries were preterm birth complications (17%), pneumonia (13%), intrapartum-related events (11%) and diarrhoea (10%). Undernutrition remains a major contributor to child deaths directly and indirectly—in 2013 it was an underlying cause of an estimated 45% of all child deaths.¹¹

FIGURE 2.2

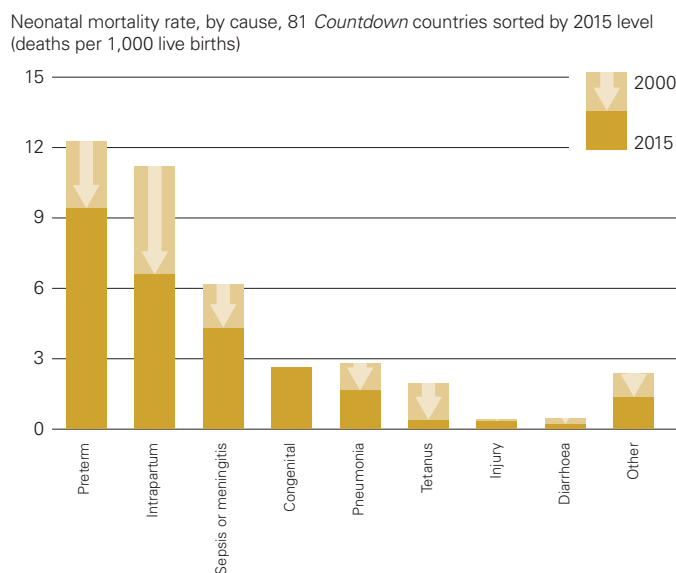
Under-five mortality due to vaccine-preventable diseases such as measles declined the most in *Countdown* countries during 2000–15



Source: Calculated for *Countdown* countries based on data from Liu and others (2015).

FIGURE 2.3

Some causes of neonatal mortality saw no declines between 2000 and 2015



Source: Calculated for *Countdown* countries based on data from Liu and others (2015).

Nearly half of stillbirths in 2009 were intrapartum deaths, which can be prevented by good-quality obstetric care.¹² The increasing rates of institutional delivery in many *Countdown* countries present a major opportunity to improve reporting on perinatal and maternal deaths and to reduce intrapartum stillbirths, maternal mortality and neonatal mortality through high-quality delivery and postnatal care.

Reliable cause-specific data are even more limited for maternal mortality than for child mortality, especially in countries with high mortality levels. Because country-level data are lacking, the *Countdown* country profiles show data on the causes of maternal deaths only for the region to which countries belong, and data on causes of death by maternal age are not yet available. For some causes, such as abortion, reliable information is particularly lacking. In 2003–09 the leading causes of maternal deaths were haemorrhage (27%), hypertension (14%), sepsis (11%), abortion (8%) and indirect causes (28%).¹³

Data on causes of death among adolescents are also sparse for *Countdown* countries—because few countries have well-functioning civil registration and vital statistics systems and because few verbal autopsy studies have been conducted. In 2012 road injury, interpersonal violence, HIV, self-harm and drowning were the major causes of death among adolescent boys, and HIV, self-harm, road injury

and diarrhoeal and respiratory diseases were the major causes of death among adolescent girls.¹⁴

Multiple dimensions of inequality in survival

Disparities in child survival by demographic and socioeconomic characteristics are large and persistent in many *Countdown* countries. The most commonly measured inequalities in national surveys are by sex, age, place of residence (urban–rural or by administrative unit), education and wealth status. Survival differences by other characteristics such as ethnicity, race or migratory status are often poorly captured in surveys and require country-specific data collection and analyses. There is a dearth of high-quality mortality data for such populations, especially if they are relatively small.

In general, boys have a greater chance of dying before their fifth birthday than girls do, largely because of biological differences.¹⁵ According to the UN estimates of under-five mortality for 2016, only one *Countdown* country had higher female mortality than male mortality: India.¹⁶ In 46 *Countdown* countries with mortality data from Demographic and Health Surveys since 2010, boys were, on average, 14% more likely than girls to die before age 5, and most of the difference is due to higher mortality among boys early in life. During the first month of life, male mortality was, on average, 29% higher than female mortality.

In *Countdown* countries in South Asia female mortality remains higher than expected, having shown little improvement in the past two decades (figure 2.4). Further analysis that takes into account the impact of mortality levels on sex ratios and examines possible causal pathways—focusing on South Asian countries—will be needed.¹⁷

Urbanization is progressing fast in all *Countdown* countries: the proportion of the population living in urban areas was 42.9% in 2015, up from 36.9% in 2000, and is projected to reach 49.4% in 2030.¹⁸ In 46 *Countdown* countries with mortality data from Demographic and Health Surveys since 2010, rural children were 34% more likely than urban children to die before their fifth birthday. The gap has narrowed only slightly over time (in countries with multiple data points) because rural child mortality has declined only slightly faster than urban child mortality.

The gap across household wealth status is large in the 46 *Countdown* countries with mortality data from Demographic and Health Surveys since 2010: mortality is 92% higher among children in the poorest quintile of households than among children in the wealthiest. And the past 20 years have seen little change in the mortality disadvantage among the poorest children.¹⁹

Data gaps

Demand for up-to-date mortality statistics is on the rise, but many countries lack such data. For example, in the latest UN interagency analysis on child mortality, death registration was a data source for only 6 *Countdown* countries since 2012, including India, which has a long running sample registration system.²⁰

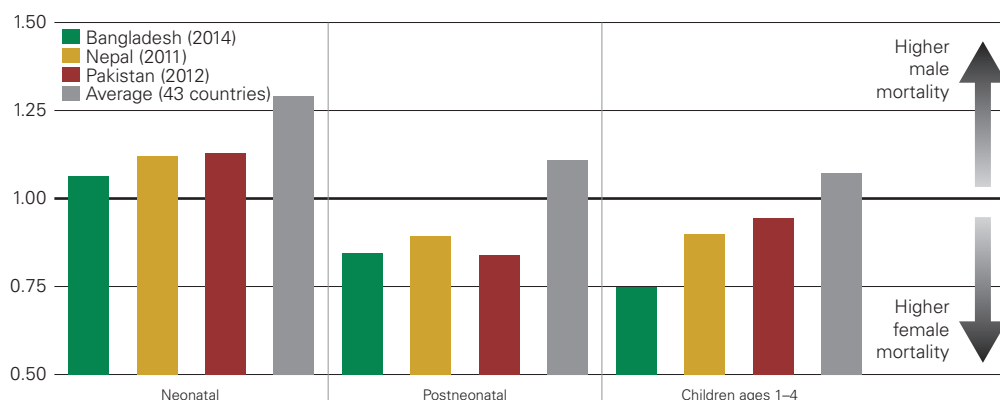
Most *Countdown* countries rely on household surveys and censuses to assess trends in child, adolescent and maternal mortality. But household surveys and censuses collect retrospective data through survival histories, which compounds the lack of recent mortality data in *Countdown* countries. Thus, global agencies often rely on extrapolation techniques to obtain mortality estimates for a recent year. For instance, the 2016 child mortality estimates by the UN Inter-agency Group for Child Mortality Estimation required an average extrapolation period of 4.5 years for under-five mortality.²¹ For about 70 *Countdown* countries the latest available child mortality data point was more than five years old.

Maternal mortality levels and trends are much harder to ascertain than child mortality levels and trends because maternal deaths are much rarer than child deaths—almost 20 times rarer for the 81 *Countdown* countries. There are fewer data points over time, data collection is fraught with difficulties,

FIGURE 2.4

In *Countdown* countries in South Asia female mortality among children under age 5 remains higher than expected

Ratio of male to female mortality, selected South Asian countries and average of 43 other countries with neonatal, postneonatal and child (ages 1–4) mortality data from Demographic and Health Surveys since 2010



Note: Data from the India Family Health Survey for 2015/16 were not available at the time of publication, and the Afghanistan Demographic and Health Survey 2015 results were excluded because of the implausible results for mortality indicators.

Source: *Countdown* calculations based on Demographic and Health Surveys since 2010

ranges of uncertainty are large and statistical models are based heavily on covariates such as skilled birth attendant and fertility to predict trends.²² Empirical data on stillbirths and mortality among children and adolescents ages 5–9, 10–14 and 15–19 are also lacking in many countries.²³

Since the final Millennium Development Goal assessment in September 2015, just over a third of *Countdown* countries have published new under-five mortality data, mostly from retrospective household surveys conducted in 2015–16 or death registration prior to 2016. The estimates for 2016 show little change in the annual rate of reduction,²⁴ but a comprehensive account of trends following the introduction of the Sustainable Development Goals will be possible only after a few more years. It is too early to assess whether the pace of mortality is changing post-2015. Data availability is generally poorer for maternal mortality, stillbirths and adolescent mortality than for child mortality, so even greater caution is needed when interpreting estimates for these indicators.

Extrapolations and predictions are increasingly being used to satisfy demand for up-to-date mortality statistics. While these methods are useful for informing global discussions about progress and priorities, much more recent and high-quality data are needed to monitor progress, ensure accountability and guide decisionmaking. Obtaining such data will require better data collection. Countries should aim for complete civil registration and vital statistics systems (a Sustainable Development Goal target). The preferred way to begin collecting better data on

mortality and cause of death is through sample registration systems, which should eventually lead to complete civil registration and vital statistics systems.²⁵ Regular population-based surveys with mortality data collection are still needed, covering more dimensions of inequality. Finding innovative ways to obtain mortality statistics is also critical.

Conclusion

Maternal, neonatal, child and adolescent survival features prominently in the Sustainable Development Goals and the Every Woman Every Child Global Strategy for Women's, Children's and Adolescents' Health. To achieve the targets set out in these frameworks, the decline in mortality will need to accelerate in *Countdown* countries—and this will require major investment in programmes and supportive policies. Data on causes of child death suggest continuing to focus on infectious diseases and nutrition and stepping up efforts to reduce stillbirths and neonatal mortality. Large inequalities in child survival persist in many countries across wealth quintiles. Stronger referral systems and higher quality care in health facilities are needed to reduce preventable maternal deaths.

Current data are inadequate to assess whether all-cause or specific-cause mortality is changing. The availability and quality of disaggregated mortality and cause of death data need to be improved because those data are essential for strengthening monitoring and accountability and targeting effective interventions towards disadvantaged populations with disproportionately higher mortality.





3. Nutrition for all: to improve survival and enhance healthy development for this and future generations



Addressing persistent undernutrition and micronutrient deficiencies among women, children and adolescents in *Countdown* countries is critical to achieving Sustainable Development Goals 2 and 3 and the World Health Assembly 2025 global nutrition targets.¹ Preventing a rise in levels of child and adolescent overweight and obesity is also essential for reducing the risk of noncommunicable diseases and promoting optimal short- and long-term health and productivity. Recognition of the foundational role of nutrition in improving survival, health, well-being and early childhood development has greatly increased in recent years.² Undernutrition—including foetal growth restriction, stunting and wasting, and micronutrient deficiencies such as vitamin A, iodine, iron and zinc—along with suboptimal breastfeeding is an underlying cause of 45% of deaths among children under age 5. Poor nutrition, particularly in the first 1,000 days, also negatively affects early brain development and school achievement later in life.³ Stunting in children under age 5 that results from chronic malnutrition, inadequate childcare practices and repeat infections is linked to other negative long-term effects in adulthood: it is associated with reduced income-earning potential and leads to short stature and small pelvis size, which puts adolescent girls and women at risk of obstructed labour and other adverse pregnancy outcomes.⁴

Mean body mass index and obesity among children and adolescents ages 5–19 has increased in most countries over the past four decades. Although more children and adolescents worldwide are moderately and severely underweight than obese today, more children and adolescents will be obese than underweight by 2022, if post-2000 trends in low- and middle-income countries continue.⁵

Maternal undernutrition contributed to around 600,000 neonatal deaths through small-for-gestational age births in 2012,⁶ and iron deficiency (anaemia) during pregnancy increases the risk of maternal death. Women with high or low body mass index are at higher risk of many maternal and perinatal complications, such as preterm delivery, and obese women are at higher risk of gestational diabetes and pre-eclampsia.⁷

Regular monitoring of women's, children's and adolescents' nutritional status and coverage of nutrition interventions is key for *Countdown* countries to develop and effectively implement nutrition-related policies and programmes that coherently address all forms of malnutrition—ranging from underweight and micronutrient deficiencies to overweight and obesity. This chapter presents information on key nutritional status and other nutrition indicators for *Countdown* countries; discusses strategies for addressing malnutrition, with a focus on the health sector; and highlights major data gaps, particularly in coverage of nutrition programmes.

Nutritional status of adult women

Monitoring nutritional status is important for tracking progress in improving women's health and obstetric outcomes. In *Countdown* countries the median prevalence of low body mass index among adult women ages 20 and older is 8%, with a range of 1–24% (table 3.1). In 25 countries the prevalence of low body mass index is 10% or higher. The median prevalence of obesity is 14%, with a range of 5–41%—and in 22 countries the prevalence is 25% or higher. Modelled estimates of anaemia among women of reproductive age suggest a median percentage of 37%, with a range of 16–70%. These data indicate that many *Countdown* countries are grappling with multiple forms of malnutrition among women.

TABLE 3.1

Prevalence of key nutritional status indicators for women of reproductive age in *Countdown* countries with available data, various years

Indicator	Number of countries	Median (%)	Minimum (%)	Maximum (%)
<i>Women ages 20 and older</i>				
Low body mass index, 2017 (<18.5 kg/m ²)	79 ^a	8	1	24
Overweight, 2017 (body mass index of 25–30 kg/m ²)	79 ^a	25	17	36
Obese, 2017 (body mass index of >30 kg/m ²)	79 ^a	14	5	41
<i>Women ages 15–49</i>				
Anaemia, 2016 (nonpregnant women: <12 g/dl; pregnant women: <11 g/dl)	81	37	16	70
Short stature, most recent year since 2012 (<145 cm)	31	2	0	25

a. Data for Sudan and South Sudan were unavailable.

Source: Body mass index: October 2017 estimates from NCD Risk Factor Collaboration (2017); anaemia: 2016 estimates from the World Health Organization Database on Anaemia (www.who.int/vmnis/database/anaemia/en/); short stature: Demographic and Health Surveys.

The need for multisectoral approaches to improve maternal and adolescent girls' nutrition

Health service delivery platforms such as antenatal care, postnatal care and family planning visits offer opportunities to reach women and adolescent girls with key nutrition interventions such as nutrition supplementation and counselling (for themselves and for their babies). Coverage of these platforms is low in many *Countdown* countries (see table 4.1 in chapter 4). And coverage of iron and folic acid supplementation during pregnancy is also low in the 36 *Countdown* countries with available data since 2012 (median coverage is 30%, with a range of 1% in Tajikistan to 82% in the Dominican Republic). The data suggest a need for countries to prioritize investment in these service delivery platforms and to ensure that these platforms offer high-quality nutrition services—including supplementation and counselling—at both the facility and community levels.

Addressing key social determinants such as delaying age at marriage and first childbirth and keeping adolescent girls enrolled in school are important for allowing girls to reach their full growth potential before their first pregnancy and

improve their overall life chances—as well as the life chances of their children. Girls who stay in school also have access to nutrition interventions delivered through school-based programmes. A 2015 study in five low- and middle-income countries found that compared with children born to mothers ages 20–24, children born to mothers younger than age 19 were at greater risk of low birthweight, small size for gestational age, poor nutritional status (weight for age and height for age), lower attained schooling and higher adult glucose concentration.⁸ These findings highlight the detrimental intergenerational nutrition and human capital effects associated with adolescent childbearing. In the 44 *Countdown* countries with data since 2010 the median adolescent birth rate was 93 births per 1,000 women ages 15–19, compared with 44 globally in 2015.⁹ The median percentage of girls who completed upper secondary education in the 31 *Countdown* countries with data since 2010 was a paltry 9% (with a range of 1–20%). Much more needs to be done across sectors to reduce the complex social, cultural, political and economic factors that contribute to high adolescent fertility and low female secondary school completion rates in many *Countdown* countries.

Nutritional status of children under age 5

The wide range in prevalence of key child nutritional status indicators, particularly for stunting and wasting, across *Countdown* countries suggests that some countries are making strides in addressing the nutrition needs of their under-five population, while others are experiencing a crisis of child malnutrition (table 3.2, figure 3.1). In populations suffering from undernutrition,

TABLE 3.2

Prevalence of key nutritional status indicators for children under age 5 in *Countdown* countries with available data since 2012

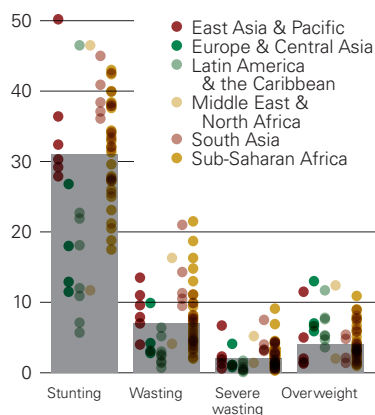
Indicator	Number of countries	Median (%)	Minimum (%)	Maximum (%)
Stunting	59	31	6 (Jamaica)	50 (Timor-Leste)
Wasting	59	7	1 (Guatemala)	22 (Djibouti)
Severe wasting	57	2	0 (Guatemala)	9 (Djibouti)
Overweight	56	4	1 (Senegal)	13 (Azerbaijan)

Source: United Nations Children's Fund global databases, July 2017, based on Multiple Indicators Cluster Surveys, Demographic and Health Surveys, other national surveys and surveillance systems.

FIGURE 3.1

Some countries are experiencing low levels of child malnutrition, while others are experiencing crisis levels of child malnutrition

Prevalence among children under age 5, *Countdown* countries with available data since 2012 (%)



Source: United Nations Children's Fund global databases, July 2017, based on Multiple Indicators Cluster Surveys, Demographic and Health Surveys, other national surveys and surveillance systems.

stunting is more prevalent than wasting (with a median value of 31% for stunting and 7% for wasting in *Countdown* countries). Although a stunting prevalence of 10% is a concern, a wasting prevalence of 10% indicates a serious public health emergency requiring immediate action. Because adverse consequences are compounded in children suffering from both conditions, programmes also need to identify and target such children with appropriate interventions.¹⁰

Although stunting levels globally have dropped considerably in the past decade,¹¹ around half of the *Countdown* countries with available survey data have stunting prevalence of 30% or higher. Of the 59 *Countdown* countries with available data, 36 have wasting prevalence above the World Health Assembly target of 5%—and in 14 of those countries wasting prevalence is above 10%.¹² Child overweight¹³ does not yet appear to be a widespread problem in *Countdown* countries, but as noted above, the rate of increase in many *Countdown* countries is rapid.¹⁴ Of the 56 *Countdown* countries with available data, 5 already have prevalence of over 10%, and 2 of those countries also have very high wasting prevalence (11% in Comoros and 14% in Indonesia). As *Countdown* countries continue to undergo the nutrition transition at different rates, governments must anticipate how to respond to increases in overweight while still addressing stark problems with child undernutrition. Regular

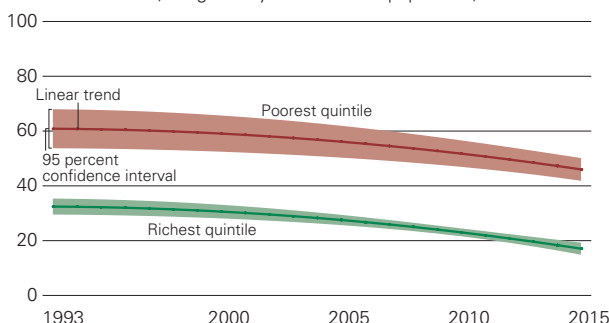
monitoring of stunting, wasting, severe wasting and overweight is critical for a comprehensive picture of child malnutrition, how the picture is changing over time and how best to adjust and implement programmes and policies and create a strong regulatory environment (for example, for marketing of processed foods, food fortification and biofortification, and breastmilk substitutes) to remedy it.

National data on child nutritional status mask large subnational variations. Stunting and wasting disproportionately affect the more disadvantaged population groups within and across *Countdown* countries. A statistical model that takes into account 1993–2015 data from 53 *Countdown* countries shows that stunting prevalence is consistently higher among the poorest quintile than among the richest quintile, with no reduction in the absolute gap between rich and poor

FIGURE 3.2

Stunting prevalence is consistently higher among the poorest quintile than among the richest quintile, with no reduction in the absolute gap between rich and poor over time

Stunting prevalence, poorest and richest quintile, 53 *Countdown* countries with available data, weighted by the under-five population, 1993–2015



Note: The analysis included 190 surveys from 53 countries that had at least two surveys with anthropometric data available. The analysis also included 18 Demographic and Health Surveys carried out between 1993 and 1999 that collected data on children under age 3 instead of children under age 5. Because stunting prevalence tends to increase with age, prevalence among children under age 5 was predicted based on linear regression of the prevalence among children under age 3 using the equation under-five % = $-0.0114274 + (1.104429 \times \text{under-three \%})$. This equation was derived from 150 Demographic and Health Surveys with data on stunting prevalence for both age groups. Trends in stunting prevalence were calculated separately for the poorest (quintile 1) and richest (quintile 5) households in each survey. Multilevel models were used to fit survey years within each country, and all *Countdown* countries were pooled together. Quadratic terms were fitted—if significant, there was evidence of nonlinearity. There was evidence of nonlinearity in both the poorest and richest groups, indicating that there was acceleration over time.

Source: Re-analysis of Demographic and Health Survey, Multiple Indicator Cluster Survey and Reproductive and Health Survey datasets by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

(figure 3.2). However, the reduction of stunting accelerated over the time period among both the rich and the poor, especially in recent years.

The observed pattern of higher prevalence among the poorest quintile is similar for childhood wasting. In nearly all the *Countdown* countries with prevalence of 10% or higher, wasting prevalence tends to be higher among children in poorer households (figure 3.3). In all 10 of these countries (with data available from 2012 forward), wasting prevalence among the richest quintile exceeds the World Health Assembly target of 5%, signalling a pervasive and acute problem that needs prioritization.

Nutrition-specific approaches to improving children's nutrition: infant and young child feeding, supplementation and fortification

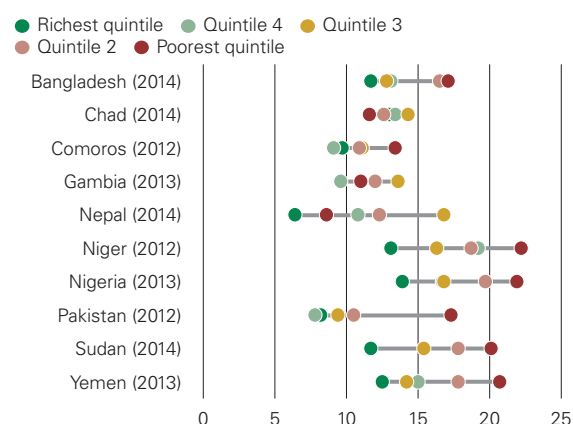
The short-term, long-term and developmental benefits of exclusive breastfeeding during the first six months of life and continued breastfeeding through age 2 and beyond for both mother and child are well documented.¹⁵ Optimum breastfeeding practices need to be complemented by adequate quantity and quality of food after six months of age to avoid stunting and wasting. And in cases of severe acute malnutrition, children need access to therapeutic feeding interventions.¹⁶ Initiation of breastfeeding within the first hour after birth increases the likelihood that a baby will be exclusively breastfed up to the first six months of life and survive to age 5. As the rate of institutional deliveries increases in *Countdown* countries, hospital practices—such as those endorsed in the Baby Friendly Hospital Initiative that promote early initiation of breastfeeding and the International Code of Marketing of Breastmilk Substitutes—will become more important.

Rates of early initiation of breastfeeding and exclusive breastfeeding average around 50% in the *Countdown* countries with available data (see table 4.1 in chapter 4), though the range across countries is wide. Coverage of continued breastfeeding at one year is higher—86% (with a range of 31–98%). Although only around half of mothers initiated breastfeeding within one hour of childbirth, there is an encouraging positive trend in *Countdown* countries (figure 3.4). Greater investment in breastfeeding promotion and counselling programmes along with strong implementation of supportive policies—including for adequate maternity leave—is needed to continue this trend and to improve breastfeeding practices in general.

FIGURE 3.3

Wasting prevalence tends to be higher among children in poorer households

Wasting prevalence, by wealth quintile, 10 *Countdown* countries with national prevalence of 10% or higher, various years



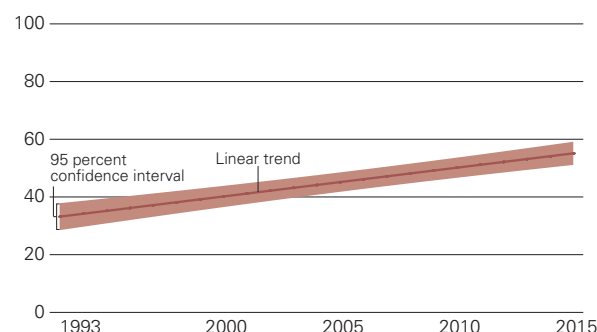
Note: Horizontal lines connect the estimates across quintiles and represent the gap between them. India is not included because 2015 data were not available at the time of publication.

Source: Re-analysis of Demographic and Health Survey, Multiple Indicator Cluster Survey and Reproductive and Health Survey datasets by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

FIGURE 3.4

Although only around half of mothers initiated breastfeeding within one hour of childbirth, there is an encouraging positive trend in *Countdown* countries

Early initiation of breastfeeding, 62 *Countdown* countries with available data, 1993–2015 (%)



Note: The analysis is based on 226 surveys. A multilevel model was used to fit survey years within each country and then to group countries into a single model. There was no evidence of nonlinearity, indicating that there was no acceleration or deceleration in the trend over time.

Source: Re-analysis of Demographic and Health Surveys, Multiple Indicator Cluster Surveys and Reproductive and Health Survey datasets by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

Other interventions proven to improve child survival and reduce the negative health and development consequences of micronutrient deficiencies include supplementation and food fortification programmes.¹⁷ Whereas supplementation programmes are generally delivered through the health sector and targeted at specific population groups (such as children under age 5 or pregnant women), implementation of food fortification policies falls within the purview of industry and can reach the entire population. Biofortification (modification of crops) and dietary diversity programmes are largely the responsibility of the agriculture sector. The main aims of fortification programmes as part of a national nutrition strategy are to increase consumption of micronutrients in order to prevent birth defects and nutritional anaemia and to increase cognitive development, productivity and thus economic progress.¹⁸ Twelve vitamins and minerals are used in wheat, rice and maize fortification programmes (calcium, folic acid, iron, niacin, riboflavin, selenium, thiamine, vitamin A, vitamin B6, vitamin B12, vitamin D and zinc), and one is used in salt fortification programmes (iodine). The combination of vitamins and minerals and the staples that are included in food fortification policies vary by country. Of the 81 *Countdown* countries, 58% have legislation for

mandatory food fortification of at least one of the three staples (wheat, rice or maize) (figure 3.5).

Many *Countdown* countries are vitamin A priority countries and have implemented vitamin A supplementation programmes. The median two-dose coverage in *Countdown* countries with available data in 2015 was 72%, with a range of 2–99% (see table 4.1 in chapter 4).

Data gaps and data needs for nutrition

The numerous data gaps and measurement challenges for nutrition include fragmentation due to poor coordination between activities that address undernutrition and those that address overweight and obesity. For example, prior to October 2017 the most recent body mass index estimates for adult women were produced in 2014 and covered only overweight and obesity rather than the full spectrum of underweight, overweight and obesity.¹⁹ And the October 2017 estimates cover the age ranges of 5–19 and 20 and older. But out of countries that had data for children, only half had data for ages 10–14 and only 40% had data for ages 5–9. Publicly available, disaggregated data for the 20 and older age group are lacking. More research and data are needed in general on effective interventions for improving adolescent nutrition and nutrition among children ages 5–9.²⁰

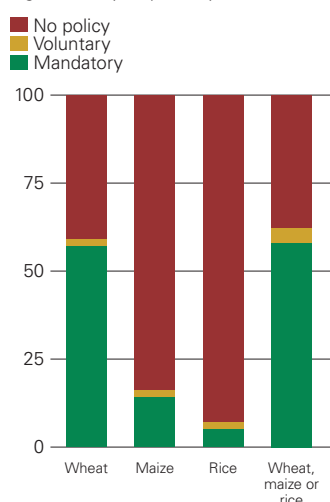
There is a glaring lack of data on coverage of nutrition programmes. *Countdown* tracks infant and young child feeding indicators, which capture behaviours rather than whether caregivers receive interventions to improve their feeding practices. Assessment of country progress towards the Sustainable Development Goals would be greatly enhanced if the nutrition community could develop a core set of coverage indicators for nutrition programmes and if data collection efforts rapidly incorporated them.²¹

The introduction and modification of supplementation programmes and food fortification and biofortification initiatives should be guided by the prevalence of micronutrient deficiencies and by people's diets. Although difficult to obtain, biomarker and diet recall data need to be systematically collected on a timely basis. *Countdown* endorses the 2014 and 2017 *Global Nutrition Reports* calls for a data revolution in nutrition, stressing the identification of data priorities and gaps, investment in survey capacity to ensure reliable national data and coordination of existing databases to facilitate nutrition monitoring and accountability.²²

FIGURE 3.5

Nearly 60% of *Countdown* countries have legislation for mandatory food fortification of at least one of the three staples

Share of 81 *Countdown* countries with mandatory, voluntary or no food fortification legislation, by staple, July 2017 (%)



Source: Food Fortification Initiative and Global Alliance for Improved Nutrition Global Fortification Data Exchange (www.fortificationdata.org).

Conclusion

Improving women's, children's and adolescents' nutrition will require a multisectoral and multilevel response and strong political commitment—nutrition-specific interventions are only part of the solution, and much broader approaches are needed. For women to be able to successfully breastfeed, policies and laws that regulate the marketing of breastmilk substitutes and mandate adequate maternity leave and breastfeeding breaks in the workplace are critical.²³ Hospital policies and practices that promote early initiation of breastfeeding and media-based and community programmes that increase awareness of the importance of breastfeeding also create an enabling environment for breastfeeding.²⁴ Preventing stunting and other forms of childhood malnutrition similarly involves multiple interventions across sectors and targeted at the individual, household and society levels. Agricultural policies that create functioning food systems, fortification policies that target

areas and populations affected by micronutrient deficiencies, social protection approaches such as food subsidies and cash transfer programmes that foster household food security among the poor, and therapeutic feeding programmes and vitamin and mineral supplementation all matter. Children also need access to clean water and adequate sanitation facilities to avoid diarrhoeal and other diseases that contribute to poor growth. Developing a strong information system for nutrition that fosters accountability and rational, evidence-based policy and programme development and implementation is also key to reaching Sustainable Development Goals 2 and 3.

Malnutrition cuts across the coverage, equity and drivers domains of *Countdown* and is a highly complex problem. More information on how to address it is available in *The Global Nutrition Report*,²⁵ which provides a platform for holding all key stakeholders from across relevant sectors, including agriculture, health, education, water and sanitation, and social protection to account for progress.



4. Coverage and effective coverage



The Sustainable Development Goal framework calls for achieving universal health coverage with high-quality services. An essential aspect of monitoring progress towards this goal is tracking coverage of key interventions for improving women's, children's and adolescents' health—which has been the primary focus of the *Countdown* initiative since it was proposed in 2003.¹

This chapter assesses levels and trends in coverage of a core set of essential interventions across the continuum of care, highlighting gaps in these interventions and comparing progress across the 81 *Countdown* countries. Understanding country progress in improving intervention coverage requires examining how many people in need actually receive health services, so the chapter also examines the number of women and children reached—and not reached—with selected interventions. This analysis shows how population dynamics place different kinds of pressures on health systems to deliver critical services. Because interventions can result in expected health improvements only when they are delivered with a high level of quality, the chapter explores approaches to measuring effective coverage that take into account the quality of the services delivered and provide a better understanding of coverage gaps and where action needs to be prioritized.

Progress towards universal coverage for reproductive, maternal, newborn, child and adolescent health and nutrition

Although there was considerable progress in increasing intervention coverage for women's, children's and adolescent girls' health during the Millennium Development Goals era, that progress was uneven—some countries fell much further behind, and some essential interventions are still lagging. Figure 4.1 shows the median coverage level of each of eighteen interventions across the continuum of care. Table 4.1 presents information on all coverage indicators currently tracked by

Countdown and included on the country profiles. It shows the number of countries with available data from 2012 forward for each indicator, and the median and the range in coverage.

Viewed together, figure 4.1 and table 4.1 show the following:

Major gaps in intervention coverage in the *Countdown* countries remain. Median national coverage is below 50% for postnatal care for babies (36%), exclusive breastfeeding (47%) and treatment of diarrhoea with oral rehydration salts (43%). In more than half of countries less than half the population has access to basic sanitation services. Only four immunization indicators (three doses of diphtheria-tetanus-pertussis, three doses of *Haemophilus influenzae* type b, measles and neonatal tetanus protection) and continued breastfeeding at one year of age have coverage rates above 80%.

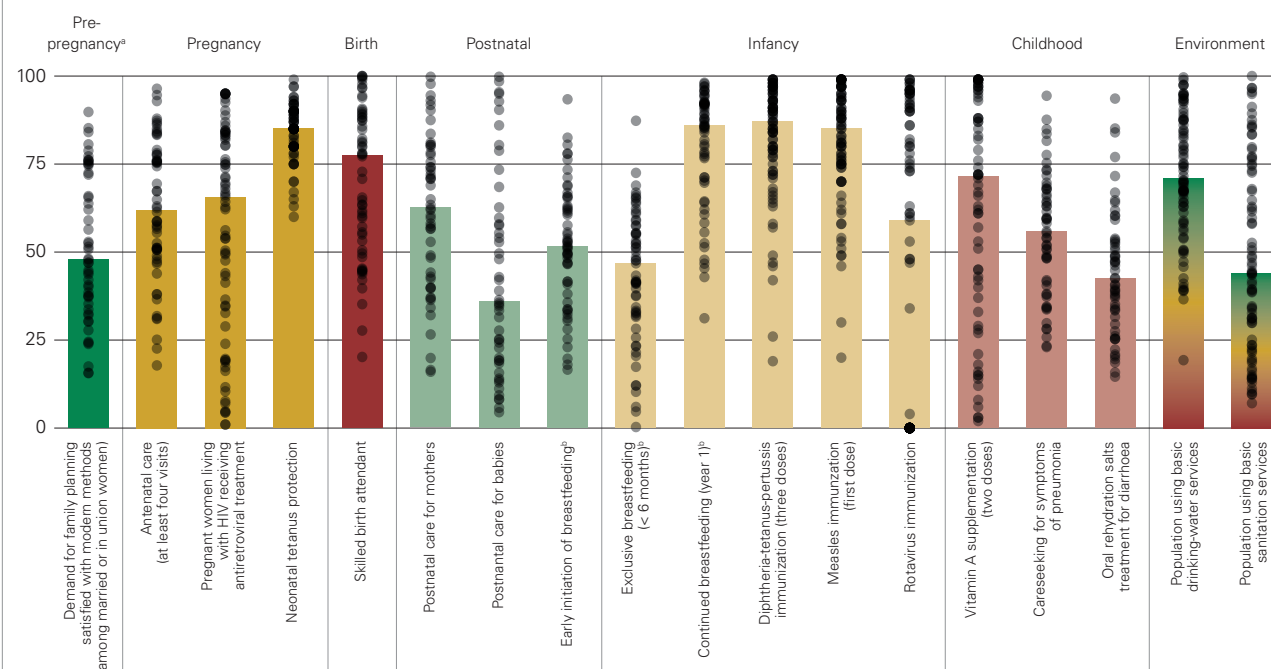
Coverage varies greatly across countries, from almost 0% to nearly 100% for interventions such as pregnant women living with HIV receiving antiretroviral therapy, postnatal care for babies, rotavirus vaccine and vitamin A supplementation. This indicates uneven progress but also shows that high-burden countries can achieve high coverage of these essential interventions.

The differences in median coverage of interventions highlight major missed opportunities. For example, although median coverage of skilled birth attendant is 77%, coverage of early initiation of breastfeeding is considerably lower (52%), suggesting that more training of skilled birth attendants on the importance of breastfeeding could boost rates of initiation of breastfeeding immediately after birth. Similarly, the gap between coverage of postnatal care for mothers (62%) and for babies (36%) could be easily remedied by combining postnatal care for mothers and babies or improving health worker training.

FIGURE 4.1

Major gaps in intervention coverage remain in *Countdown* countriesMedian national coverage of interventions across the continuum of care, *Countdown* countries with available data since 2012 (%)

● Country reporting data



a. Refers to the prevention and planning of pregnancy and includes the time period prior to a first pregnancy and interpregnancy intervals as well as decisionmaking on whether to ever have a pregnancy.

b. Infant and young child feeding indicators serve as a proxy for programme coverage for which measures are not available.

Note: Includes only interventions of relevance to all *Countdown* countries. Malaria-related indicators that *Countdown* tracks are not shown but are included in table 4.1 See annex C for indicator data sources and annex D for indicator definitions.

Source: Immunization rates, World Health Organization (WHO) and United Nations Children's Fund (UNICEF); population using basic drinking water services and sanitation services, WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation; antiretroviral treatment of pregnant women with HIV, UNICEF global database, July 2017, based on 2017 estimates from the Joint United Nations Programme on HIV/AIDS; all other indicators, UNICEF global database, July 2017, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

Of women in union in the *Countdown* countries with available data, 48% are able to satisfy their demand for family planning with modern methods, leaving the rest with such demand vulnerable to unwanted pregnancies. Coverage is as low as 16% in Guinea and the Democratic Republic of Congo and hovers around 25% in Benin, Chad, Equatorial Guinea, The Gambia and Mauritania. High coverage is achievable, and several *Countdown* countries have reached over 80% coverage of demand for family planning satisfied with modern methods (Dominican Republic, Indonesia, Democratic People's Republic of Korea, Swaziland and Zimbabwe).

Countdown has expanded its analyses on adolescent health to cover adolescent girls' reproductive health and nutrition. Adolescent girls, particularly those ages 10–14, can incur long-term adverse social, economic and health outcomes from early pregnancy, and sexually active adolescent girls are at increased risk of unplanned pregnancies, HIV transmission

(in Sub-Saharan Africa prevalence rates are higher among adolescent girls than among adolescent boys) and poor obstetric outcomes. In the *Countdown* countries with available data family planning coverage is markedly lower among adolescent girls in union than among all women of reproductive age, though coverage does not differ considerably for key maternal health interventions (figure 4.2). (Data are unavailable for adolescents not in union.) These findings suggest that to prevent unwanted pregnancies and infection with HIV and other sexually transmitted infections, access to family planning services for adolescent girls who are in union and who are not in union should be a major focus.

The composite coverage index is a robust measure that includes a set of coverage indicators across the continuum of care (box 4.1). It enables comparison across countries and identification of countries that are falling behind. The 10 countries with the lowest coverage across all interventions (except

TABLE 4.1

Median national coverage of interventions across the continuum of care, *Countdown* countries with available data since 2012

Indicator	Number of countries with data	Median coverage (%)	Range (%)	Countries with lowest value	Countries with highest value
Pre-pregnancy^a					
Demand for family planning satisfied with modern methods (among married or in union women)	52	48	16–90	Democratic Republic of Congo	Democratic People's Republic of Korea
Among married adolescents ages 15–19	34	28	7–86	Nigeria	Indonesia
Among married adolescents ages 15–17	29	19	3–86	Nigeria	Indonesia
Among married adolescents ages 18–19	36	30	10–87	Nigeria	Indonesia
Pregnancy					
Antenatal care (at least four visits)	58	62	18–96	Afghanistan	Turkmenistan
Among adolescent women ages 15–19	45	56	19–96	Afghanistan	Turkmenistan
Among adolescent women ages 15–17	40	52	18–93	Afghanistan	Dominican Republic
Among adolescent women ages 18–19	45	58	19–96	Afghanistan	Turkmenistan
Intermittent preventive treatment for malaria for pregnant women	34	10	0–50	Eritrea, Haiti, India, Timor-Leste, Yemen	Zambia
Pregnant women living with HIV receiving antiretroviral therapy	71	66	1–95	Jamaica, Madagascar	Benin, Namibia, Nicaragua, South Africa, Uganda
Neonatal tetanus protection	75	85	60–99	Central African Republic	Guyana
Birth					
Skilled birth attendant	58	77	20–100	Chad	Turkmenistan, Uzbekistan
Among adolescent women ages 15–19	45	71	26–100	Nigeria	Turkmenistan
Among adolescent women ages 15–17	40	74	21–100	Nigeria	Rwanda
Among adolescent women ages 18–19	45	71	28–100	Nigeria	Turkmenistan
Institutional deliveries	60	73	22–100	Chad	Botswana
Public institutions	48	59	13–99	Bangladesh	Turkmenistan
Private institutions	48	8	0–46	Tajikistan	Indonesia
Caesarean sections	57	6	1–58	Chad, Niger	Dominican Republic
Urban	49	11	3–60	Gambia	Dominican Republic
Rural	49	5	1–53	Chad, Ethiopia, Niger	Dominican Republic
Postnatal					
Postnatal care for mothers	51	62	16–100	Chad	Turkmenistan
Among adolescent women ages 15–19	45	64	14–100	Chad	Turkmenistan
Among adolescent women ages 15–17	40	61	16–97	Chad	Guyana
Among adolescent women ages 18–19	45	65	14–100	Chad	Turkmenistan
Postnatal care for babies	48	36	4–100	Chad	Turkmenistan
Early initiation of breastfeeding ^b	56	52	17–93	Guinea	Timor-Leste
Infancy					
Exclusive breastfeeding (<6 months) ^b	59	47	0–87	Chad	Rwanda
Continued breastfeeding (year 1) ^b	58	86	31–98	Dominican Republic	Nepal
Diphtheria-tetanus-pertussis immunization (three doses)	81	87	19–99	Equatorial Guinea	Bolivia, Jamaica, Morocco, Solomon Islands, Uzbekistan
<i>Haemophilus influenzae</i> type b immunization (three doses)	81	86	19–99	Equatorial Guinea	Bolivia, Jamaica, Morocco, Solomon Islands, Uzbekistan
Measles immunization (first dose)	81	85	20–99	South Sudan	Bolivia, Comoros, Guyana, Democratic People's Republic of Korea, Morocco, Nicaragua, Paraguay, Solomon Islands, Turkmenistan, Uzbekistan
Pneumococcal conjugate immunization (three doses) ^c	81	78	0–99		Paraguay, Uzbekistan
Rotavirus immunization ^d	81	59	0–99		Bolivia, Morocco, Uzbekistan

(continues)

TABLE 4.1 (CONTINUED)

Median national coverage of interventions across the continuum of care, *Countdown* countries with available data since 2012

Indicator	Number of countries with data	Median coverage (%)	Range (%)	Countries with lowest value	Countries with highest value
Childhood					
Vitamin A supplementation (two doses)	66	72	2–99	Gabon	Afghanistan, Burkina Faso, Bangladesh, Cameroon, Congo, Democratic People's Republic of Korea, Mozambique, Niger
Minimum dietary diversity	48	26	8–85	Guinea	Turkmenistan
Children under age 5 sleeping under insecticide-treated nets ^a	33	47	3–96	Mauritania	Niger
Malaria diagnostics in children under age 5 ^a	33	23	8–52	Guinea	Malawi
Careseeking for symptoms of pneumonia	55	56	23–94	Mali	Djibouti
Oral rehydration salts treatment for diarrhoea	54	43	15–94	Madagascar	Djibouti
Oral rehydration salts and zinc treatment for diarrhoea	43	6	0–60	Dominican Republic, Gambia, Tajikistan	Bolivia
Environment					
Population using basic drinking-water services	80	71	19–100	Eritrea	Democratic People's Republic of Korea
Population using basic sanitation services	81	44	7–100	Ethiopia	Uzbekistan
Population with hand washing facilities with soap and water at home	53	23	1–98	Ethiopia	Turkmenistan
Population sleeping under insecticide-treated net or sleeping in a house sprayed by indoor residual spraying ^a	34	49	4–76	Guyana	Guinea-Bissau

a. Refers to the prevention and planning of pregnancy and includes the time period prior to a first pregnancy and interpregnancy intervals as well as decisionmaking on whether to ever have a pregnancy.

b. Infant and young child feeding indicators serve as a proxy for programme coverage for which measures are not available.

c. Coverage is considered 0 in the 19 countries that have not rolled out pneumococcal conjugate immunization or reported data: Bhutan, Chad, Comoros, Gabon, Guinea, Equatorial Guinea, Haiti, Indonesia, India, Iraq, Jamaica, Democratic People's Republic of Korea, Kyrgyzstan, Somalia, South Sudan, Suriname, Tajikistan, Turkmenistan and Timor-Leste.

d. Coverage is considered 0 in the 34 countries that have not rolled out rotavirus immunization or reported data: Afghanistan, Algeria, Azerbaijan, Bangladesh, Benin, Bhutan, Cambodia, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Côte d'Ivoire, Equatorial Guinea, Gabon, Guinea, Indonesia, Jamaica, Democratic People's Republic of Korea, Kyrgyzstan, Lao PDR, Lesotho, Myanmar, Nepal, Nigeria, Pakistan, Papua New Guinea, Philippines, Solomon Islands, Somalia, South Sudan, Suriname, Timor-Leste, Turkmenistan and Uganda.

e. Analysis is restricted to the 43 countries where at least 75% of the population is at risk of malaria and 50% or more of malaria cases are due to *plasmodium falciparum*. See annex G for the list of *Countdown* countries considered malaria endemic and further analysis of the malaria indicators that *Countdown* tracks.

Note: See annex B for the *Countdown* indicator selection process, annex C for indicator data sources and annex D for indicator definitions. Indicator labels are consistent with those used in United Nations Children's Fund (UNICEF) global databases.

Source: Immunization rates, World Health Organization (WHO) and; population using basic drinking water services and sanitation services, WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation; antiretroviral treatment of pregnant women with HIV, UNICEF global database, July 2017, based on 2017 estimates from the Joint United Nations Programme on HIV/AIDS; all other indicators, UNICEF global database, July 2017, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys. Disaggregated data for the adolescent age groups (15–19, 15–17, 18–19) are from the International Center for Equity in Health, Federal University of Pelotas, Brazil.

for immunizations) are Nepal, Afghanistan, Niger, Democratic Republic of Congo, Angola, Mali, Yemen, Guinea, Nigeria and Chad (table 4.2). The majority of these countries are in West and Central Africa. The 10 countries with the highest coverage levels across the continuum of care are Turkmenistan, Dominican Republic, Swaziland, Malawi, Namibia, Algeria, Kyrgyzstan, Lesotho, Indonesia and Zimbabwe. Even the top performers show low coverage for infant and young child feeding behaviours and for treatment of childhood illnesses. These findings suggest the need for greater investment in healthcare systems, particularly in West and Central Africa, and increased efforts to support breastfeeding and the prevention

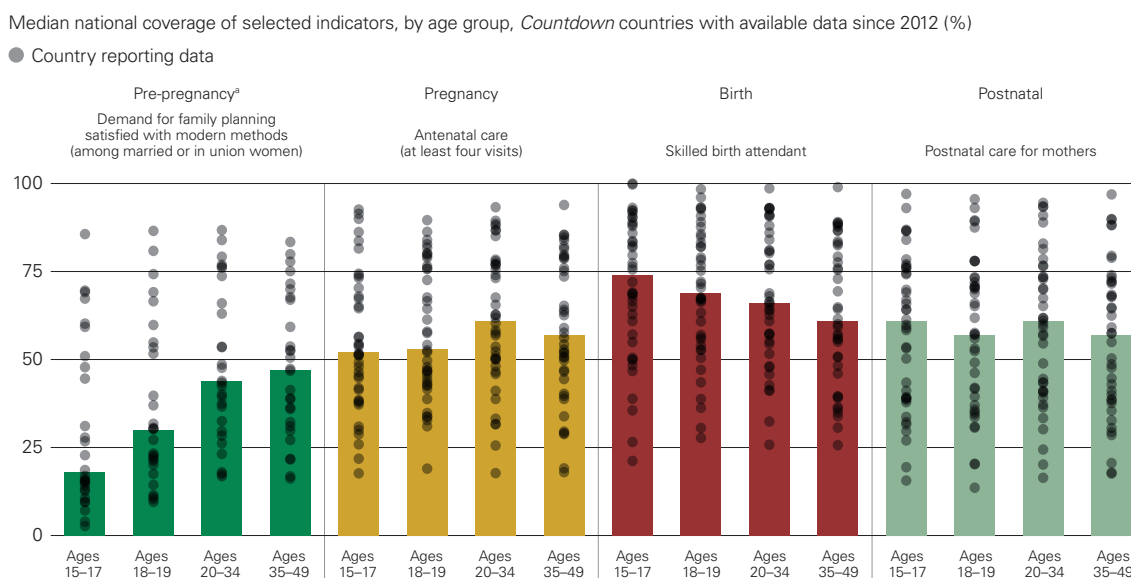
and treatment of diarrhoea, pneumonia and malaria. Although *Countdown* countries have seen marked reductions in child deaths due to these three diseases, further progress is needed—and is possible.

Trends in intervention coverage

Understanding country progress in achieving universal coverage requires looking at trends as well as current levels. Gains in coverage between 2005–11 and 2012–17 were achieved across almost all the interventions that *Countdown* tracks, though the increase varies by intervention (figure 4.3 and table 4.3). Coverage appears to have increased

FIGURE 4.2

Family planning coverage is markedly lower among adolescent girls in union than among all women of reproductive age, though coverage does not differ considerably for other key maternal health interventions



a. Refers to the prevention and planning of pregnancy and includes the time period prior to a first pregnancy and interpregnancy intervals as well as decisionmaking on whether to ever have a pregnancy.

Note: See annex B for the *Countdown* indicator selection process and other adolescent reproductive health indicators in family planning, HIV and HPV that are either tracked as complementary indicators to those on the country profiles and available on the *Countdown* website or identified as in need of measurement work.

Source: Re-analysis by the coverage technical working group of Demographic and Health Survey, Multiple Indicator Cluster Survey and Reproductive Health Survey datasets compiled by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

more sharply for interventions that received greater political priority in the past decade. Although some *Countdown* countries have not introduced new vaccines such as pneumococcal conjugate vaccine and rotavirus, many others have rapidly scaled them up, building on well-established immunization programmes. Median coverage in countries with available data increased sharply, from zero to 78% for pneumococcal conjugate vaccine and to 59% for rotavirus.

Substantial strides were also made for malaria vector control programmes that rely on distribution of insecticide-treated nets. Median insecticide-treated net use among children under age 5 increased 35 percentage points, though coverage remains around 50%. Benin, Burkina Faso, Congo, Mali, Niger, Rwanda and Uganda saw coverage increase more than 50 percentage points. The dramatic 65 percentage point increase in pregnant women with HIV receiving antiretroviral therapy is due largely to the 2012 World Health Organization recommendation to treat all pregnant women with HIV with antiretroviral therapy and reflects rapid scale-up of the intervention.²

Although the median coverage for postnatal care visits for babies still lags behind postnatal care for mothers (see table 4.1), coverage increased an average of 37 percentage points over the two time periods in countries with available data. This increase is likely attributable to greater visibility of newborn health on the global landscape and country agendas in recent years, as well as improvements in measurement.³

Indicators that showed little change are largely those with low coverage (see figure 4.1): demand for family planning satisfied with modern methods, four or more antenatal care visits, infant and young child feeding behaviours (early initiation of breastfeeding, exclusive breastfeeding for the first six months and continued breastfeeding [year one]), and treatment of childhood illnesses.

Table 4.3 shows the percentage point change in the median coverage from the first to the second time period for each intervention and the proportion of the gap between the first measurement and 100% coverage that was closed by the time of the second measurement. Analysis of the proportion

BOX 4.1

The composite coverage index: a summary measure to identify who is being left behind

Countdown relies primarily on survey data to track numerous coverage indicators. Analysing inequalities across subgroups (such as wealth quintiles or ethnic groups) requires splitting survey samples into smaller groups, but doing so can result in small sample sizes that affect the subsequent analyses. For example, the denominator for careseeking indicators related to childhood illnesses is the number of children with a recent illness episode, which is usually small. Breaking down that number by wealth quintile or ethnicity yields an even smaller number, and the resulting estimates will lack precision because of random sampling error. In addition, the magnitude of inequality varies for each coverage indicator; some are more unequal than others.

An alternative is to calculate an index based on the average of several coverage indicators. This index will tend to be more stable, show less random variability and provide a more precise picture of overall inequality in intervention coverage. A single combined indicator also summarizes coverage of several interventions along the continuum of care, thus providing a proxy for universal coverage in reproductive, maternal, newborn, and child health and giving a better picture of inequities in coverage across population groups. Since 2008, *Countdown* has used the composite coverage index (CCI), a weighted average of the coverage of eight interventions along four stages of the continuum of care: reproductive health (demand for family planning satisfied with modern methods [FPSm]), maternal health (at least four antenatal care visits [ANC4] and skilled birth attendant [SBA]), immunization (Bacillus Calmette–Guérin [BCG], three doses of diphtheria-tetanus-

pertussis [DTP3] and measles [MSL]) and management of child illness (oral rehydration salts for diarrhoea [ORS] and careseeking for children with symptoms of pneumonia [CPNM]). The index is calculated only for countries with data for all eight indicators. Each stage receives the same weight, and within each stage the indicators are equally weighted (except for the diphtheria-tetanus-pertussis vaccine, which receives a weight of two because it requires more than one dose):

$$CCI = \frac{1}{4} \left(FPSm + \frac{ANC4 + SBA}{2} + \frac{BCG + 2DTP3 + MSL}{4} + \frac{ORS + CPNM}{2} \right)$$

The composite coverage index has been extensively tested and compared with other summary indicators and has proven to be a highly valuable tool for assessing levels and trends in coverage inequalities. To keep the composite coverage index consistent with changes in the *Countdown* coverage indicators, three changes have been made (and are reflected in the formula above): family planning needs satisfied has been replaced with family planning needs satisfied with modern methods; at least one antenatal care visit with a skilled provider has been replaced with four or more antenatal care visits; and oral rehydration therapy for children with diarrhoea has been replaced with treatment of diarrhoea with oral rehydration salts. Analyses of *Countdown* countries show that the correlation between the original and revised versions of the index are very high (Pearson $r = 0.96$), though coverage values for the revised version were on average 6.6 percentage points lower than for the original version (range of –14.5 to 1.3). The difference is because the three new indicators in the revised version tend to show lower coverage levels than the ones they replaced.

Source: Wehrmeister and others 2016.

of the gap closed provides insight on trends for indicators with initially high coverage (such as immunizations). Looking only at the percentage point change would mask any relative progress achieved by the second measurement for these indicators. For example, neonatal tetanus protection, which showed an 8 percentage point increase, closed 35% of the gap in universal coverage.

Millions of women and children have been reached with lifesaving interventions—but millions have not been reached

Current coverage levels alone do not shed light on the absolute number of women and children

reached—or not reached—with health services. Countries need such data for planning purposes.

Some 62 million women were attended by a skilled health provider during childbirth, 68 million infants received three doses of diphtheria-pertussis-tetanus vaccine, 23 million children with diarrhoea received oral rehydration salts and 17 million children with symptoms of pneumonia received formal care (figure 4.4). Some 248 million women in union satisfied their demand for family planning with modern methods, but 140 million could not (data not shown). And for postnatal care for babies, early initiation of breastfeeding and oral rehydration salts treatment for diarrhoea, the number of people not reached exceeds the number

TABLE 4.2

Composite coverage index value and coverage of indicators along the continuum of care, *Countdown* countries with available data since 2012, ranked by composite coverage index value (%)

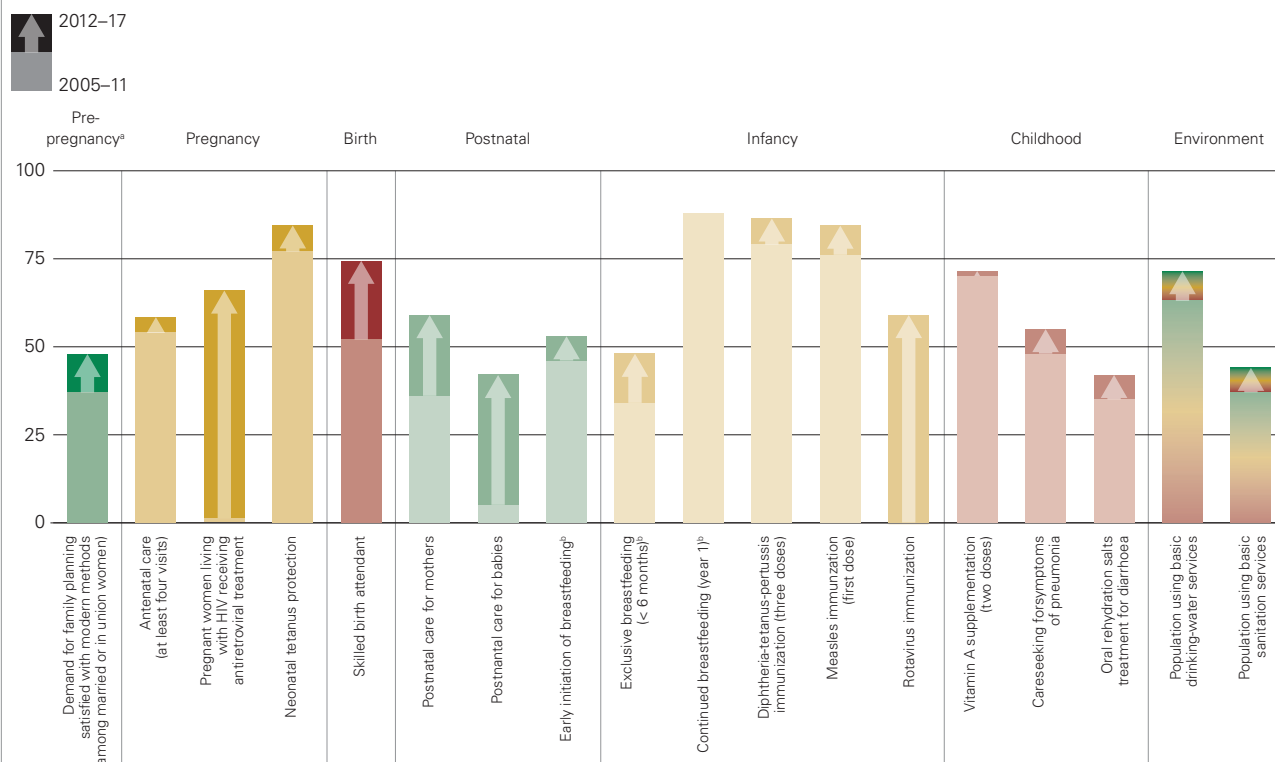
			Below 50%	50–79%	80% or higher	No data																

Source: Composite coverage index, calculated for each country using the most recent Demographic Health Survey or Multiple Indicator Cluster Survey. Immunization rates, World Health Organization (WHO) and United Nations Children's Fund (UNICEF); population using basic drinking water services and sanitation services, WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation; antiretroviral treatment of pregnant women with HIV, UNICEF global database, July 2017, based on 2017 estimates from the Joint United Nations Programme on HIV/AIDS; all other indicators, UNICEF global database, July 2017, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

FIGURE 4.3

Gains in coverage between 2005–11 and 2012–17 were achieved across almost all the interventions that *Countdown* tracks, though the increase varies by intervention

Median national coverage of interventions across the continuum of care, *Countdown* countries with available data for 2005–11 and 2012–17 (%)



a. Refers to the prevention and planning of pregnancy and includes the time period prior to a first pregnancy and interpregnancy intervals as well as decisionmaking on whether to ever have a pregnancy.

b. Infant and young child feeding indicators serve as a proxy for programme coverage for which measures are not available.

Note: See annex C for indicator data sources and annex D for indicator definitions.

Source: Immunization rates, World Health Organization (WHO) and United Nations Children's Fund (UNICEF); population using basic drinking water services and sanitation services, WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation; antiretroviral treatment of pregnant women with HIV, UNICEF global database, July 2017, based on 2017 estimates from the Joint United Nations Programme on HIV/AIDS; all other indicators, UNICEF global database, July 2017, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

reached. The millions of unreached women and children are a poignant reminder of the steep climb towards universal coverage and the imperative need to work together.

Community healthcare is an underused service delivery channel with the potential to increase coverage of key interventions among the hardest to reach in many *Countdown* countries (box 4.2).

Data availability

Increased availability of comparable coverage data over the past decades, especially in low-income countries, has greatly strengthened the evidence base for reproductive, maternal, newborn, child and adolescent health and nutrition. Survey data increased considerably for seven key coverage indicators between 2005–11 and

2012–17 (map 4.1). This trend must be continued in order to equip governments and their partners with the information needed to monitor existing programmes and to introduce new ones.

Quality of care and effective coverage of interventions for women's, children's and adolescents' health

This section first discusses measurement issues around the dimensions of the quality of care and effective coverage before describing data sources and analytical methods for capturing information on the quality of care. It then illustrates why quality-adjusted measures of coverage are more useful for planning and monitoring purposes than crude coverage measures are, using antenatal care as an example. It concludes with some next steps for improving quality of care and how it is monitored.

TABLE 4.3

Changes in median national coverage of interventions along the continuum of care and proportion of the gap in coverage closed, *Countdown* countries with available data for 2005–11 and 2012–17

Indicator	Number of countries with data	Median coverage ^a (%)		Change (percentage points)	Proportion of gap closed (%)
		2005–11	2012–17		
Pre-pregnancy ^b					
Demand for family planning satisfied with modern methods (among married or in union women)	41	37	48	11	17
Pregnancy					
Antenatal care (at least four visits)	47	54	59	5	11
Among adolescent women ages 15–19	20	46	54	8	15
Intermittent preventive treatment for malaria for pregnant women	29	3	11	8	8
Pregnant women living with HIV receiving antiretroviral therapy ^c	71	1	66	65	66
Neonatal tetanus protection	75	77	85	8	35
Birth					
Skilled birth attendant	56	52	75	23	48
Among adolescent women ages 15–19	20	52	69	17	35
Institutional deliveries	58	52	72	20	42
Public institutions	41	40	57	17	na
Private institutions	41	5	10	5	na
Caesarean sections	46	5	6	1	na
Urban	41	8	11	3	na
Rural	41	3	4	1	1
Postnatal					
Postnatal care for mothers	34	36	59	23	36
Among adolescent women ages 15–19	16	41	61	20	34
Postnatal care for babies	27	5	42	37	39
Early initiation of breastfeeding ^d	51	46	53	7	13
Infancy					
Exclusive breastfeeding (<6 months) ^d	51	34	48	14	21
Continued breastfeeding (year 1) ^d	51	88	88	0	0
Diphtheria-tetanus-pertussis immunization (three doses) ^c	81	79	87	8	38
<i>Haemophilus influenzae</i> type b immunization (three doses) ^c	81	0	86	86	86
Measles immunization (first dose) ^c	81	76	85	9	38
Pneumococcal conjugate immunization (three doses) ^c	81	0	78	78	78
Rotavirus immunization ^c	81	0	59	59	59
Childhood					
Vitamin A supplementation (two doses)	66	70	72	2	7
Children under age 5 sleeping under insecticide-treated nets ^e	30	16	51	35	42
Malaria diagnostics in children under age 5 ^e	26	16	28	12	14
Careseeking for symptoms of pneumonia	47	48	55	7	13
Oral rehydration salts treatment for diarrhoea	49	35	42	7	11
Oral rehydration salts and zinc treatment for diarrhoea	26	0	7	7	7
Environment					
Population using basic drinking-water services ^c	79	63	72	9	24
Population using basic sanitation services ^c	80	37	44	7	11
Population sleeping under insecticide-treated net or sleeping in a house sprayed by indoor residual spraying ^{c,e}	24	12	50	38	43

na is not applicable.

a. Values are the median for all countries with data, and data for each country are for the earliest year available during 2005–11 and for the most recent year available during 2012–17.

b. Refers to the prevention and planning of pregnancy and includes the time period prior to a first pregnancy and interpregnancy intervals as well as decisionmaking on whether to ever have a pregnancy.

c. Coverage data are for 2005 and 2016.

d. Infant and young child feeding indicators serve as a proxy for programme coverage for which measures are not available.

e. Analysis is restricted to the 43 countries where at least 75% of the population is at risk of malaria and 50% or more of malaria cases are due to *plasmodium falciparum*. See annex G for the list of *Countdown* countries considered malaria endemic and further analysis of the malaria indicators that *Countdown* tracks.

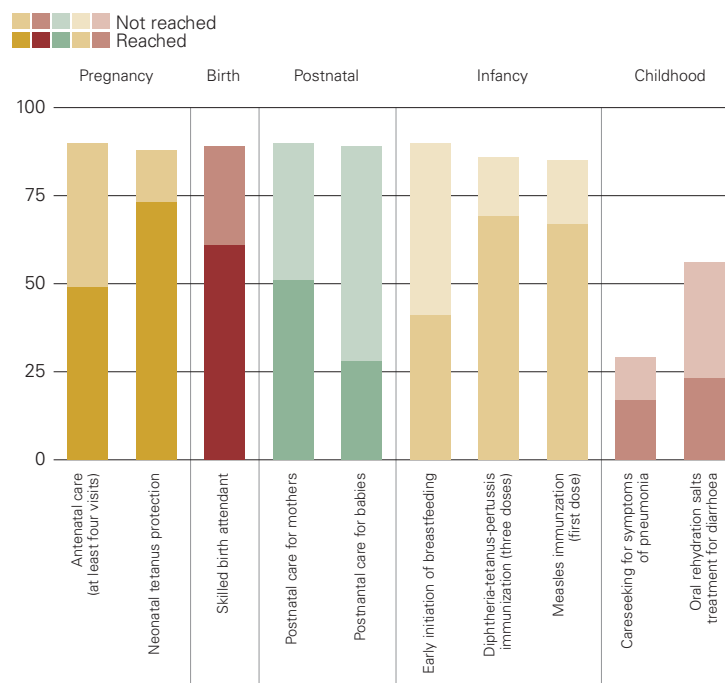
Note: Includes only interventions with trend data available for 10 or more countries. See annex C for indicator data sources and annex D for indicator definitions.

Source: Immunization rates, World Health Organization (WHO) and United Nations Children's Fund (UNICEF); population using basic drinking water services and sanitation services, WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation; antiretroviral treatment of pregnant women with HIV, UNICEF global database, July 2017, based on 2017 estimates from the Joint United Nations Programme on HIV/AIDS; all other indicators, UNICEF global database, July 2017, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys. Disaggregated data for the adolescent age group (15–19) are from the International Center for Equity in Health, Federal University of Pelotas, Brazil.

FIGURE 4.4

For three interventions the estimated number of people not reached exceeds the number reached

Estimated number of people reached and not reached in 2015 by selected interventions, 81 *Countdown* countries (millions)



Note: Data are not shown for demand for family planning satisfied because of the large scale difference in the numbers reached and not reached in comparison to the other interventions.

Source: Data on coverage are from the United Nations Children's Fund global database, July 2017, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys. The number of individuals reached by an intervention was calculated by multiplying the total population of a country in 2015 (from United Nations Population Division 2017b) by the most recent estimate of coverage of the intervention since 2012 and then summing the values across countries. For countries without a coverage estimate since 2012, the median coverage across countries with available data was used. To estimate the target population for married women with demand for family planning satisfied with modern methods, the total population of women ages 15–49 was multiplied by the proportion of women ages 15–49 currently married (from United Nations Population Division 2016) and the proportion of married women with demand for family planning (from household survey estimates compiled by United Nations Population Division 2017a). To estimate the target population for careseeking for symptoms of pneumonia and oral rehydration salts treatment for diarrhoea, the two-week illness prevalence (from the most recent Demographic and Health Survey and Multiple Indicator Cluster Survey in each country or the median across countries with available data for countries without a survey) was multiplied by the total population of children under age 5.

Measuring the key domains of quality of care and capturing effective coverage

Coverage of key interventions across the continuum of care has increased in many *Countdown* countries in the past decade (see table 4.3 and figure 4.3). But increases in coverage of health services will not translate into better population health outcomes unless the services provided are of adequate quality.⁴ Therefore, monitoring progress towards better health and nutrition for women, children and adolescent girls also requires measures that capture the quality of services.

Quality of care is a multidimensional construct,⁵ and measurement of it is often complex.⁶ It is typically organized into four domains: inputs, the physical and organizational structures of

healthcare settings; process, the delivery of services to clients; outcomes and impact, the benefit of services to patients or populations.⁷ Measures of inputs, process, outcomes and impact are complementary and provide distinct insights into quality of care. Adequate inputs are a necessary foundation but do not guarantee that evidence-based services are delivered according to standards. Process measures provide insight into the content of services that healthcare workers provide, including outputs such as timely delivery of a required intervention, but can be onerous to collect. Outcome measures take into account patient adherence to and efficacy of treatment. Impact measures such as mortality and morbidity are the ultimate test of whether services had the intended health effect but are also affected by factors outside the health system, such as patient characteristics.⁸ Effective coverage can refer to

BOX 4.2

Community healthcare programmes as a key delivery channel to hard-to-reach populations

Community healthcare programmes have been shown to increase access to essential health services and improve health outcomes among hard-to-reach populations.¹

A systematic review of randomized controlled trials found that community-based care provided through home visits during the prenatal and postnatal periods reduces neonatal mortality and stillbirth rates and greatly increases coverage of other essential newborn care practices (such as early initiation of breastfeeding, delayed bathing, clean umbilical cord care and neonatal tetanus immunization).² Other reviews provide evidence that integrated community case management reduces child mortality due to pneumonia by increasing careseeking and increases the uptake of oral rehydration salts and zinc for management of childhood diarrhoea episodes.³

Global recommendations from the World Health Organization and the United Nations Children's Fund have prompted many governments to introduce community healthcare programmes. A recent review of the Integrated Management of Newborn and Child Illnesses, including integrated community case management, found that implementation has been uneven within and across countries, with many countries

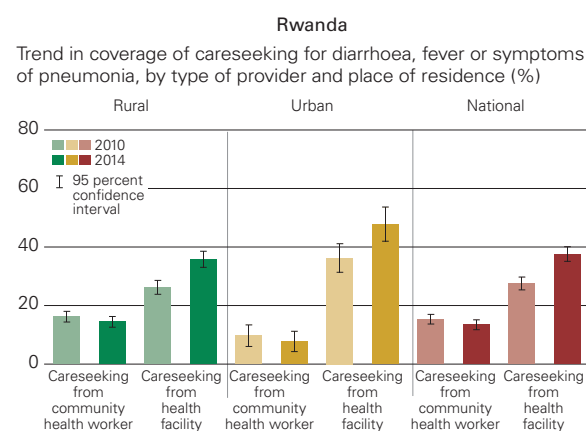
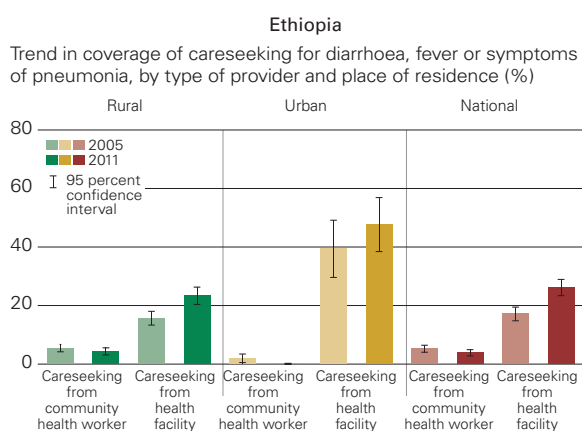
reporting greater success introducing facility-based components than community-level ones.⁴

Ethiopia and Rwanda have taken bold steps in rolling out nationwide community-based programmes with deployment of community health workers in all remote areas. Both countries recorded dramatic improvements in child survival during the past decade. But despite the strong rollout of community-based programmes, the share of careseeking is considerably larger at facilities than at the community level, especially in Ethiopia, raising questions about both demand- and supply-side factors (see figure).

Improved documentation and assessment of community health worker programmes are needed to identify what works best at increasing use of community health worker services to prevent and treat childhood illnesses as well as other illnesses and conditions. Lessons learned can then be applied to existing programmes and to community healthcare approaches for implementation in other settings.

Notes

1. Lassi, Kumar and Bhutta 2016. 2. Gogi and Sachdev 2010. 3. Das and others 2013. 4. WHO 2016b.



Source: Ethiopia, Demographic and Health Surveys in 2005 and 2011; Rwanda, Demographic and Health Surveys in 2010 and 2014.

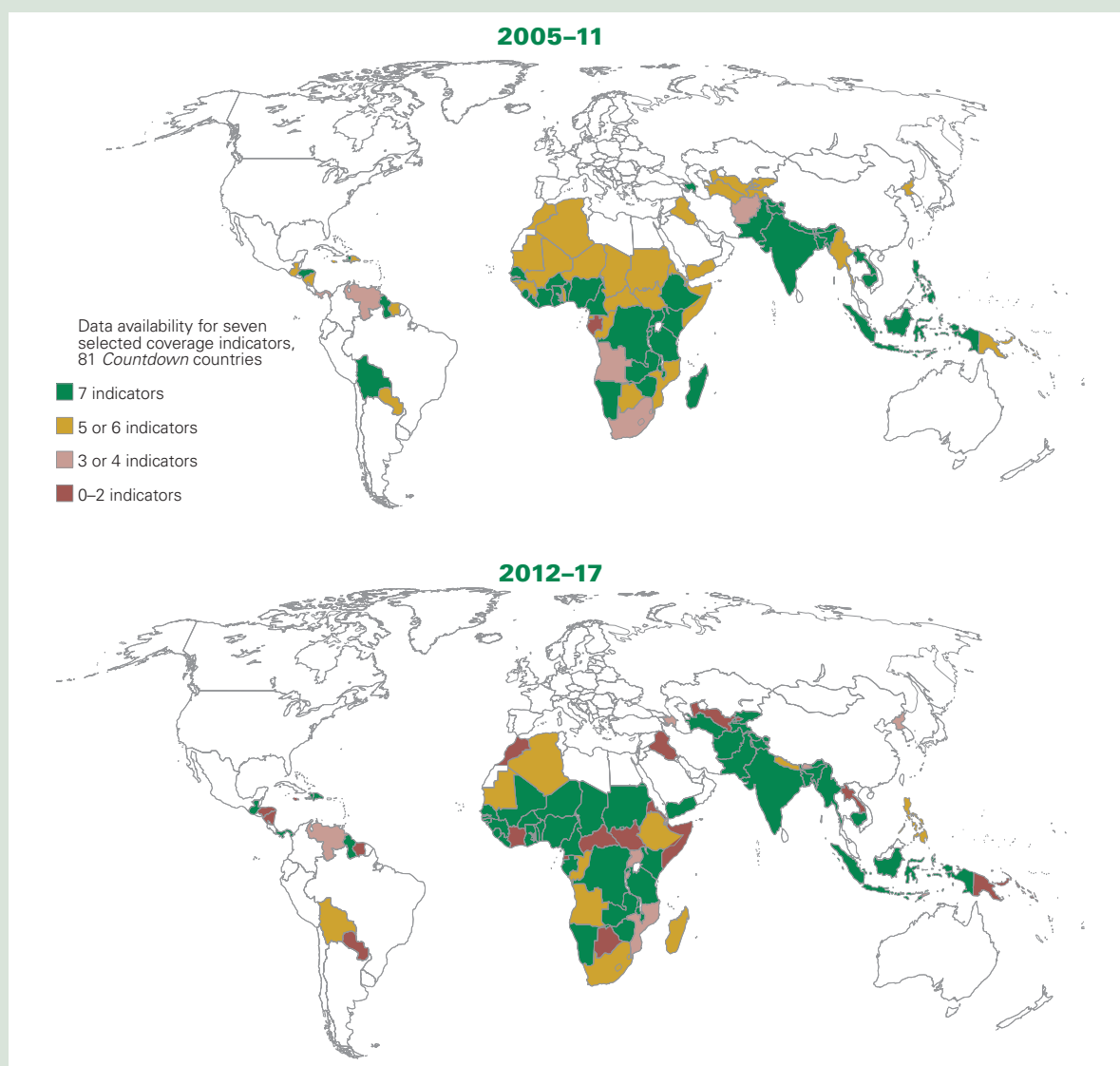
any of these domains but often refers to indicators that capture the intended health gains from services used by the population in need (outcomes and impact). Effective coverage measures are key to determining whether care delivered can improve health, to assessing whether care meets patient expectations and to promoting national accountability for health system functionality.

Although capturing information about patient satisfaction is essential for assessing the quality of care, *Countdown* currently focuses on improving measures of coverage from the service provision perspective.

Figure 4.5 summarizes a multistep hypothetical cascade of the potential losses of health benefits

MAP 4.1

Survey data increased considerably for seven key coverage indicators between 2005–11 and 2012–17



Note: The seven key coverage indicators are demand for family planning satisfied with modern methods (among married women), skilled birth attendant, postnatal care for babies, exclusive breastfeeding (<6 months), diphtheria-tetanus-pertussis immunization (three doses), oral rehydration salts treatment for diarrhoea and population using basic drinking-water services

Source: United Nations Children's Fund global database, July 2017, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

of interventions, which reflect quality of care issues as well as other demand- and supply-side problems. The potential losses include:

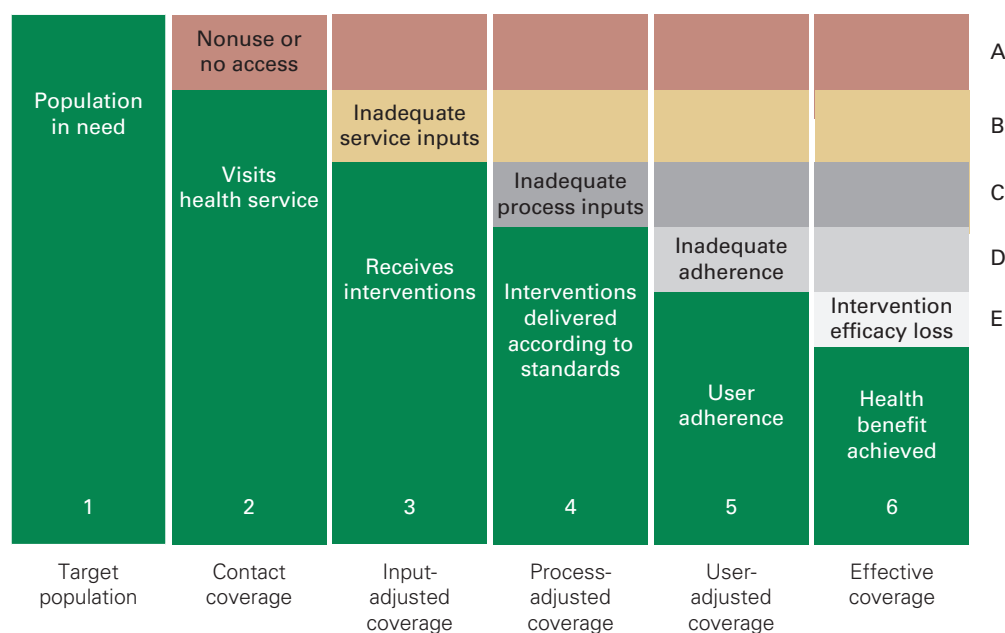
- *Nonuse or no access.* This is due mostly to lack of access to services because of physical constraints or challenges (too far or not open), to financial or other obstacles and to perceptions of poor quality of available services.
- *Inadequate service inputs.* Loss of coverage can be due to missed opportunities once a person visits a health facility or service provider (for

example, the chance to vaccinate or provide other recommended services is missed because the right medicines, vaccines or equipment are not in stock).

- *Inadequate process inputs.* This occurs when the provider does not make a correct diagnosis, when the provider does not fully adhere to required standards, which could be general (for example, infection control practices or lack of respectful and timely care) or specific (for example, blood pressure not taken during antenatal care visit or baby not weighed at

FIGURE 4.5

Hypothetical cascade of the potential losses of health benefits of interventions based on aspects of health service delivery and user adherence



Source: Designed by Countdown to 2030.

birth despite availability of scale); or when the provider administers a harmful practice (for example, wrong treatment prescribed or unnecessary services provided).

- **Inadequate adherence.** Several interventions require patient adherence at home (for example, antiretroviral therapy, antibiotic therapy, family planning methods) to maximize the effectiveness of treatment.
- **Intervention efficacy loss.** Some treatments have variable levels of efficacy, which can change over time (for example, vaccines, family planning methods, antibiotics and uterotonics). This means that even if all service provision standards are followed, health gains will be less than 100%.

Data sources and analytical methods for measuring quality of care

Multiple, albeit imperfect, data sources can capture the cascade of potential losses of health benefits from interventions and shed light on effective coverage for selected conditions. Two types of surveys, as well as routine health facility data, can provide a basis for effective coverage calculations. Household surveys such as Demographic and Health Surveys and Multiple

Indicator Cluster Surveys provide information on intervention coverage and some individual recall of the content of care received. Facility surveys such as the Service Provision Assessment and the Service Availability and Readiness Assessment capture information on health facility readiness to deliver recommended services (such as availability of diagnostics, medicines and trained and adequate numbers of staff). Some Service Provision Assessment data include direct observations of clinical visits, enabling measurement of process indicators. Geographic information in household and facility surveys enables data collected during the same timeframe to be linked, which helps yield an estimate of the likelihood that an individual received the needed services.

However, household and facility surveys have several limitations. First, the scope and validity of clinical content that can be captured through household surveys are limited,⁹ and the populations captured in facility surveys are generally not representative of the population as a whole.¹⁰ These limitations—and the challenges in aligning the two types of surveys in terms of geography and timeframe—indicate that further research is needed on how best to link available data sources, including routine data sources, to improve and increase data on effective coverage.

Evidence across *Countdown* countries suggests that the quality of care received once patients reach health services is insufficient to yield expected health gains. For example, essential interventions to be delivered during antenatal care are often provided inconsistently,¹¹ basic resources needed for safe and effective delivery care are often absent¹² and misdiagnosis and incorrect treatment of childhood illnesses are common.¹³

Quality gaps in antenatal care services

This subsection presents three examples of quality-adjusted coverage of antenatal care services—one with measures adjusted on the basis of available service inputs (specifically, health system readiness factors) and two with process-adjusted measures—and discusses how they compare with nonadjusted or “crude” measures.

Input-adjusted coverage

Facility surveys provide information on the availability of inputs needed for the delivery of high-quality services. Based on 20 facility surveys (Service Provision Assessments and the Service Availability and Readiness Assessments), median coverage of health facility readiness¹⁴ in 13 *Countdown* countries in Sub-Saharan Africa was 83% for neonatal tetanus immunization, 84% for intermittent preventive treatment of malaria in pregnancy, 42% for syphilis screening, 23% for hypertension management and 85% for iron supplementation (figure 4.6).

Geographic linking of household surveys with facility assessments enables input-adjusted effective coverage measures to be produced. In 13 *Countdown* countries in Sub-Saharan Africa, household and facility surveys suggest that 93% of women had at least one antenatal care visit but that only 50% had four or more visits (figure 4.7). The median likelihood of women receiving critical interventions such as tetanus vaccination, intermittent preventive treatment of malaria in pregnancy, syphilis screening and treatment, hypertension management and iron supplementation during the visits was even lower—below 20%.

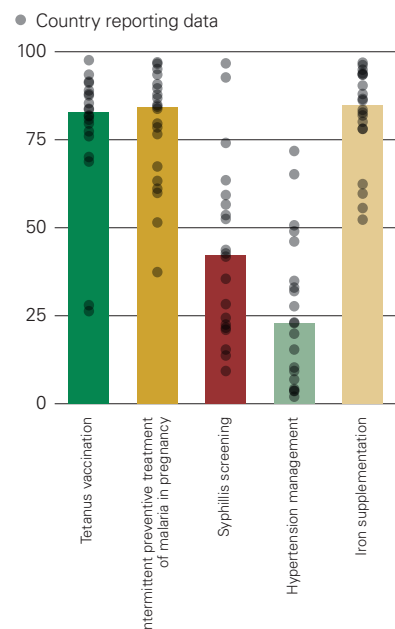
Process-adjusted coverage

Process-adjusted coverage measures enable the identification of subnational regions that are experiencing major deficiencies in service delivery. Map 4.2 presents two maps of Nepal. The first shows subnational variations in coverage

FIGURE 4.6

Facility surveys provide information on the availability of inputs needed for the delivery of high-quality services

Proportion of health facilities that are ready to deliver key antenatal care interventions, 13 *Countdown* countries in Sub-Saharan Africa, 2002–16 (%)



Note: Readiness is defined as having the equipment, diagnostics, medicines and commodities to deliver the intervention. Results are based on data from 20 Service Provision Assessments and Service Availability and Readiness Assessments.

Source: Kanyangarara, Munos and Walker 2017.

of at least four antenatal care visits ($n = 2,059$) based on the 2014 Multiple Indicator Cluster Survey. The second map presents data based on direct observations of clinical care ($n = 1,509$) on the average receipt of specific antenatal care interventions per World Health Organization guidelines from the 2015 Service Provision Assessment.

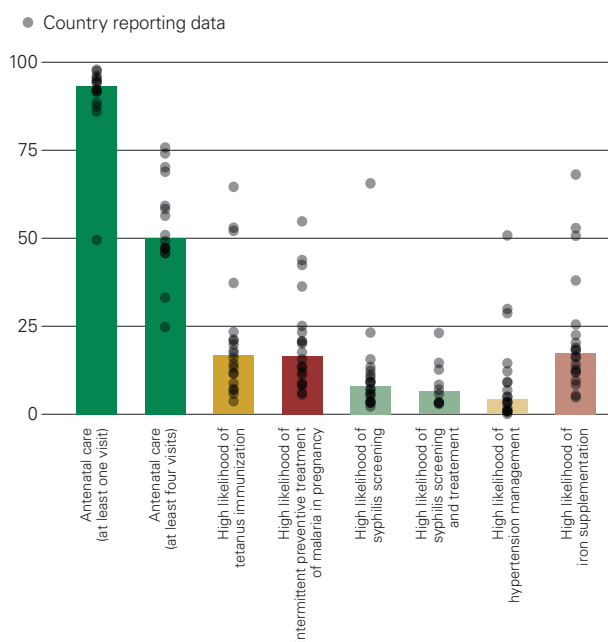
Comparing the two maps shows that there are wide variations across subnational regions in crude coverage of at least four antenatal care visits, and this pattern persists for specific interventions that are recommended for delivery during antenatal care. The second map also shows that coverage of the specific interventions is markedly lower than the crude coverage of at least four antenatal care visits in all subnational regions.

This comparison demonstrates that looking only at coverage of at least four antenatal care visits gives a distorted and overly optimistic view of coverage of the interventions recommended for delivery to pregnant women, and it illustrates the added

FIGURE 4.7

In 13 *Countdown* countries in Sub-Saharan Africa the median likelihood of women receiving critical interventions during antenatal visits was below 20%

Median coverage of at least one and at least four antenatal care visits and of likelihood of receiving selected antenatal care interventions, 13 *Countdown* countries in Sub-Saharan Africa (%)



Note: Results are based on data from 20 Service Provision Assessments and Service Availability and Readiness Assessments as well as data from household surveys.

Source: Kanyangarara, Munos and Walker 2017.

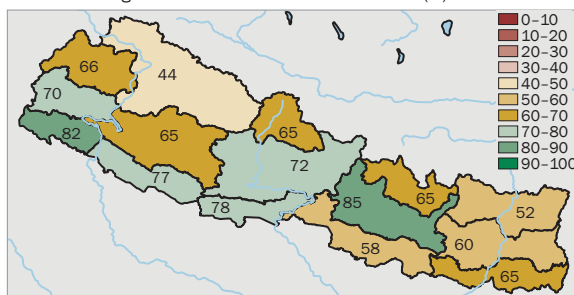
value of process-adjusted coverage measures for programme monitoring purposes.

Process-adjusted coverage measures can also be calculated based on answers to household survey questions on the contents of antenatal care. The drop in antenatal care attendance between the first and fourth visit has been documented in many surveys in almost all *Countdown* countries. In 41 countries average coverage of at least one antenatal care visit was 90%, but less than half of pregnant women in those countries reported receiving recommended services such as counselling on pregnancy danger signs (49%), HIV counselling and testing (35%), iron–folic acid supplementation (15%) or intermittent preventive treatment of malaria in pregnancy (11%) in malaria-endemic countries.¹⁵ Compared with the high coverage of at least one antenatal care visit, the average gap of process-adjusted coverage across these seven recommended antenatal care interventions is 44 percentage points, with considerable variation across countries and interventions.

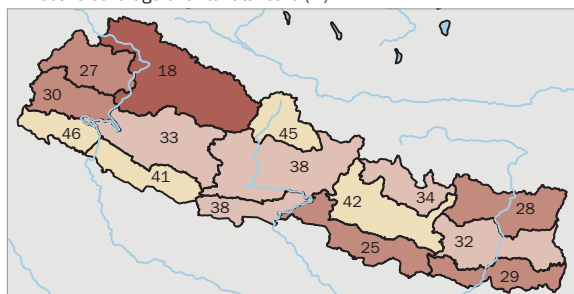
MAP 4.2

In Nepal there are wide variations across subnational regions in crude coverage of at least four antenatal care visits, and this pattern persists for specific interventions that are recommended for delivery during antenatal care

Crude coverage of at least four antenatal care visits (%)



Effective coverage of antenatal care (%)



Source: Nepal Multiple Indicator Cluster Survey, 2014 and 2015 Service Provision Assessment.

Next steps for quality of care

Much more work is needed to improve the quality of care and increase effective coverage of essential interventions across the continuum of care. The examples above on antenatal care make clear that assessing progress by looking only at coverage of service contacts is insufficient and masks important gaps in the quality of care that must be addressed. Major gaps in the quality of care have been identified with many other interventions such as delivery and newborn care,¹⁶ treatment of childhood illnesses¹⁷ and family planning. There is also evidence that poorer women not only experience lower contact coverage for antenatal care and skilled birth attendant than their wealthier counterparts, but also receive poorer quality of care.¹⁸ Countries lack coordinated and systematic assessments that can help them understand the imperfect connection from patient contact with a service provider to expected health outcomes, which they need in order to identify priorities for improvement (for example, are bottlenecks

to high-quality care related to specific inputs such as supply chain factors or health worker practices).

Conclusion

Key messages:

- Despite strong progress in increasing coverage across many of the interventions that *Countdown* tracks, most *Countdown* countries are still far from universal coverage of those interventions. Coverage is insufficient for all interventions along the continuum of care except immunization rates.
- Although millions of women and children are being reached with lifesaving interventions, millions more are still not receiving needed care. For example, *Countdown* countries were able to provide more than 61 million women with a skilled birth attendant but 28 million women underwent childbirth without a skilled provider.
- Mounting evidence indicates that measures of service contacts such as antenatal care, delivery care and postnatal care do not accurately reflect the quality of care received, including what lifesaving interventions are actually provided during them. Studies that have adjusted coverage measures to take into consideration factors such as available health system inputs show that the gaps in coverage of interventions that can lead to expected health benefits are even larger than crude or unadjusted measures suggest.

- Better monitoring of intervention coverage and the quality of care will require investment in data collection processes and in methods to link available data sources. Options include more funding for research linking population and health facility surveys, improvements in routine data systems and support for regular population-based surveys.

Tracking progress with intervention coverage was the niche role of *Countdown to 2015* and continues to be the focus of *Countdown to 2030*. Its focus on coverage is in line with and contributes needed evidence to the monitoring of progress towards universal health coverage, as enshrined in Sustainable Development Goal 3.

Although coverage increased for many essential interventions across the continuum of care, most *Countdown* countries are still far from universal coverage of them. And despite country success in reaching millions of women and children with needed care, many millions more were not reached with lifesaving services. Governments and their partners need to increase investment in health systems to address these missed opportunities and coverage gaps. Strong evidence showing that many reproductive, maternal, newborn, child and adolescent health and nutrition interventions are not being delivered with sufficient quality also makes improving health system readiness and health worker training an imperative so that services delivered result in expected health gains for women, children and adolescents. Data availability needs to be increased to support programme monitoring and accountability, including improvements in methods to link existing data sources and in the quality of routine health facility and administrative data.



5. Equity is paramount to achieving universal health coverage



Progress towards universal health coverage must be assessed not only in terms of national averages, but also on how well such gains benefit all strata of the population—including poor people, rural inhabitants and minority groups.¹ To support such assessments, Sustainable Development Goal target 17.18 calls for disaggregating national statistics by income, gender, urban–rural residence, ethnicity and other relevant variables. *Countdown to 2015* pioneered the use of equity analyses in monitoring the health Millennium Development Goals, and *Countdown to 2030* continues to show how much can be gained from understanding the magnitude and trends in health disparities by expanding the extent of stratified analyses and building national capacity to produce such analyses.²

Disaggregated analyses of intervention coverage are important for ethical reasons—a human rights approach to health requires that all women and children in need receive lifesaving interventions. Such analyses are also essential for practical reasons. Better policies and programmes can be designed when the population groups that are being left behind can be identified—and thus prioritized.

This chapter uses the composite coverage index to highlight the importance of within-country inequalities (see box 4.2 in chapter 4 for how to interpret national values for the composite coverage index). The chapter also ranks *Countdown* countries according to coverage inequalities, pinpoints subgroups of women and children who are being left behind and shows how global trends in inequalities have evolved in the recent past.

Which *Countdown* countries are most unequal in reaching women and children in need of key health interventions?

Countdown countries were ranked according to the magnitude of wealth-related inequalities in the composite coverage index. Survey data were

used to classify households into wealth quintiles based on the ownership of household assets (televisions, refrigerators and the like) and on house characteristics (building materials, water supply and the like). The composite coverage index was then calculated for each quintile, and the magnitude of disparities was assessed using the slope index of inequality, which measures the difference in the composite coverage index between the top and bottom of the wealth distribution while taking into account the full distribution of wealth. The slope index of inequality provides a better measure of inequality because it is less affected by sampling variability than the difference in coverage between the richest and poorest quintiles—for example, the difference is about 28 percentage points in both Mauritania and Niger, but based on the slope index of inequality Mauritania (37 percentage points) is more inequitable than Niger (30 percentage points).

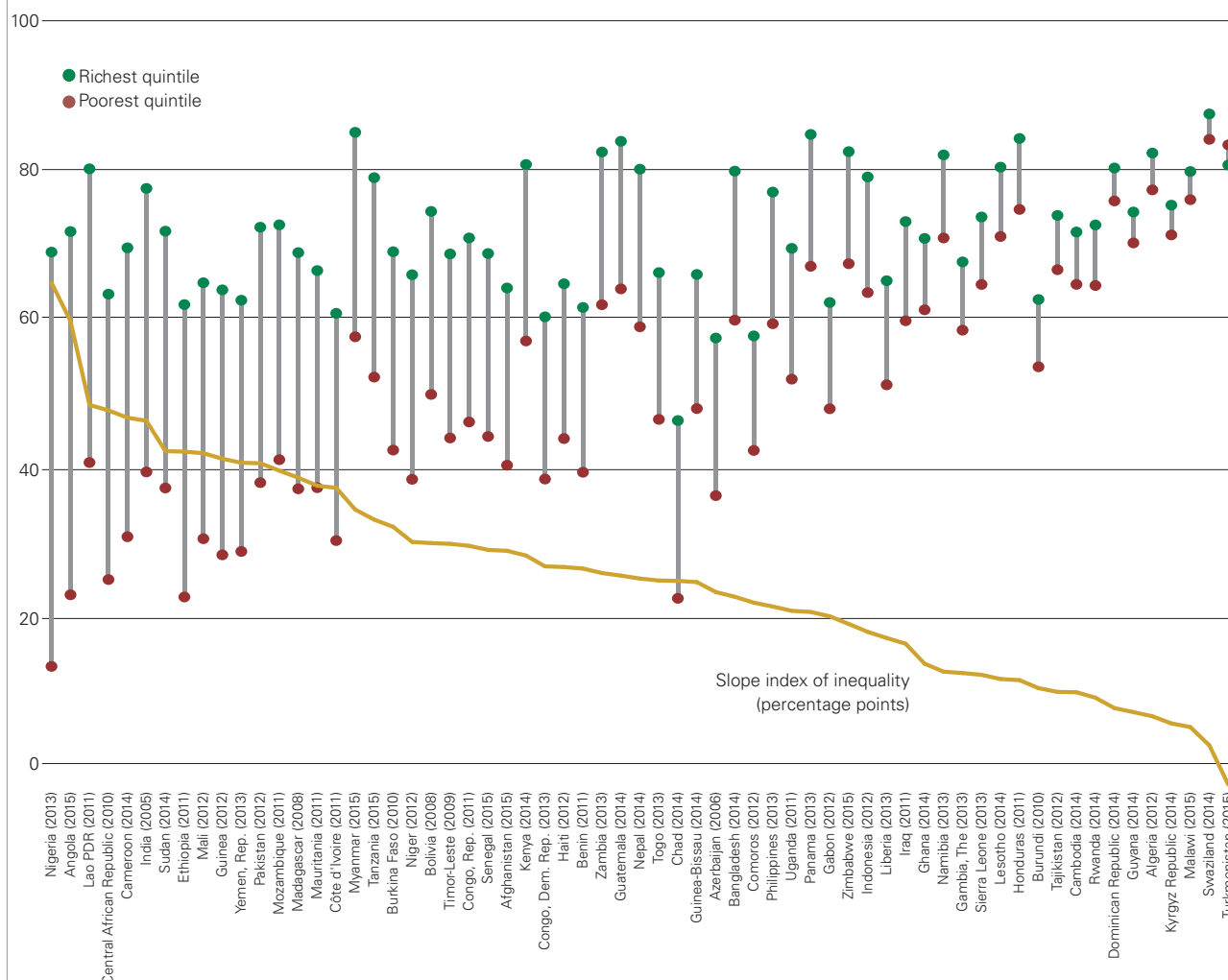
Nigeria was the most unequal country based on data since 2005, with a slope index showing a 64 percentage point difference between the top and bottom of the wealth distribution, followed by Angola, with a slope index of inequality of 59 percentage points (figure 5.1). In all 63 *Countdown* countries with available data except for Turkmenistan (where the composite coverage index was 83% for the poorest quintile and 80% for the richest quintile), the composite coverage index was higher among the richest quintile than among the poorest quintile. In 30 of these countries the slope index of inequality was greater than 20 percentage points—showing unacceptable inequality between the rich and poor. But in nine countries (Algeria, Cambodia, Dominican Republic, Guyana, Kyrgyz Republic, Malawi, Rwanda, Swaziland and Tajikistan) the slope index of inequality was below 10 percentage points—showing little inequality. All of those countries had a national composite coverage index value of 60% or higher. Chad, the only country where the composite coverage index value was below 50% in the richest quintile, had the lowest composite coverage index value and moderate inequality.

FIGURE 5.1

Nigeria was the most unequal *Countdown* country on the composite coverage index, followed by Angola

Countdown countries ranked by degree of inequality (yellow line, representing the slope index of inequality, percentage points) in the composite coverage index

Differences in coverage between the richest and poorest quintiles are also shown (the equiplots), 63 countries with available data since 2005 (%)



Note: No data were available for Bhutan, Botswana, Djibouti, Equatorial Guinea, Eritrea, Jamaica, Democratic People's Republic of Korea, Morocco, Nicaragua, Papua New Guinea, Paraguay, Solomon Islands, Somalia, South Africa, South Sudan, Suriname, Uzbekistan and RB Venezuela.

Source: Re-analysis of Demographic and Health Survey, Multiple Indicator Cluster Survey and Reproductive and Health Survey datasets by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

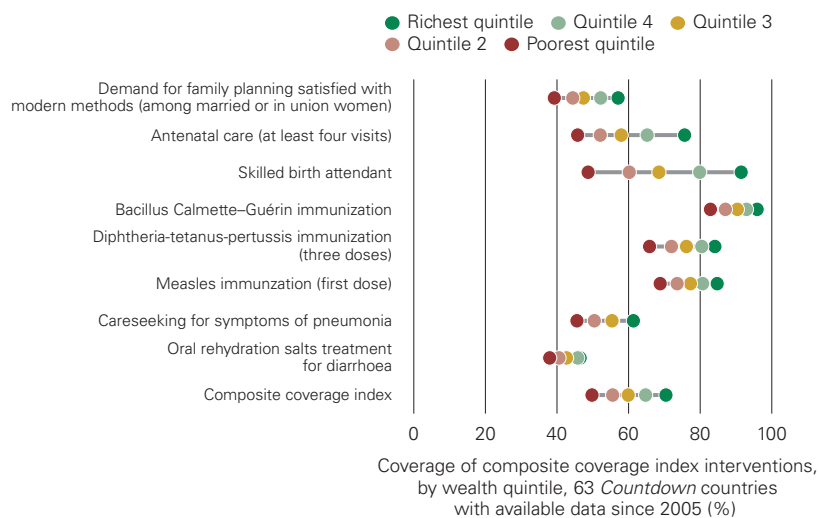
Composite coverage index values could not be calculated for 18 *Countdown* countries because they did not have a survey with a publicly available dataset since 2005. Lack of regular data collection compromises monitoring and programming. For example, Angola had not had a national reproductive, maternal, newborn and child health survey since 2001, and the 2015 results showed huge inequalities. This finding will help policymakers and managers take remedial action, but action could have been taken earlier if more surveys had been undertaken during 2001–15.

Which interventions are least equitable?

The composite coverage index includes eight indicators with variable magnitudes of inequality. Inequality tends to be lower for immunization and for oral rehydration salts for diarrhoea than for skilled birth attendant and four antenatal care visits (figure 5.2). These results confirm the findings highlighted in *Countdown to 2015* reports that interventions that can be delivered at the community level tend to be more equitable than interventions requiring access to fixed health facilities.

FIGURE 5.2

Inequality tends to be lower for immunization and for oral rehydration salts for diarrhoea than for skilled birth attendant and four antenatal care visits



Source: Re-analysis of Demographic and Health Survey, Multiple Indicator Cluster Survey and Reproductive and Health Survey datasets by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

How much progress is needed to leave no one behind?

Equity analyses are useful for identifying which subgroups need stronger efforts to reach universal coverage. Table 5.1 shows the composite coverage index for 63 *Countdown* countries according to residence, age and education of the woman (or mother, for child health indicators), and family wealth quintiles.

Cells are highlighted in four colours: red (composite coverage index below 50%), dark yellow (composite coverage index 50–64%), light yellow (composite coverage index 65–79%) or green (composite coverage index 80% or higher). Cells are coded with “na” when the information is not available, either because it was not collected in the survey or because the sample size is lower than 25 observations.

Key findings from these analyses include: Rural populations tend to have much lower coverage than urban populations (in rural areas the composite coverage index was below 50% in 41% of countries, but in urban areas it was below 50% in only 2% of countries; see table 5.1). Coverage tends to be much lower among women ages 15–17 than among women ages 20–49 (for the younger group the composite coverage index was below 50% in 49% of countries, but for the older group it was below 50% in 21% of countries). The differences were marked for women’s education

(for uneducated women the composite coverage index was below 50% in 51% of countries, but for women with any secondary or higher education it was below 50% in only 3% of countries) and household wealth (for the poorest quintile the composite coverage index was below 50% in 51% of countries, but for the wealthiest quintile it was below 50% in only 2% of countries).

Coverage in most countries is far from desirable, even for the most advantaged population groups: 51 countries did not have a single subgroup with 80% or higher coverage. Only Panama and Swaziland had coverage of 80% or higher in more than half of the subgroups with data.

Disaggregation of coverage levels by woman’s age and education and by wealth is essential for monitoring progress, identifying high-risk subgroups and developing inclusive policies and programmes. Such analyses should be complemented by examination of inequality across subnational geographic regions, which may inform focus areas for action. Ideally, surveys should have large sample sizes in order to provide representative results for small geographic areas. For example, the latest survey in Tanzania produced coverage estimates for 30 subnational regions, but the latest survey in Kenya produced coverage estimates for only 8. All else being equal, the difference in coverage rates between the best and poorest performing regions will be wider in countries with many

TABLE 5.1

Composite coverage index, by urban–rural residence, woman’s age and education, and wealth quintile, 63 Countdown countries with available data since 2005

		Below 50.0% 50.0–64.9% 65.0–79.9% 80.0% or higher														
		National		Residence		Woman's age ^a			Woman's education			Wealth index				
Country	Year	All	Rural	Urban	15–17	18–19	20–49	None	Primary	Secondary or more	Poorest	2nd	3rd	4th	Richest	
Afghanistan	2015	50.1	46.6	60.5	38.5	41.7	50.4	47.3	59.3	64.6	39.9	45.2	45.4	55.4	63.6	
Algeria	2012	76.4	74.9	77.5	na	na	na	72.1	74.8	77.9	72.5	75.8	76.4	79.4	79.9	
Angola	2015	45.7	27.1	56.3	37.3	42.5	46.3	28.8	40.6	64.6	22.6	32.3	47.0	60.9	71.2	
Azerbaijan	2006	46.8	41.0	52.3	na	45.9	46.8	46.7	na	47.1	35.8	43.5	50.5	47.5	56.9	
Bangladesh	2014	67.9	65.3	75.5	61.9	65.6	68.6	60.6	63.0	72.0	59.3	65.7	66.8	70.7	79.2	
Benin	2011	51.5	48.9	55.4	43.9	42.5	51.9	48.5	55.8	62.2	39.0	47.5	53.9	56.1	61.0	
Bolivia	2008	61.7	53.7	68.1	55.6	60.2	61.9	50.8	56.4	69.7	49.4	58.0	64.1	68.8	73.8	
Burkina Faso	2010	54.7	51.0	66.5	41.0	52.5	54.9	51.5	63.3	71.8	41.9	47.2	53.7	58.5	68.5	
Burundi	2010	56.1	55.4	63.2	50.1	59.1	56.0	53.3	57.8	67.1	53.1	53.2	57.4	55.4	62.1	
Cambodia	2014	69.4	69.3	70.5	53.1	66.1	69.6	63.9	68.4	73.0	64.1	68.3	72.2	73.2	71.2	
Cameroon	2014	51.6	43.6	61.7	na	na	na	33.6	51.5	64.7	30.3	44.4	55.8	62.9	69.0	
Central African Republic	2010	35.3	24.9	51.3	na	na	na	24.3	35.1	58.5	21.2	23.1	30.5	44.6	59.2	
Chad	2014	28.9	25.2	43.1	27.6	27.9	29.0	22.4	35.4	48.4	22.1	25.5	26.2	27.2	45.9	
Comoros	2012	52.1	49.4	58.0	37.6	53.7	52.7	47.9	51.1	58.0	41.9	48.6	54.7	61.3	57.2	
Congo, Dem. Rep.	2013	43.9	40.7	52.5	45.9	47.3	47.5	37.0	41.1	52.2	35.4	40.3	40.9	48.3	56.3	
Congo, Rep.	2011	58.5	48.9	64.2	51.1	63.1	58.4	44.0	51.7	63.4	45.7	55.0	59.5	64.8	70.3	
Côte d'Ivoire	2011	44.1	36.4	55.6	45.1	40.4	44.4	38.2	50.6	59.5	29.8	38.9	41.9	53.5	60.2	
Dominican Republic	2014	78.4	77.7	78.6	na	na	na	67.7	76.8	79.6	74.3	78.2	80.5	78.3	82.2	
Ethiopia	2011	35.1	30.6	60.0	16.8	34.5	35.3	29.9	40.0	75.5	22.3	29.7	30.7	37.1	61.4	
Gabon	2012	58.3	47.5	60.2	45.9	50.7	59.6	49.5	52.2	61.0	47.5	57.1	57.8	68.3	61.7	
Gambia, The	2013	61.5	57.8	65.0	52.5	60.0	61.7	59.7	59.4	66.1	58.0	58.2	59.4	64.2	67.1	
Ghana	2014	65.5	63.6	68.2	46.6	69.4	65.5	58.8	65.8	68.6	60.7	61.3	68.0	69.0	70.2	
Guatemala	2014	72.8	69.9	77.6	66.3	68.3	73.3	65.8	70.6	80.6	63.5	68.5	74.8	79.5	83.2	
Guinea	2012	41.8	35.6	58.9	35.3	41.0	42.1	37.9	49.7	61.2	27.9	35.2	40.5	48.1	63.4	
Guinea-Bissau	2014	52.4	45.6	61.8	na	na	na	44.7	56.4	68.3	43.6	46.6	49.7	60.3	63.7	
Guyana	2014	73.7	74.6	68.0	na	na	na	65.8	73.4	73.9	70.6	73.3	71.6	78.5	72.7	
Haiti	2012	52.7	49.4	58.5	50.7	48.4	53.1	40.6	49.9	62.1	43.5	46.8	54.9	58.5	64.2	
Honduras	2011	79.7	77.7	82.0	77.1	77.7	80.0	71.1	78.4	82.9	74.1	78.8	81.3	82.2	83.6	
India	2005	55.4	50.8	68.4	35.6	41.8	56.2	44.4	56.6	68.7	39.0	47.3	56.9	66.3	76.9	
Indonesia	2012	75.2	72.9	77.6	74.5	70.4	75.4	50.1	70.8	77.8	63.0	76.4	78.6	80.7	78.5	
Iraq	2011	63.8	58.9	66.3	na	na	na	57.3	62.8	68.8	56.0	63.0	65.0	68.7	69.2	
Kenya	2014	70.5	67.0	76.4	69.8	67.1	70.5	51.3	68.9	77.9	56.5	67.3	71.5	76.2	80.1	
Kyrgyz Republic	2014	71.6	71.1	74.0	na	na	na	na	na	71.8	70.0	70.4	71.2	73.2	74.4	
Lao PDR	2011	54.9	51.0	71.4	na	na	na	38.0	56.0	71.5	38.5	47.0	60.8	68.2	78.4	
Lesotho	2014	75.3	74.1	78.4	60.5	71.5	75.8	70.1	71.4	78.5	70.5	72.0	77.5	76.1	79.8	
Liberia	2013	60.3	56.6	63.6	58.2	59.2	60.4	55.4	59.3	67.5	50.7	59.4	63.9	65.3	64.6	
Madagascar	2008	49.8	47.7	65.1	41.7	46.0	50.4	36.4	50.7	63.3	36.7	43.2	50.5	58.3	68.3	
Malawi	2015	77.3	77.0	79.8	69.0	73.6	77.7	74.1	77.4	79.0	75.4	76.6	77.0	78.8	79.2	
Mali	2012	45.2	40.5	62.4	38.6	49.9	45.1	41.8	50.5	69.5	30.1	37.4	39.1	54.3	64.3	
Mauritania	2011	48.7	41.4	59.2	na	na	na	41.5	51.2	60.5	32.4	41.0	50.4	58.7	61.9	
Mozambique	2011	54.7	49.0	67.2	58.1	56.4	54.4	44.7	56.4	72.6	40.6	44.8	53.5	62.3	72.1	
Myanmar	2015	67.8	63.8	80.4	58.0	58.9	68.2	49.0	65.9	77.8	57.1	62.8	68.4	76.9	84.4	
Namibia	2013	77.0	73.8	80.0	66.0	70.0	77.3	61.4	71.1	80.3	70.3	76.4	77.9	78.8	81.4	
Nepal	2014	66.3	64.7	76.8	na	na	na	62.2	63.9	69.7	58.5	63.5	64.1	71.0	78.6	
Niger	2012	48.7	45.0	67.7	40.6	47.8	49.0	45.8	58.7	70.7	38.0	44.1	44.6	49.5	65.4	
Nigeria	2013	38.3	28.1	55.9	20.0	25.2	39.2	19.0	41.2	60.2	13.0	24.5	40.4	51.7	68.4	
Pakistan	2012	53.6	48.7	64.7	45.8	47.9	53.7	45.0	56.3	68.8	37.6	47.9	53.5	62.0	71.7	
Panama	2013	79.0	72.2	83.6	na	na	na	52.0	72.3	82.7	65.2	83.8	81.0	89.0	83.8	
Philippines	2013	69.0	66.3	72.3	53.3	66.8	69.2	40.2	62.3	71.3	58.8	67.6	74.1	74.7	76.4	
(continues)																

(continues)

TABLE 5.1 (CONTINUED)

Composite coverage index, by urban–rural residence, woman’s age and education, and wealth quintile, 63 Countdown countries with available data since 2005

Country	Year	National	Residence		Woman’s age ^a			Woman’s education			Wealth index				
		All	Rural	Urban	15–17	18–19	20–49	None	Primary	Secondary or more	Poorest	2nd	3rd	4th	Richest
Rwanda	2014	68.0	67.4	71.2	71.5	70.0	68.0	63.0	68.1	74.3	63.9	68.0	68.9	69.5	72.0
Senegal	2015	55.3	50.2	63.5	40.7	48.8	55.8	50.3	62.3	67.3	43.8	51.7	57.2	60.7	68.2
Sierra Leone	2013	66.9	64.7	72.3	59.6	64.2	67.2	64.4	69.8	73.9	64.1	63.8	65.1	69.5	73.1
Sudan	2014	52.3	47.8	63.3	na	na	na	40.2	54.3	66.4	33.1	43.9	55.1	61.4	69.2
Swaziland	2014	83.3	83.2	82.8	na	na	na	80.5	77.8	85.7	80.4	83.3	83.7	82.9	85.1
Tajikistan	2012	69.4	68.3	73.1	na	65.4	69.3	64.0	58.2	70.1	66.1	66.2	73.0	70.8	73.3
Tanzania	2015	65.2	61.4	74.2	57.1	62.1	65.3	53.9	66.0	75.1	51.7	59.2	65.0	72.0	78.4
Timor-Leste	2009	55.8	53.4	63.2	na	50.3	56.0	47.9	55.5	62.5	43.5	50.1	56.0	60.5	68.1
Togo	2013	52.1	47.4	60.6	49.8	38.8	52.5	44.2	53.8	63.3	46.0	46.2	47.7	56.4	65.7
Turkmenistan	2015	79.9	80.2	79.4	na	na	na	na	na	79.9	81.8	78.4	81.0	78.5	79.9
Uganda	2011	58.3	56.4	68.8	49.4	59.3	58.3	51.9	56.2	67.9	51.4	54.5	56.0	60.6	68.9
Yemen, Rep.	2013	43.7	38.1	57.6	45.3	41.0	43.7	37.2	48.0	58.8	28.4	35.9	43.4	51.2	62.0
Zambia	2013	69.9	65.3	78.1	62.1	72.7	69.7	60.4	67.2	77.1	61.4	65.7	68.1	76.1	81.8
Zimbabwe	2015	73.6	71.1	79.7	63.5	72.8	73.7	72.0	66.1	77.0	66.9	69.1	76.4	76.6	81.8
Number of countries with data		63	63	63	45	48	48	61	60	63	63	63	63	63	63
Proportion of countries with continuum of care index of less than 50%		22.2	41.3	1.6	48.9	39.6	22.9	50.8	15.0	3.2	50.8	42.9	22.2	11.1	1.6
Median value	2013	58.3	53.7	67.2	50.1	57.6	57.3	49.5	58.4	69.5	49.4	55.0	59.4	65.3	70.3

na information is not available either because it was not collected in the survey or because the sample size is lower than 25 observations.

a. Refers to age at the time of the survey for all component variables of the composite coverage index except for antenatal care and skilled birth attendant, for which age at the time of delivery is used.

Note: No data were available for Bhutan, Botswana, Djibouti, Equatorial Guinea, Eritrea, Jamaica, Democratic People’s Republic of Korea, Morocco, Nicaragua, Papua New Guinea, Paraguay, Solomon Islands, Somalia, South Africa, South Sudan, Suriname, Uzbekistan and RB Venezuela.

Source: Re-analysis of Demographic and Health Survey, Multiple Indicator Cluster Survey and Reproductive and Health Survey datasets by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

subnational regions than in countries with few regions.

Huge geographic disparities exist in coverage within many countries, but the patterns vary. Figure 5.3 shows the 10 Countdown countries with the widest subnational geographic inequality (based on data available from 2005 through mid-2017). In Ethiopia the disparities are driven largely by the much higher coverage in Addis Ababa than in other regions, whereas in Afghanistan and Nigeria one or two regions have much lower coverage than the rest of the country does. In the 10 Countdown countries with the narrowest geographic inequality (figure 5.4), the composite coverage index is over 60% in all subnational regions and tends to be higher than in any of the subnational regions in the 10 countries shown in figure 5.3.

Increasing the sample size in surveys to allow fine geographical disaggregation, as well as investing in the quality and coverage of administrative data, is essential for improving geographic targeting

of interventions to women and children from deprived areas.

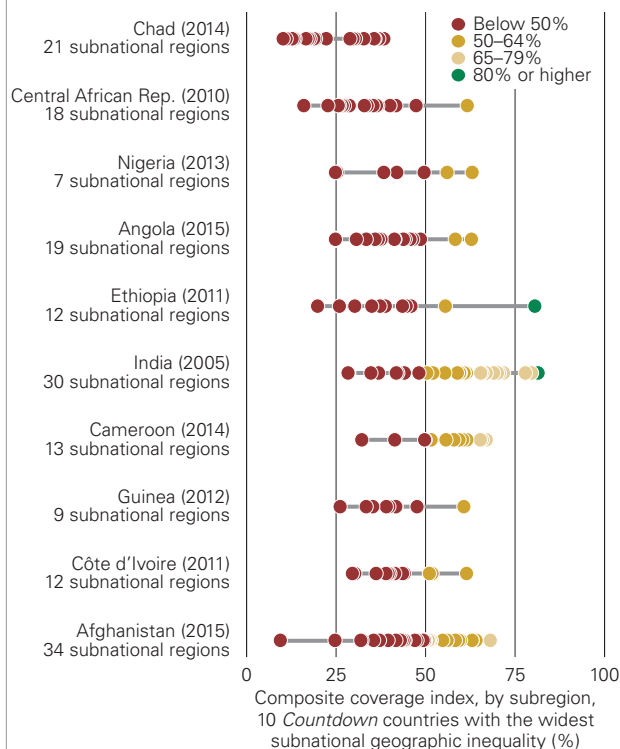
How important is inequality across ethnic groups?

Analyses of statistics disaggregated by ethnic group present important challenges. First, not every survey includes such information, sometimes because of political sensitivities. Second, the type of information on ethnicity varies: some questionnaires ask about self-assessed ethnicity; others ask about the language spoken at home. Third, the number of ethnic or language categories can vary widely from country to country, and as miscegenation occurs, the boundaries between ethnicities can become blurred.

Nevertheless, patterns in intervention coverage may become evident, as with an ongoing set of Countdown analyses in Latin America and the Caribbean. Virtually all coverage indicators show lower rates among indigenous populations than

FIGURE 5.3

The patterns of geographic disparity in coverage vary in the 10 Countdown countries with the widest subnational geographic inequality



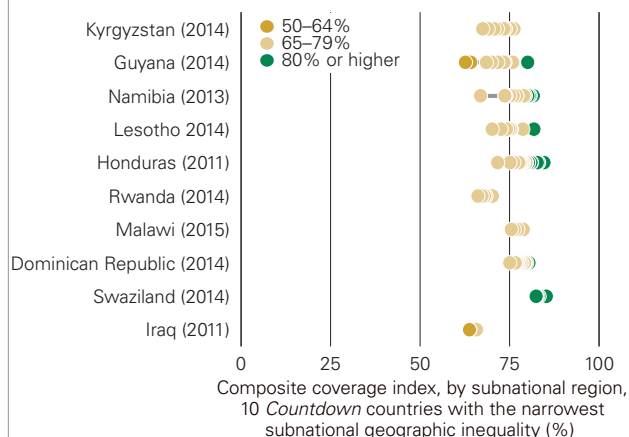
among nonindigenous populations. For example, in six of eight countries studied, indigenous women have markedly lower coverage of skilled birth attendant than nonindigenous women do (figure 5.5). Limited access to lifesaving interventions among indigenous populations has been a persistent problem in Latin America and the Caribbean since colonial times, and several countries have implemented programmes to address these gaps. Tracking coverage inequalities across population subgroups, including ethnic groups, within a country is essential to support effective programming and evaluation.

How have coverage inequalities evolved over time?

Fifty-eight Countdown countries have had more than one survey from 1993 to 2015, totalling 179

FIGURE 5.4

In the 10 Countdown countries with the narrowest geographic inequality, coverage tends to be higher in most subnational regions compared with the subnational regions in the 10 countries with the widest geographic inequality shown in figure 5.3

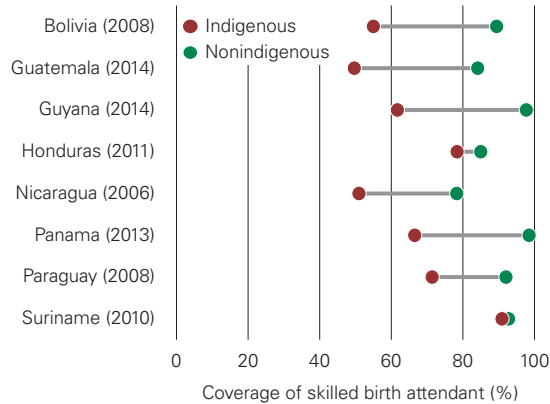


surveys, with 2012 being the median year for the most recent survey. This allowed for the analyses of time trends in coverage according to family wealth and place of residence, using a statistical method known as multilevel regression.

In 30 low-income Countdown countries the composite coverage index increased 1.1 percentage points a year from 1993 to 2015 for the poorest quintile, compared with 0.57 percentage point a year for the wealthiest quintile (figure 5.6). In 28 middle-income Countdown countries the difference was more marked: 0.95 percentage point a year for the poorest quintile, compared with 0.34 percentage point for the wealthiest quintile (see figure 5.6). The increase for rural women and children (1.1 percentage points in low-income countries and 0.9 percentage point in middle-income countries) was faster than the increase for urban women and children (0.6 percentage point in low-income countries and 0.5 percentage point in middle-income countries; figure 5.7). These findings suggest that the socioeconomic and urban-rural gaps in coverage are being reduced in Countdown countries—but there is still a long way to go to universal coverage.

FIGURE 5.5

In six of eight *Countdown* countries in Latin America and the Caribbean studied, indigenous women have markedly lower coverage of skilled birth attendant than nonindigenous women do



Source: Re-analysis of Demographic and Health Surveys and Multiple Indicator Cluster Surveys by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

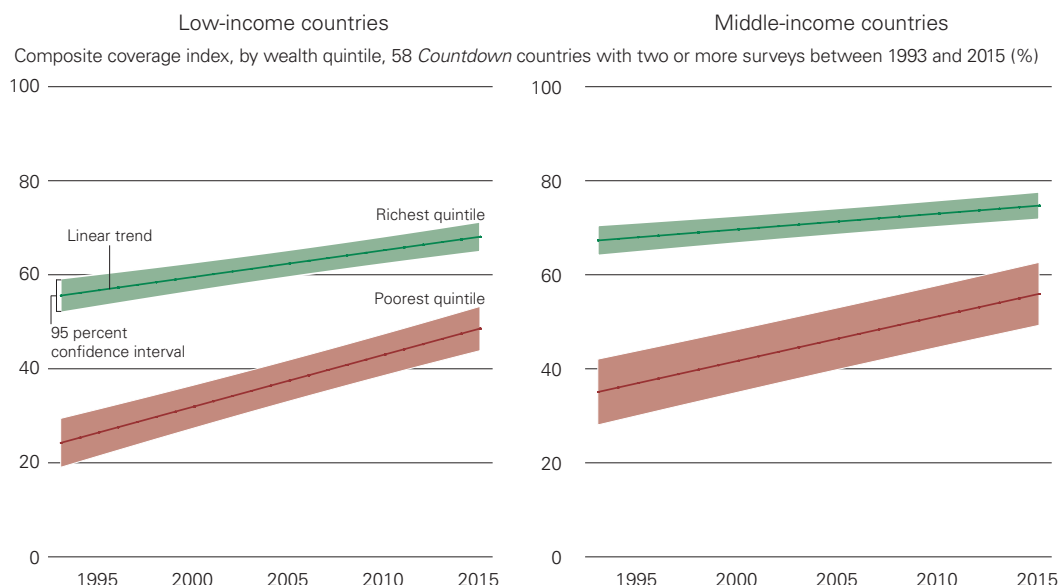
How does coverage within each wealth quintile vary by urban–rural residence?

Sample sizes for national surveys have increased over time, making finer analyses of inequality possible. One such analysis involves splitting the sample of women and children by urban–rural residence and wealth quintiles, resulting in 10 groups that can be compared. An example analysis using skilled birth attendant as the outcome shows that coverage is below 90% in rural areas more often than in urban areas for the same wealth quintile (figure 5.8). No country where urban coverage is below 90% in a wealth quintile has rural coverage of 90% or higher in the same wealth quintile. The analyses show no evidence of an urban disadvantage in coverage of skilled birth attendant. Poor people in urban areas—despite having higher coverage than poor people in rural areas—still lag behind wealthier urban residents. Similar analyses are required for mortality and nutrition outcomes for which poor people in urban areas may be at a particularly high risk.



FIGURE 5.6

In both low-income and middle-income *Countdown* countries the composite coverage index increased faster for the poorest quintile than for the wealthiest quintile

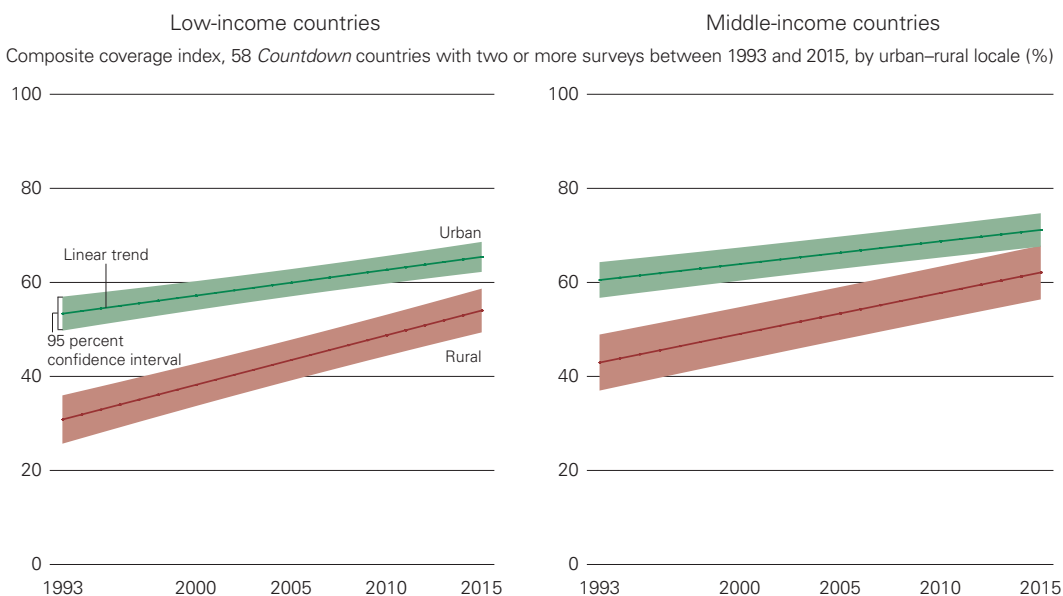


Note: The analysis is based on 179 surveys.

Source: Re-analysis of Demographic and Health Survey, Multiple Indicator Cluster Survey and Reproductive and Health Survey datasets by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

FIGURE 5.7

In both low-income and middle-income *Countdown* countries the composite coverage index increased faster for rural populations than for urban populations



Note: The analysis is based on 179 surveys.

Source: Re-analysis of Demographic and Health Survey, Multiple Indicator Cluster Survey and Reproductive and Health Survey datasets by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

FIGURE 5.8

Coverage of skilled birth attendant is below 90% in rural areas more often than in urban areas for women in the same wealth quintile

Skilled birth attendant coverage, by wealth quintile and urban–rural locale, 42 *Countdown* countries with available data since 2005 (%)



Note: The analysis was restricted to countries with at least 25 women in each category.

Source: Re-analysis of Demographic and Health Survey, Multiple Indicator Cluster Survey and Reproductive and Health Survey datasets by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

Conclusion

In contrast to the Millennium Development Goals, the Sustainable Development Goals have placed within-country inequalities at centre stage for assessing progress. Health inequalities are pervasive—and to a certain extent, predictable. But *Countdown* countries vary in the nature and extent of inequalities. Socioeconomic inequalities, as assessed by wealth or women's education, show the widest gaps in coverage, but disparities by urban–rural residence, ethnicity and woman's age are also widespread. In recent years, increased

availability of data on reproductive, maternal, newborn, child and adolescent health and nutrition has allowed new policy-relevant analyses that were not possible in the past, including analyses of time trends, assessment of ethnic group inequalities and simultaneous disaggregation by wealth and urban–rural residence. Regular monitoring of reproductive, maternal, newborn and child health interventions through an equity lens is essential for identifying groups on which efforts to reach universal coverage should be focused. Equity-sensitive monitoring is essential for policymaking and programming at the country level.



6. Women's, children's and adolescents' health in conflict situations



The world has seen a surge in violent conflicts in recent years, with the number of combat and civilian deaths rising since 2012.¹ This has resulted in a deluge of forcibly displaced people—65.6 million, or just under 1% of the world's population, at the end of 2016, 22.5 million of whom were refugees.² Even more people are affected by conflict but do not flee or leave their homes or places of habitual residence—in 2013 an estimated 149 million people lived in a conflict-affected area,³ and that number has likely increased.

Thirty-two *Countdown* countries experienced at least one conflict during 2011–16, and ten of them—Afghanistan, Central African Republic, Democratic Republic of Congo, Iraq, Nigeria, Pakistan, Somalia, South Sudan, Sudan and Yemen—experienced (or are experiencing) a severe conflict.⁴ Libya, Syria and Ukraine—which are not *Countdown* countries—also experienced (or are experiencing) a severe conflict.⁵

Women and children are increasingly affected by conflict, which is shifting from a primarily interstate phenomenon to an intrastate one and occurs more frequently in densely populated urban areas, with much graver implications for civilians. There are no reliable statistics on casualties due to violence and warfare for women and children,⁶ but the number of civilian deaths provides a good approximation. The ratio of civilian deaths to combatant deaths—and therefore the extent to which women and children are affected—is likely to vary considerably between conflicts and even between mortality estimates for the same conflict.⁷

Most refugees and internally displaced persons are women and children. Of 29 million displaced persons in 2015, 15% were children under age 5, 37% were children ages 5–17 and 24% were women ages 18 and older.⁸ The proportion that is under age 18 is likely to be higher in countries with a high fertility rate (such as the Democratic Republic of Congo or South Sudan) than in countries with a lower fertility rate (such as Syria).

Women and children suffer disproportionately from the disintegration of society and breakdown of health and other services in conflict situations (see box 6.1 for an example based on the conflict in Syria). Such situations often increase the risk of contracting diseases (for example, because of disrupted water supply and sanitation systems or lack of immunization services) and the risk of suffering from malnutrition, reduce access to and quality of pregnancy and delivery care and delay the timely treatment of illnesses. Conflict can also undermine the capacity of health systems to deliver services because of the loss or diversion of healthcare personnel and the disruption of supply chains, referral networks, communication and supervision. Warring factions have also targeted healthcare institutions and personnel in recent years.⁹ Women, including adolescent girls, are also at greater risk of becoming victims of sexual violence, which is reported in almost all conflict settings¹⁰ and has major adverse consequences for physical and mental health—such as unwanted pregnancy, HIV infection and other sexual and reproductive health problems, and post-traumatic stress disorder, as well as stigmatization and exclusion by families and communities.

The impact of conflict on women's and children's health depends on multiple factors, such as the nature of the conflict, the extent of displacement and settlement patterns, pre-existing health conditions and the level of humanitarian assistance available. Historically, most refugees and internally displaced persons have been housed in official camps set up by the United Nations Office of the High Commissioner for Refugees or other humanitarian actors. Because of special and typically externally funded humanitarian services and a focus on a specific catchment population, the coverage of key evidence-based interventions in these camps could be high. However, given the financial strain on the humanitarian system and growing numbers of people in need, it remains unclear whether camp-based populations and refugees in general will continue to benefit from

BOX 6.1**Change to reproductive, maternal, newborn and child health and the conflict in Syria**

The conflict in Syria has resulted in the forced displacement of more than half of the country's 20 million people,¹ leaving 6.5 million internally displaced persons and 5.1 million refugees in neighbouring Turkey, Lebanon, Jordan, Egypt, Iraq and North Africa by 2017.² Women and children account for about 75% of the Syrian refugees in Egypt, Iraq, Jordan and Lebanon.³ This forced displacement has imposed a substantial burden on health and education services in Syria and in all host countries.

There is ample evidence that the conflict has led to a widespread deterioration in what was a well-functioning and predominantly public health system in Syria, including destruction and disruption of health facilities and an exodus of health professionals. Health services are provided by opposing forces, each running parallel health systems with shifting geographic areas of coverage, which makes data collection particularly challenging. For Syrian refugees access to affordable healthcare varies greatly by host country—ranging from Lebanon's privatized and expensive system to Turkey's system in which the government has taken responsibility for healthcare delivery to Jordan's system offering government and Office of the United Nations High Commissioner for Refugees (UNHCR) health services and UNHCR refugee camps. Not surprisingly, out-of-pocket expenditure for maternal healthcare was much higher among Syrian refugees in Lebanon than in Jordan.⁴

Population movement and the corrosion of public services and infrastructure have also increased the risk of outbreaks of previously controlled diseases.⁵ Structural and economic realities—more than half the population lives in poverty, with 7.9 million people having entered poverty since the conflict began⁶—increase women's and children's vulnerability to infections and poor health while reducing access to health services.⁷

Before the conflict, maternal mortality ratios and child mortality rates in Syria were estimated to be below the 2030 Sustainable Development Goal targets for maternal

and child mortality,⁸ and coverage of key maternal, newborn and child health interventions was high. For instance, 96% of deliveries occurred in health facilities, and 82% of infants received three doses of diphtheria-tetanus-pertussis vaccine.⁹ Since 2010, no new nationally representative data have been collected because of security concerns and reduced data collection capacity. Lack of data greatly complicates the assessment of trends in mortality and coverage of maternal, newborn and child health services. The findings of small-scale, local surveys vary considerably, but a synthesis of available surveys and other data strongly suggests that coverage rates have declined considerably for several essential interventions—including birth registration, family planning, antenatal care, delivery care and immunization—both within Syria and among refugee populations in Jordan, Lebanon and Turkey.¹⁰ Special efforts—such as Lebanon's child vaccination campaign aimed at children of Syrian refugees—may address the disadvantages that internally displaced persons and refugees face in protracted crises.¹¹

Notes

1. United Nations Office of the High Commissioner for Refugees website (www.unhcr.org/syria-emergency.html).
2. Syria Regional Refugee Response Inter-agency Information Sharing Portal (http://data.unhcr.org/syrianrefugees/regional.php#_ga=2.124659594.1844532894.1500470573-1295180721.1488832340).
3. DeJong and others 2017.
4. Tappis and others 2017.
5. WHO 2016a; WHO Regional Office for the Eastern Mediterranean 2014.
6. Syrian Center for Policy Research 2013.
7. United Nations Population Fund 2015.
8. In 2010 maternal mortality was 49 deaths per 100,000 live births (with a 95% uncertainty range of 39–66; WHO, UNICEF, UNFPA, World Bank Group and United Nations Population Division 2015), and child mortality was 15 deaths per 1,000 live births (with a 95% uncertainty range of 13–18.3; UN Inter-agency Group for Child Mortality Estimation 2017).
9. In 2005–10 total fertility was 3.2 births per woman (United Nations Population Division 2017b).
10. According to the 2009 Pan Arab Project for Family Health survey, the last before the conflict began.
11. DeJong and others 2017.
11. Ross and others 2017.

a high level of services.¹¹ Moreover, the familiar image of conflict-affected populations living in refugee camps is no longer the international norm, and many refugees live integrated into host communities, making it more difficult to identify them and assess and meet their needs.

The evidence of the impact of conflicts on disease burden and health service coverage, particularly for women and children, is piecemeal, mixed and often limited to beneficiaries of particular programmes (see box 6.2 for an example based on the conflict in Afghanistan). Much of the data come from more stable settings such as refugee camps in protracted conflict settings. There is definite

BOX 6.2

Measuring trends in reproductive, maternal, newborn and child health coverage in Afghanistan

Afghanistan has been in a protracted conflict for almost 35 years, which has seriously hampered poverty reduction and development, strained the fabric of society and depleted the country's coping mechanisms. For the first decade after the fall of the Taliban government in 2001, substantial investment in health, education and development yielded notable improvements despite continuing political instability and violent conflict in some parts of the country. However, over the past five years armed nonstate actors have challenged the territorial control of the government and expanded the geographic scope of the conflict. The Afghan government controls less than 60% of the country,¹ and widespread insecurity has increased internal displacement in several areas and resulted in the closing of health facilities, high turnover of health workers, numerous resignations or absences among female healthcare providers and greater limitations on travel to health facilities, especially for women and children. Health facilities and health workers are also increasingly becoming targets of violence.

A review of 11 health, nutrition and other surveys between 2003 and 2013 and other data showed dramatic increases in the coverage of several essential maternal and child health care interventions, including antenatal care (from 16% to 53%), skilled birth attendant (from 14% to 46%) and child vaccination (from about 40% to over 60%; see figure).² But these results should

be interpreted with caution because all surveys had problems of representativeness since security issues prevented some areas of the country from being visited.

Afghanistan's 2015 Demographic and Health Survey, the results of which should also be interpreted with caution,³ suggested that progress in improving coverage of maternal and child health interventions stalled after 2012, illustrating the challenges of expanding access to services during the conflict.

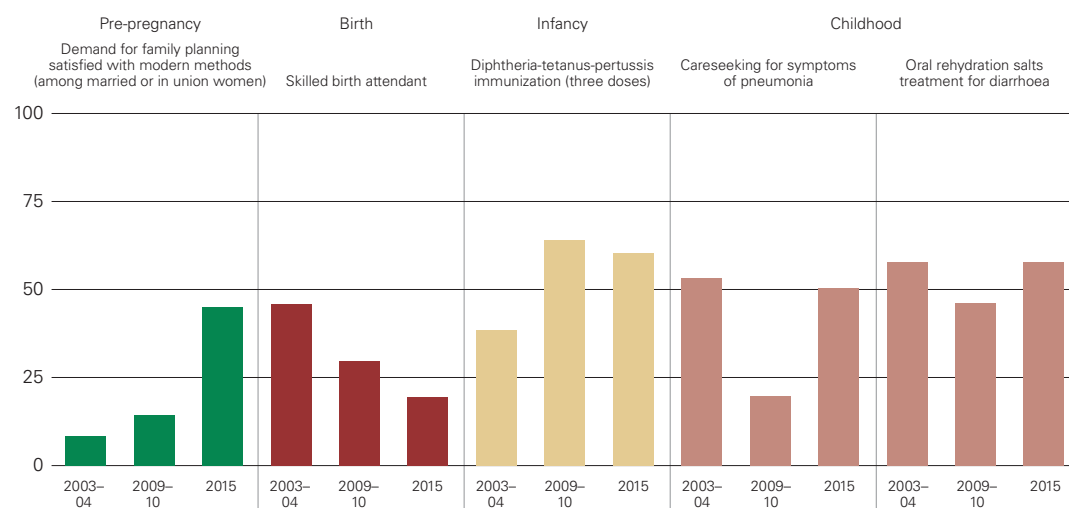
Socioeconomic development and coverage of interventions vary greatly across Afghanistan's provinces and reflect the diversity in geography and climate, cultures, patterns of human habitation, sources of income and political and food security situations. For instance, while seven provinces have skilled birth attendant rates of 60% or higher, four have rates below 20%.

Notes

1. UN OCHA 2016. 2. Akseer and others 2016. 3. There were severe problems with sample implementation in the 2015 Demographic and Health Survey due to insecurity, and over 10% of the sample clusters were not visited or replaced. The results for child mortality had a low value that was unlikely, and the results for maternal mortality were improbably high, with 70% of deaths among women ages 15–49 attributed to pregnancy-related causes, raising concerns about the quality of the data.

Coverage of several essential maternal and child health care interventions in Afghanistan increased dramatically before stalling after 2012

Trends in coverage of selected interventions for reproductive, maternal and child health, Afghanistan (%)



Source: 2003–04 and 2009–10, Multiple Indicator Cluster Surveys; 2015, Demographic and Health Surveys.

BOX 6.3

Political stability and coverage of reproductive, maternal, newborn, child and adolescent health interventions

A macro-level analysis of the association between six dimensions of governance (government efficiency, control of corruption, political stability and absence of violence, regulatory quality, rule of law, and voice and accountability)¹ and the composite coverage index showed that the strongest predictor of high and equitable coverage in 59 *Countdown* countries with available data on the composite coverage index since 2005 was political stability and absence of violence (see left panel of figure). The association persisted even after statistical adjustment for GDP per capita, Gini coefficient (for income equality), and country population and surface area (see right panel of figure). None of the other dimensions of governance was associated with coverage after the statistical adjustment.²

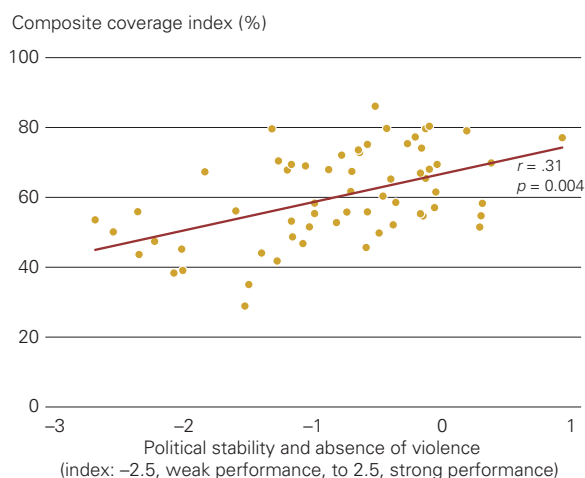
Responses to effectively address the health needs of conflict-affected populations must be based on sound

public health information and guided by evidence on the most cost-effective interventions. Multiple methodological challenges and data gaps in virtually all conflict settings weaken the ability to mount an effective public health response.³ In addition, inadequate scientific evidence exists on the specific risks for women's and children's health and nutrition and on what interventions can be delivered in and are effective in humanitarian settings.⁴

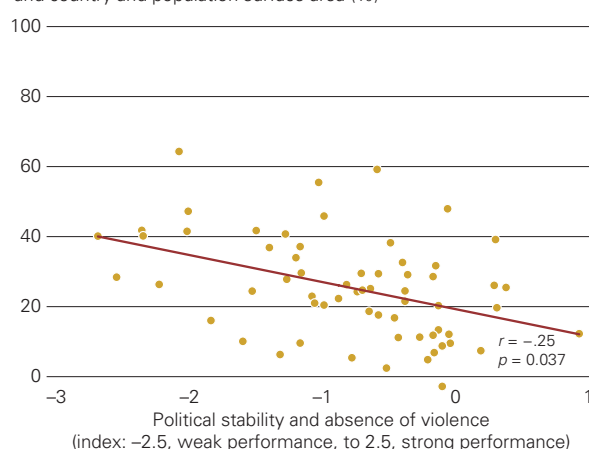
Notes

1. See the website of the World Bank's Worldwide Governance indicators project (<http://info.worldbank.org/governance/wgi/#home>) for information on these dimensions. 2. The analysis excludes countries with extremely poor governance, such as those with extensive armed conflict, because they lack national surveys. Including these countries would likely have yielded an even stronger association. 3. Checchi and others 2017. 4. Blanchet and others 2017; Warren and others 2015.

Political stability and absence of violence is the strongest predictor of high and equitable coverage of reproductive, maternal, newborn, child and adolescent health interventions even after statistical adjustment for GDP per capita, Gini coefficient, and country population and surface area



Slope index of inequality for composite coverage index, adjusted for GDP per capita, Gini coefficient, and country and population surface area (%)



Source: Re-analysis of Demographic and Health Survey, Multiple Indicator Cluster Survey and Reproductive and Health Survey datasets and The World Bank's Worldwide Governance indicators (<http://info.worldbank.org/governance/wgi/#home>) by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

evidence of adverse consequences, including outbreaks of vaccine-preventable¹² and diarrhoeal diseases¹³ (such as cholera in Yemen) and higher prevalence of acute malnutrition¹⁴ and mental health problems¹⁵ in conflict settings, but there is less clear evidence of adverse effects on national

HIV trends,¹⁶ malaria incidence and mortality,¹⁷ respiratory disease transmission and mortality,¹⁸ and maternal and newborn health risks. Studies from refugee camps in protracted conflict settings show encouraging results compared with the host populations—such as lower or equal maternal

mortality¹⁹ and child malnutrition²⁰ and adequate intervention coverage for maternal and child health²¹ and HIV treatment,²² despite unusual and often stressful circumstances.

In an analysis of survey data from 59 *Countdown* countries with available data since 2005 the growing numbers and different types of conflict situations and their devastating health consequences, particularly for women, children and adolescents, indicate an urgent need for the global community to prioritize humanitarian

settings (box 6.3). The lack of data on conflict situations is an acute problem that must be addressed—without data, countries and their partners cannot rationally plan services or monitor progress in reaching the internally displaced persons and refugees living within their borders. Better measurement and monitoring of women's, children's and adolescents' health in conflict settings are essential to mitigate the impact of displacement and violence on their access to health services and on their overall health and wellbeing.





7. Addressing the underlying drivers of universal health coverage



The Sustainable Development Goal framework prioritizes addressing broader determinants and human rights in order to improve health and development.¹ This emphasis recognizes the critical role of contextual factors in driving health outcomes and the need for multisectoral approaches to address them.² The Sustainable Development Goals also take into account supportive policy, legislative, regulatory and financial frameworks to ensure that healthcare systems are resilient and that essential services are affordable for all.

This chapter starts with context, describing how macro-level forces such as social, economic and political factors as well as natural disasters impact families and individual lives. It then presents how four main drivers of change—legislative frameworks, governance processes, financial investments and service delivery inputs—can result in strong health systems able to deliver universal health coverage. It concludes with opportunities for cross-sectoral actions to improve the lives of women, children and adolescents in *Countdown* countries as well as their access to high-quality care.

Context matters!

Political struggles, economic downturns, natural disasters, acute or chronic conflict (see chapter 6) and outbreaks of infectious diseases such as Ebola all negatively impact people's ability to access and pay for healthcare services.³ Other social phenomena—rapid urbanization, technological innovation, migration and social emancipation—affect health in both good and bad ways. For example, urbanization reduces geographic barriers to healthcare, improves access to information and promises economic opportunity. In many urban slums fragile social networks, increased vulnerability to violence, poor housing conditions, scarcity of high-quality food and unregulated healthcare markets put people at high risk of poor health.⁴

Women's social status markedly affects their ability to seek care for themselves and for their children. Women's use of health services increases as their social position and economic opportunities improve,⁵ and children's health and development are intricately tied to the social status of their mothers. Children of less educated and poor mothers have a higher risk of mortality, stunting and developmental delays than their more fortunate peers do.⁶ Multipronged approaches to improve women's social and health status that combine health interventions with income-generation opportunities, micro-finance schemes, vocational training, cash transfers and greater political representation have been tried in diverse settings with varying degrees of success.⁷ More research is needed to identify the best mix of interventions and approaches that will result in the greatest advancements for women, adolescent girls and their children in specific contexts (see box 7.1 for details on a new index that measures women's empowerment and assesses the direct relationship between it and the composite coverage index).

Four main drivers of change along the implementation spectrum

Countdown tracks 17 indicators to identify where countries are making progress and where action needs to be prioritized along the policy and programme implementation spectrum. The indicators are organized into four main drivers of change: legislative commitments, governance processes, financial investments and service delivery inputs.

Legislative commitments

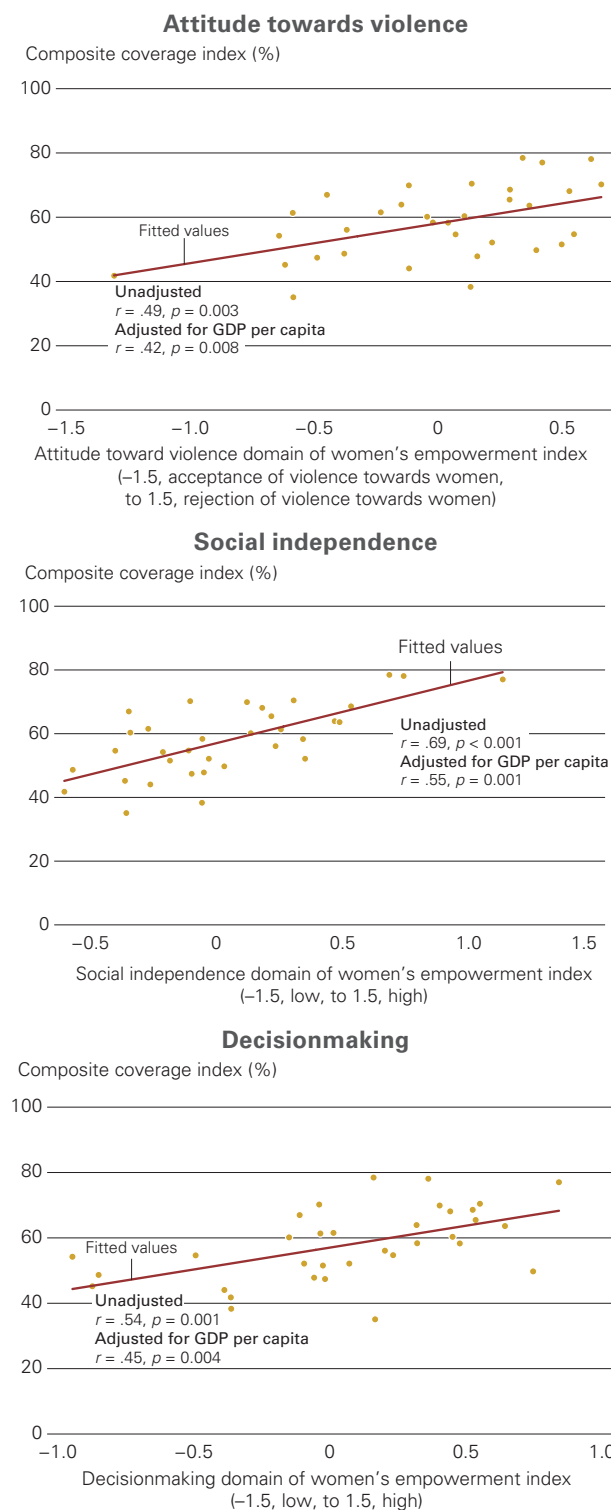
Countdown tracks a set of national policies that support women's, children's and adolescents' health for which comparable data are available across countries. The policies include the legal status of abortion (box 7.2), legal conditions under which adolescents can access contraception,

Women's empowerment and the composite coverage index

Given long-standing awareness of the link between women's empowerment with their health and the health of their children, researchers at the Federal University of Pelotas, Brazil, have developed an index that captures information on women's empowerment based on survey data. Using principal component analysis and data on 15 variables from Demographic and Health Surveys for 34 *Countdown* countries in Sub-Saharan Africa (analysing each country separately), they identified three domains: attitude towards violence, social independence and decisionmaking. The similarity of the results across countries allowed the pooling of the survey data and calculation of the three domains using the same factor loadings (variable weights) for all countries. The three domains explained 50% of the total variation in the 15 component variables in the pooled dataset. Ecological analyses with countries as the unit showed that the domains were correlated with the Gender Development Index (with a correlation coefficient of .58 for attitude to violence, .66 for social independence and .75 for decisionmaking) and that the domains were significantly correlated with several coverage indicators, including the composite coverage index (see figure), even after adjustment for GDP per capita.

Within-country analyses using women as the unit confirmed the associations in most countries. The results show a direct relationship between women's empowerment and the composite coverage index and suggest that the new index enables monitoring of women's empowerment within and between countries in Sub-Saharan Africa, assessment of trends over time and estimation of the associations between empowerment and maternal, reproductive and child health outcomes using individual-level data.

Research shows a direct relationship between women's empowerment and the composite coverage index for 34 *Countdown* countries in Sub-Saharan Africa



Source: Re-analysis of Demographic and Health Surveys by the International Center for Equity in Health, Federal University of Pelotas, Brazil.

Complications of abortion remain a leading cause of maternal deaths.¹ Abortion (including abortion, miscarriage and ectopic pregnancy) accounts for around 7.9% of maternal deaths worldwide (with a 95% confidence interval of 4.7–13.2%), and Sub-Saharan Africa has the most maternal deaths due to abortion.² In 2010–14 the incidence of induced abortion in developing countries was 37 abortions per 1,000 women ages 15–44.³ But because of widespread under-reporting, under-registration and misclassification, these data should be interpreted with caution.⁴

The legal status of abortion in countries is an important determinant of the availability of safe abortion services and postabortion care. Globally, unsafe abortion rates are higher in countries with highly restrictive abortion laws than in countries with less restrictive laws.⁵ Of the 57 *Countdown* countries with 2015 data from the United Nations Population Division's policy database on the legal status of abortion, only one *Countdown* country fully restricts abortion, 31 *Countdown* countries allow abortion if the woman's life is at risk, 15 permit abortion to save the woman's life and on mental and physical health grounds and 10 allow abortion on all grounds.⁶

Information on abortion-related policies is useful not only for monitoring purposes but also for allowing women to understand the range of services that they are entitled to under the law. Many women are not aware of the legal status of abortion in their country, particularly women in countries with the highest maternal mortality.⁷

Legislation on abortion also impacts health system readiness to respond to epidemics and other events with adverse perinatal consequences, such as exposure to insufficient folate in the diet or teratogenic drugs. The Zika outbreak illustrates the complex interplay of abortion policies, women's reproductive health and rights, and health system responsiveness (see next column).

Increasing access to safe abortion services where legal and postabortion care are important for reducing deaths due to complications of abortion. A key step to eliminating unsafe abortions is reducing unintended pregnancies through a multipronged approach that includes improving access to family planning services, providing comprehensive sex education and addressing underlying determinants such as adolescent girls' access to secondary schooling. An estimated 75% of unsafe abortions could be avoided if the need for family planning were fully met.⁸ Median coverage of the demand for family planning satisfied in *Countdown* countries with available data is 48%, with a range of 16–90%, indicating that substantial investment in family planning services are needed (see table 4.1 in chapter 4).

Congenital Zika Syndrome in Brazil and the interplay of abortion policies, women's reproductive health and rights, and health system responsiveness

In early 2015 an outbreak of the Zika virus was reported in Northeast Brazil, followed by an unusual increase in microcephaly cases among infants. In April 2016 the World Health Organization formally accepted evidence of a causal link between the virus and microcephaly, which is one of many birth complications related to the virus, called congenital Zika syndrome.⁹

The documented consequences of Zika virus infection generated considerable confusion and stress among women who were pregnant at the time of the outbreak or planning to become pregnant. Brazil's abortion laws are restrictive, and women have historically resorted to clandestine abortions or self-induced pregnancy termination. No legal framework allows women living in Brazil to terminate a pregnancy following confirmation of a Zika virus infection and an ultrasound showing abnormal foetal development. The options for these women are to carry the pregnancy to term and face a high risk of delivering a child with serious, irreversible congenital problems or to put their own health at risk by inducing an abortion without proper medical supervision.¹⁰ Some evidence indicates that demand for abortion medications (mifepristone and misoprostol) increased in Brazil after the onset of the Zika epidemic.¹¹ Preliminary results from a June 2016 survey also showed that women in Brazil were postponing pregnancy to avoid Zika-related birth defects.¹²

Although the Zika epidemic may have faded from public memory, it has raised ethical issues around women's ability to legally access abortion services in Brazil and elsewhere, and the need for health systems to be able to rapidly respond to new threats that have serious consequences for newborn health.

Notes

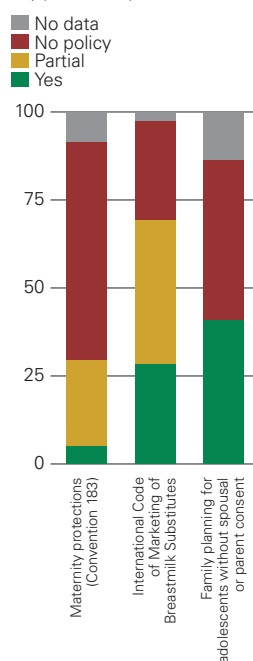
1. Alkema and others 2016; Graham and others 2016. 2. Based on modelled estimates. Åhman and Shah 2011; Say and others 2014.
3. Sedgh and others 2016. 4. Alkema and others 2016; Campbell and others 2016; Sedgh and others 2016. 5. Ganatra and others 2017; Johnson and others 2017; Singh 2009. 6. United Nations Population Division Policy Database on Fertility, Family Planning and Reproductive Health (https://esa.un.org/poppolicy/WPPDatasets/2015_WPPDataset_Fertility_FP_RH.xls.) 7. Assifi and others 2016; Coast and Murray 2016.
8. WHO 2011. 9. CDC 2016; Costello and others 2016; WHO 2016d.
10. Castro 2016. 11. Aiken and others 2016. 12. Diniz, Medeiros and Madeiro 2017.

labour laws on maternity protection, regulation against the marketing of breastmilk substitutes and legislation on food fortification (see figure 3.5 in chapter 3). Less than half of the 81 *Countdown* countries reported having legislation allowing adolescents to access family planning without spousal or parent consent, less than a third have fully adopted the international code on the marketing of breastmilk substitutes and only 5% have fully adopted legislation on maternity protection (Convention 183; figure 7.1). Further research is needed on enforcement of these and other important legislative commitments—such as laws on child marriage, girls’ access to education, domestic violence and female genital mutilation. *Countdown* is working closely with the World Health Organization Policy Reference Group, which was formed in 2017, to increase the quality and quantity of information on supportive policies in the health sector and other sectors, which will enhance global and country monitoring efforts.

FIGURE 7.1

Only 5% of *Countdown* countries have fully adopted legislation on maternity protection

Share of 81 *Countdown* countries with key policies in place (%)



Source: Maternity protections (Convention 183), ILO 2013; International Code of Marketing of Breastmilk Substitutes, WHO 2016; family planning for adolescents without spousal or parent consent, 2014 and 2016 rounds of the Global Maternal, Newborn, Child and Adolescent Health Policy Indicator Survey conducted by the World Health Organization Department of Maternal Child and Adolescent Health.

Governance processes

Good governance is essential for adopting and implementing effective policies and programmes and for ensuring that health spending aligns with health needs.⁸ Numerous analyses have explored the power structures and governance processes that influence policies for reproductive, maternal, newborn, child and adolescent health in various contexts (for example, how policy issues related to reproductive, maternal, newborn and child health are framed, who the actors that support or block specific policies are, what organisational mechanisms support their review and implementation and whether funding and other service delivery inputs support their operationalization).⁹ These analyses have helped explain why, for example, maternal health or integrated community case management became a priority in some countries and not in others.

Countdown tracks a set of indicators on governance processes that reflect how countries prioritize reproductive, maternal, newborn and child health: costing national plans for maternal, newborn and child health; maternal death notification and review; and civil society involvement in national planning and review processes. Only 43% of *Countdown* countries reported having a costing national plan for maternal, newborn and child health, indicating that countries and their partners need to work together to develop integrated and comprehensive costing plans for women’s, children’s and adolescents’ health that are in line with the new Sustainable Development Goal framework (figure 7.2).

Involving civil society in national planning and review processes is critical for ensuring that policies and programmes reflect priorities on the ground and for holding governments to account for progress.¹⁰ However, only 15 *Countdown* countries reported on this indicator in the latest (2016) World Health Organization policy survey questionnaire. Much more work is needed to determine how to accurately collect this information from both government and civil society representatives across different settings.

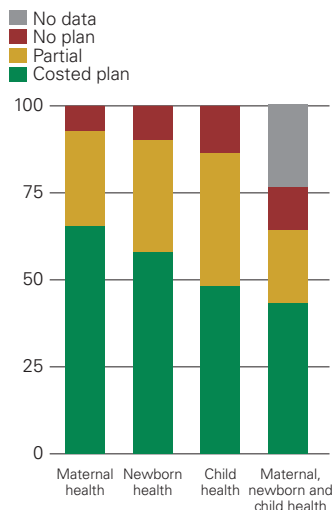
Financial investments

Understanding the full picture of financial resources for health requires tracking government and external expenditures as well as out-of-pocket expenditures. Such information helps determine the burden of payments for health services on households, enables comparison of resource

FIGURE 7.2

Only 43% of *Countdown* countries have a costed national plan for maternal, newborn and child health

Share of 81 *Countdown* countries with a costed national implementation plan for maternal, newborn and child health (%)



Source: 2010, 2014 and 2016 rounds of the Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey conducted by the World Health Organization Department of Maternal Child and Adolescent Health.

allocation relative to need and holds donors and governments to account for sufficiently funding the healthcare system. Domestic resource tracking has seen several advancements recently (box 7.3). Chatham House, an international think tank, recommends that governments spend at least US\$86 per person whenever possible and at least 5% of GDP on health each year.¹¹ Of the 79 *Countdown* countries with available data, 25 meet this standard. For the 79 *Countdown* countries with available data, the median government expenditure on health per capita is \$26. The Abuja Declaration calls on governments to allocate 15% of government expenditure on health, but only 6 *Countdown* countries—Dominican Republic, Ethiopia, Guatemala, Malawi, Nicaragua and Swaziland—have met or exceeded this target. Chatham House also recommends that out-of-pocket expenditure be less than 20% of total expenditure on health to avoid catastrophic expenditures for households. Only 12 of the 78 *Countdown* countries with available data meet this standard.

Countdown tracks official development assistance flows to reproductive, maternal, newborn and

BOX 7.3

Advancements in tracking domestic expenditure on reproductive, maternal, newborn and child health

Domestic expenditure, which encompasses government expenditure as well as prepaid private and out-of-pocket expenditure, is crucial to the sustainability of reproductive, maternal, newborn and child health achievements. In contrast to external expenditure, government and prepaid private funding are typically more stable over the long term and can be used both for specific programmes and for strengthening the overall health system. Minimizing out-of-pocket expenditure protects people from financial risk and reduces health inequities.

Prior to 2011, many efforts to track domestic expenditure on reproductive, maternal, newborn and child health were conducted as national health account subaccounts. However, these tracking exercises lacked comparability and comprehensiveness. National health account subaccounts were not designed to account for multiple health priority areas simultaneously, leading to double-counting of health expenditures across reproductive health, child health, HIV and malaria subaccounts.¹ And differences in accounting methods across countries and years meant rigorous cross-country comparisons and trend analyses could not be performed.²

The System of National Health Accounts 2011 approach was designed to address these shortcomings.³ It has standardized guidelines for allocating expenditure across disease areas and other health priority realms, including specific definitions, and recommends embedding disease expenditure tracking into the health accounting process more generally.⁴ The World Health Organization now hosts more than 30 reproductive, maternal, newborn and child health accounts that are based in the System of National Health Accounts, and 12 countries have produced full disease breakdowns.⁵ The System of National Health Accounts framework has improved the ability to assess reproductive, maternal, newborn and child health financing; compare it to other funding streams; and identify investment opportunities and funding gaps.

Notes

1. WHO 2007, 2009. 2. Bhawalkar 2015; OECD, Eurostat and WHO 2011. 3. Cogswell and others 2013. 4. OECD, Eurostat and WHO 2011. 5. Based on data from the World Health Organization Global Health Expenditure Database (<http://apps.who.int/nha/database/DocumentationCentre/Index/en>); Cogswell and others 2013.

child health using a detailed and precise method based on manual coding of aid projects according to a predefined framework. Official development assistance and private foundation flows based on this method for 2003–13 showed similar trends for all countries and for the 75 *Countdown to 2015* countries.¹² Total official development assistance and private foundation flows to the health sector more than tripled over the period, and official development assistance and private foundation flows to reproductive, maternal, newborn and child health increased at a similar rate. Child health saw the most substantial increase in funding, followed by reproductive and sexual health and maternal and newborn health. Official development assistance and private foundation flows to the health sector and to reproductive, maternal, newborn and child health were concentrated in the 75 *Countdown to 2015* countries, and flows to reproductive, maternal, newborn and child health in *Countdown* countries increased 12% from 2012 to 2013. Targeting of official development assistance and private foundation flows to the countries with the greatest health needs improved, particularly for child health. However, funding decreased for general budget support and grew more concentrated in donor-driven project funding. Although the sustained increase in funding for reproductive, maternal, newborn and child health and the improved targeting are encouraging, forecasts for these trends are mixed, and considerable misallocation still exists.¹³

Part of the financial tracking work of *Countdown* has involved a systematic comparison of available tracking methods—*Countdown*’s method; the Partnership for Maternal, Newborn & Child Health’s Muskoka method; the Organisation for Economic Co-operation and Development’s reproductive, maternal, newborn and child health policy marker; and the Institute for Health Metrics and Evaluation’s method. The comparison found that differences in results across methods are due to differences in underlying conceptual frameworks; in methods for apportioning aid for reproductive, maternal, newborn and child health; in definitions of reproductive, maternal, newborn and child health activities; in inclusion of different donors; and in handling of aid to unspecified recipients. The *Countdown* approach was the most precise and detailed method but is very labour intensive and difficult to replicate. Based on the findings of the methods comparison, *Countdown* now uses the Muskoka method in tracking official development assistance to reproductive, maternal, newborn and child health, overall and per capita.

Service delivery inputs

Delivering high-quality healthcare services requires a sufficient number of adequately trained healthcare workers, a strong referral network and a functioning supply chain that ensures that healthcare workers are equipped with all needed supplies and medicines. For example, efforts to increase facility births have not led to expected gains in maternal and newborn health largely because of systematic deficiencies in key service delivery inputs in many *Countdown* countries.

To monitor progress in human resources for health, *Countdown* tracks the density of doctors, nurses and midwives and how many of the seven obstetric signal functions¹⁴ that midwives are authorized to deliver. Only 25% of *Countdown* countries meet the standard of 23 doctors, nurses and midwives per 10,000 population, which the World Health Organization considers necessary to achieve high coverage of essential health interventions in high-burden countries.¹⁵ Only 45 of the 73 *Countdown* countries with available data authorize midwives to perform all seven signal functions. The removal of retained products of conception is authorized in the fewest countries (53), followed by assisted vaginal delivery (57).

To capture system readiness to provide emergency obstetric care, *Countdown* tracks the national availability of emergency obstetric care facilities. The median percentage of the minimum acceptable number of emergency obstetric care facilities¹⁶ in the 30 *Countdown* countries with data since 2010 is 40% (with a range of 13% to 93%).

Countdown also tracks progress in the inclusion of key reproductive, maternal, newborn and child health commodities on country essential medicines lists and has proposed a set of indicators for monitoring the entire supply chain.¹⁷

Moving forward: working in and outside the universal health coverage box

Multisectoral actions are required to realize the Sustainable Development Goals universal health coverage agenda¹⁸ and to support all women’s, children’s and adolescents’ rights to survive, thrive and transform. Achieving universality means tackling complex social and health systems problems that are roadblocks to the delivery and uptake of affordable health services, particularly for the underserved. For example, in some *Countdown* countries many women work in the informal sector, which rarely provides them access

to health insurance. In turn, they often seek care from providers that are not well connected with the formal care sector and that tend to be inadequately trained, supervised and remunerated. Thus, the most vulnerable women are also the most likely to receive substandard care.¹⁹

The universal health coverage prerogative means that healthcare packages designed for women, children and adolescent girls must include curative, preventive and promotive services. However, in many countries health insurance plans exclude family planning, limiting women's and adolescent girls' ability to plan or prevent pregnancies and exercise their sexual and reproductive health rights. Decisions regarding what services to include in insurance plans and other health care delivery strategies are fundamentally political ones.²⁰ We have to work together to increase the use of evidence in decisionmaking and to mobilize greater political prioritization of essential reproductive, maternal, newborn and child health services.²¹

The roadmap to universal health coverage should encompass financial protection schemes and management strategies to ensure that the right services are provided at the right time—and at a high level of quality. Harmful practices that financing strategies for universal health coverage inadvertently incentivize need to be eliminated. A

prime example is the rising rates of unnecessary caesarean sections conducted without medical indications in many urban settings of *Countdown* countries.²² Another example is the misuse of antibiotics by private sector providers to treat uncomplicated diarrhoea, which directly competes with cost-effective alternatives such as oral rehydration salts and zinc and puts the world in jeopardy of antibiotic resistance.²³

A missed opportunity to strengthen healthcare service delivery and the continuity of care in many *Countdown* countries is better use of community platforms and civil society. Communities are not homogeneous, and capacity building is needed to strengthen their ability to hold governments and healthcare providers to account for good-quality care.²⁴ And community health worker strategies should be based on an integrated approach to reproductive, maternal, newborn and child health rather than driven by vertical programmes.²⁵

We must invest deeply in transforming health service delivery to capitalize on the opportunities provided by the Sustainable Development Goals and ensure that gains in maternal, newborn and child survival can be sustained, while working across education, labour and agriculture to ensure that women, adolescents and children are also able to thrive and transform.





8. Concluding remarks: Transforming the *Countdown* for tracking progress in the Sustainable Development Goals era



The Sustainable Development Goals call for a comprehensive and integrated health agenda, with universal health coverage at the centre of the health goal. The Every Woman Every Child Global Strategy for Women's Children's and Adolescents' Health translates the Sustainable Development Goal framework into a survive–thrive–transform framework that goes well beyond reproductive, maternal, newborn, child and adolescent health and nutrition. This first *Countdown* report in the Sustainable Development Goals era shows both how we will continue to address the unfinished “survive” agenda in the 81 highest mortality countries and how we have begun to address the broader “thrive and transform” agenda of women's, children's and adolescents' health. Three main conclusions emerge from this synthesis of data on coverage, equity and drivers from the 81 *Countdown* country profiles and other data sources.

First, coverage of many of the essential reproductive, maternal, newborn and child health and nutrition interventions that *Countdown* tracks showed substantial progress during the past decade, but many countries remain far from universal coverage. Moreover, there is growing evidence of the limited quality of services across *Countdown* countries because of a lack of basic inputs—such as adequate stock of medicine and a sufficient number of trained health workers—thus limiting the impact on women's, children's and adolescents' health outcomes.

Second, inequalities in intervention coverage between the poorest and the richest can be virtually eliminated, as several *Countdown* countries have shown. Within-country inequalities in coverage are falling in most countries, but the pace is too slow. In some countries wide poor–rich, urban–rural and geographic gaps persist for most reproductive, maternal, newborn and child health and nutrition interventions.

Third, context matters for women's, children's and adolescents' health. Improving the policy and programme implementation in *Countdown* countries includes adopting supportive policies and strategies (for example, to promote inclusiveness and effectiveness), good governance (for example, effective management of integrated and intersectoral approaches and partnerships with and regulation of the private sector), adequate financing (for example, to ensure financial protection against catastrophic health spending, protecting official development assistance flows and increasing domestic resources for women's, children's and adolescents' health) and a resilient health services delivery system (for example, a trained health workforce, a reliable supply chain system and good quality of services). More attention and better data to guide actions are overdue for addressing the health needs of the growing number of women, children and adolescents in countries affected by conflict or other humanitarian emergencies. And improving women's social status and economic opportunities must take centre stage in the years ahead to break the intergenerational cycle of poverty in many settings and to promote health and well-being in this and future generations. Further research is needed to refine a theory of how contextual factors and other underlying drivers influence health outcomes at both the micro and macro levels and to develop coordinated multisectoral strategies to address them.

The findings demonstrate the need for countries to set medium-term coverage targets (such as for 2020 and 2025), including an inequality dimension, for selected indicators across the continuum of care in order to closely monitor progress towards universal health coverage and the 2030 Sustainable Development Goals. Efforts to reach all women, children and adolescents should also be underpinned by better monitoring and measurement of the quality of services, greater use

of health facility data for local action, more attention to the number of individuals not reached, greater disaggregation of available data for improved targeting of services, use of simple understandable indexes (such as the composite coverage index) to assess progress and use of tools that link coverage data to lives saved and resource allocation.¹

An important limitation of *Countdown's* analysis of progress is the lack of recent data on key indicators and inequality dimensions. Despite major improvements in data availability, there are not enough recent data points to assess whether the improvement in survival and programme performance during the Millennium Development Goal era is accelerating. *Countdown* makes minimal use of predictions and aims to “let the country data speak” as much as possible. This implies that time periods rather than individual years are used to assess trends, with some variability in data collection periods across countries. *Countdown* analyses are also limited by the scarcity of information on such critical topics as coverage of reproductive, maternal, newborn, child and adolescent health and nutrition interventions in conflict settings; the quality of care for essential interventions; and subnational data on, for instance, health service inputs. Further work is ongoing to address these measurement gaps, both within and outside *Countdown*.

High-quality data are needed to track progress, inform policies and programmes and ensure accountability at the global, regional, national and local levels. The preferred way to obtain better data on mortality and cause of death is through sample registration systems, which should eventually lead to complete civil registration and vital statistics systems.² Population-based surveys must be conducted regularly because they are key sources of representative intervention coverage data that can be disaggregated by multiple demographic, socioeconomic and geographic dimensions. Linking population and health facility surveys is currently the best way to measure access to and quality of specific services. More research is needed on how best to capture the quality of care through linking of existing surveys and through other methods and data sources.³ Increasing the sample size of population-based surveys to allow better geographic disaggregation and investing in the quality and coverage of administrative data are essential for improving the targeting of interventions to underserved women, children and adolescents. Health facility data, including routine reporting systems and facility surveys, can be used to improve monitoring at the local level, as long as

facilities report data completely and accurately.⁴ Investments are also needed to improve country capacity to use routine data for decisionmaking. Special studies are needed on how to best collect information on health needs and the coverage of essential interventions for women, children and adolescents in conflict situations. Efforts are under way by the World Health Organization to improve collection of data on policies, systems measures and governance processes, which will improve understanding of how these factors shape women's, children's and adolescents' health and well-being.

Countdown is responding to the broad agenda of the survive–thrive–transform framework in multiple ways, while preserving its core features. *Countdown* will continue to publish independent comprehensive analyses of progress towards universal health coverage of cost-effective interventions that address the main causes of maternal, neonatal and child deaths. This will include *Countdown* publications as well as analytical input into other products in support of the Every Woman Every Child Global Strategy for Women's Children's and Adolescents' Health, such as reports of the Independent Accountability Panel, the Global Nutrition Report and others.

Countdown is investing in improving the measurement of intervention coverage, including for quality of care, nutrition and equity and in conflict settings. *Countdown* also aims to improve the measurement and understanding of key drivers of coverage, such as governance and financing. *Countdown* is working with the Lancet Commission on Adolescent Health and the early childhood development community to expand analyses and contributions in these two areas. And through its regional networks, *Countdown* is focusing on strengthening regional and country analytical capacity to collect, analyse and use data on women's, children's and adolescents' health. *Countdown* is working with national public health institutions and ministries of health in its regional networks in Latin America and the Caribbean, West and Central Africa, and Eastern and Southern Africa. Each regional network includes strong leadership by regional institutions and close collaboration with UN agencies and the Health Data Collaborative to ensure systemwide approaches. In addition, *Countdown* is continuing its engagement in country-specific studies, including countries affected by conflict. It will be critical for global initiatives—notably the Global Financing Facility; Gavi, the Vaccine Alliance; and the Global Fund to Fight AIDS, Tuberculosis

and Malaria—to align their financing and implementation activities behind these efforts to strengthening country analytical capacity.

The Every Woman Every Child community should capitalize on the opportunities provided by the Sustainable Development Goals to generate greater visibility, resources and action for women's, children's and adolescents' health. This report presents compelling evidence of progress and of major persistent gaps and inequalities in the coverage of interventions across the continuum of care, justifying continued prioritization of reproductive, maternal, newborn, child and adolescent health and nutrition in the context of universal health coverage and the Sustainable

Development Goals with their challenging 2030 targets. At the same time a broader and more integrated approach across sectors is needed because countries face a much wider range of challenges for women's, children's and adolescents' health and nutrition as they undergo the health and nutrition transitions. *Countdown* is a unique global platform that allows collaboration among multiple constituencies in multiple subject areas, with a focus on tracking progress, improving measurement and strengthening country evidence and analytical capacity for women's, children's and adolescents' health. Through this platform *Countdown* will continue providing needed evidence to push the survive–thrive–transform agenda forward.





Notes



Chapter 1

1. Sustainable Development Goal Framework (<https://unstats.un.org/sdgs/>).
2. Global Strategy (2016–2030) (www.who.int/life-course/publications/global-strategy-2016-2030/en/).
3. Global Finance Facility website (www.globalfinancingfacility.org).
4. See annex C for detailed information on *Countdown's* governance structure.

Chapter 2

1. Alkema and others 2016; UN Inter-agency Group for Child Mortality Estimation 2017; Victora and others 2016b.
2. UN Inter-agency Group for Child Mortality Estimation 2017.
3. Blencowe and others 2016; WHO and UNICEF 2014.
4. This is a global target. There are separate country-level targets. The primary national target is that by 2030 every country should have reduced its maternal mortality ratio by at least two-thirds from its 2010 baseline. The secondary target, which applies to countries with the highest maternal mortality burdens, is that no country should have a maternal mortality ratio above 140 deaths per 100,000 live births by 2030. Alkema and others 2016; WHO 2015.
5. Blencowe and others 2016.
6. Alkema and others 2016. The last UN update of maternal mortality levels and trends was completed in 2015 to inform the final assessment of the Millennium Development Goals and acknowledged large uncertainty with the estimates because of a lack of recent data.
7. WHO 2014a.
8. UN Inter-agency Group for Child Mortality Estimation 2017.
9. Liu and others 2015.
10. Liu and others 2015.
11. Black and others 2013.
12. Cousens and others 2011.
13. Say and others 2014.
14. WHO 2014a.
15. The male to female mortality ratio varies by level of mortality (Alkema and others 2014). Therefore, the assessment of gender bias needs to take into account the expected association between male and female mortality at different levels of mortality in the absence of discrimination (Costa, da Silva and Victora 2017).
16. UN Inter-agency Group for Child Mortality Estimation 2017.
17. Alkema and others 2014.

18. United Nations Population Division 2014.
19. UN Inter-agency Group for Child Mortality Estimation 2017.
20. Data extracted from CME Info country profiles (http://childmortality.org/files_v21/download/UNIGME%20Total%20U5MR,%20IMR%20and%20NMR%20database.xlsx).
21. UN Inter-agency Group for Child Mortality Estimation 2017.
22. Alkema and others 2016.
23. Blencowe and others 2016; UN Inter-agency Group for Child Mortality Estimation 2017.
24. UN Inter-agency Group for Child Mortality Estimation 2017.
25. Hill and others 2007; WHO 2014b.

Chapter 3

1. The World Health Assembly 2025 global nutrition targets (adopted in 2012) are a 40% reduction in the number of children under age 5 who are stunted, a 50% reduction in anaemia among women of reproductive age, a 30% reduction in low birthweight, no increase in childhood overweight, an increase up to at least 50% in the rate of exclusive breastfeeding in the first six months and a reduction of childhood wasting to less than 5%.
2. Black and others 2008, 2013; Britto and others 2017.
3. Black and others 2017.
4. Black and others 2008, 2013; Graham and others 2016.
5. NCD Risk Factor Collaboration 2017.
6. Bhutta and others 2013; Lee and others 2017.
7. Campbell and others 2016.
8. Fall and others 2015.
9. World Health Organization Global Health Observatory (www.who.int/gho/maternal_health/reproductive_health/adolescent_fertility/en/).
10. Bhutta 2016; Bhutta and others 2017a.
11. UNICEF, WHO and World Bank Group 2017.
12. Bangladesh, Chad, Comoros, Djibouti, The Gambia, India, Indonesia, Mauritania, Nepal, Niger, Pakistan, Sudan, Timor-Leste and Yemen.
13. Overweight in children under age 5 is defined as weight-for-height that is two or more standard deviations above the World Health Organization child growth standards median.
14. NCD Risk Factor Collaboration 2017.
15. Black and others 2013; Victora and others 2016b.
16. UNICEF 2015.
17. Vaivada and others 2017.
18. Food Fortification Initiative website (www.ffinetwork.org/why_fortify/index.html).

19. World Health Organization Global Health Observatory (www.who.int/gho/ncd/risk_factors/overweight/en/).
20. Bhutta 2017; Bhutta and others 2017b.
21. Work on defining a standard set of indicators is under way through the United Nations Children's Fund/World Health Organization Technical and Expert Advisory Group on Nutrition Monitoring.
22. www.globalnutritionreport.org.
23. Heyman, Raub and Earle 2013.
24. Victora and others 2016a.
25. www.globalnutritionreport.org.

Chapter 4

1. Bryce and others 2003; Jones and others 2003.
2. WHO 2013.
3. Moucheraud and others 2016; WHO and UNICEF 2014.
4. Kruk, Larson and Twum-Danso 2016.
5. Many definitions of health system quality exist; the World Health Organization has defined quality as: "the extent to which health care services provided to individuals and patient populations improve desired health outcomes. In order to achieve this, health care needs to be safe, effective, timely, efficient, equitable, and people-centered" (www.who.int/maternal_child_adolescent/topics/quality-of-care/definition/en/). This definition was developed in the context of care for pregnant women and newborns but is in line with other quality definitions and applies to health services for all populations.
6. Marchant and others 2016.
7. Donabedian 1988.
8. Ng and others 2014.
9. Hodgins and D'Agostino 2014.
10. Kruk and others 2016b.
11. Marchant and others 2015.
12. Sharma and others 2015.
13. Dickson, Kinne and Moxon 2015.
14. Readiness is defined as having the equipment, diagnostics, medicines and commodities to deliver the intervention.
15. Hodgins and others 2014.
16. Kanyagarara, Munos and Walker 2017; Kruk, Larson and Twum-Danso 2016; Marchant and others 2015.
17. Mohanan and others 2015; Winter and others 2015.
18. Heredia-Pi and others 2016; Kruk and others 2016b.

Chapter 5

1. Barros and Victora 2013.
2. The disaggregated analyses produced by *Countdown* can be accessed through the Health Equity Assessment Tool (HEAT) on the World Health Organization website (www.who.int/gho/health_equity/assessment_toolkit/en/). HEAT is a software application that facilitates the assessment of within-country health inequalities and includes recent data for the vast majority of *Countdown* countries. Equity profiles for all *Countdown* countries with available data and provide in-depth analyses of inequalities are available at www.countdown2030.org.

Chapter 6

1. Gates and others 2016.
2. UNHCR 2017.
3. CRED 2013.
4. The Uppsala Conflict Data Program considers a conflict active if there are 25 or more battle-related deaths within one calendar year (<http://ucdp.uu.se/#/encyclopedia>). The *Countdown* research team defined a severe conflict as one that recorded more than 5,000 battle-related deaths between 2011 and 2016 (based on data from the Uppsala Conflict Data Program database); that resulted in more than 100,000 refugees, asylum seekers and internally displaced persons originating from a country in 2016; and that proved detrimental to the livelihood of civilians, especially women and children, and their reproductive, maternal, newborn, child and adolescent health needs.
5. Even though these countries are not *Countdown* countries, they will be included in *Countdown* analyses of the impact of conflict on reproductive, maternal, newborn, child and adolescent health and nutrition. This also implies use of other data sources for these countries because national household surveys are unlikely to be available.
6. The Uppsala Conflict Data Program and other databases now disaggregate data by age and sex.
7. Roberts 2010. For instance, estimates of the ratio of civilian to military deaths in Iraq during 2003–06 range from 1.3 to 1.10.
8. UNHCR 2017.
9. Safeguarding Health in Conflict Coalition 2017.
10. Stark and Ager 2011.
11. Spiegel 2017.
12. Lam, McCarthy and Brennan 2015.
13. Ramesh and others 2015.
14. Bahwere 2014.
15. Foster and Brooks-Gunn 2015.
16. Bennett and others 2015; Paxton 2016; Spiegel and others 2007.
17. Sedda, Qi and Tatem 2015.
18. Bellos and others 2010; Kimbrough and others 2012.
19. Hynes and others 2012.
20. Mason and others 2012.
21. Hynes and others 2002; Whitmill and others 2016.
22. Mendelsohn and others 2012.

Chapter 7

1. Buse and Hawkes 2015; Rasanathan and others 2017.
2. Bishai and others 2016; Ahmed and others 2016.
3. Kruk and others 2016a; Loewenson, Nolen and Wamala 2010; McCoy and others 2014; Watts and others 2015.
4. Mberu and others 2016; Rao and Peters 2015; Rashid 2011.
5. Carlson, Kordas and Murray-Kolb 2015; Ewerling and others 2017; James-Hawkins and others 2016; Na and others 2015; Richards and others 2013; Thorpe and others 2016.
6. Victora and others 2016b; Black and others 2016.
7. Bourey and others 2015; Gibbs, Jacobson and Kerr-Wilson 2017; Lagarde, Haines and Palmer 2009.
8. Farag and others 2013; Lin and others 2014; Makuta and O'Hare 2015.

9. Burchett and others 2012; George and others 2015; Shiffman and Smith 2007; Walt and Gilson 1994.
10. Rasanathan and others 2012; Scammell and others 2016.
11. Chatham House 2014.
12. Grollman and others 2017.
13. Martinez-Alvarez and others 2017.
14. The seven services are core to the delivery of basic emergency obstetric and newborn care: administration of parenteral antibiotics, administration of parenteral anticonvulsants, administration of parenteral uterotonics, removal of retained products (manual vacuum aspiration), assisted vaginal delivery, manual removal of the placenta and resuscitation of the newborn.
15. WHO Global Workforce Alliance 2014.
16. The minimum acceptable number of emergency obstetric care facilities is 5 per 500,000 people, including one comprehensive and four basic emergency obstetric facilities.
17. See the *Countdown* website (www.countdown2030.org).
18. O'Connell, Rasanathan and Chopra 2014; Witter and others 2017.
19. Haviland and others 2014; Quick, Jay and Langer 2014.
20. Yates 2010.
21. Shiffman 2014; Smith, Shiffman and Kazembe 2014.
22. Zhao and others 2017.
23. LeFevre and others 2016.
24. George and others 2016.
25. Chilundo and others 2015; Schneider, Okello and Lehmann 2016; Zulu and others 2013.

Chapter 8

1. Johns Hopkins University Lives Saved Tool (www.livessavedtool.org); UNICEF 2016.
2. Hill and others 2007; WHO 2014b.
3. Grove and others 2015; Marchant and others 2016.
4. Maina and others 2017.

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Annex A. Countdown to 2030 governance structure and evaluation framework

FIGURE A1

Countdown to 2030 governance structure

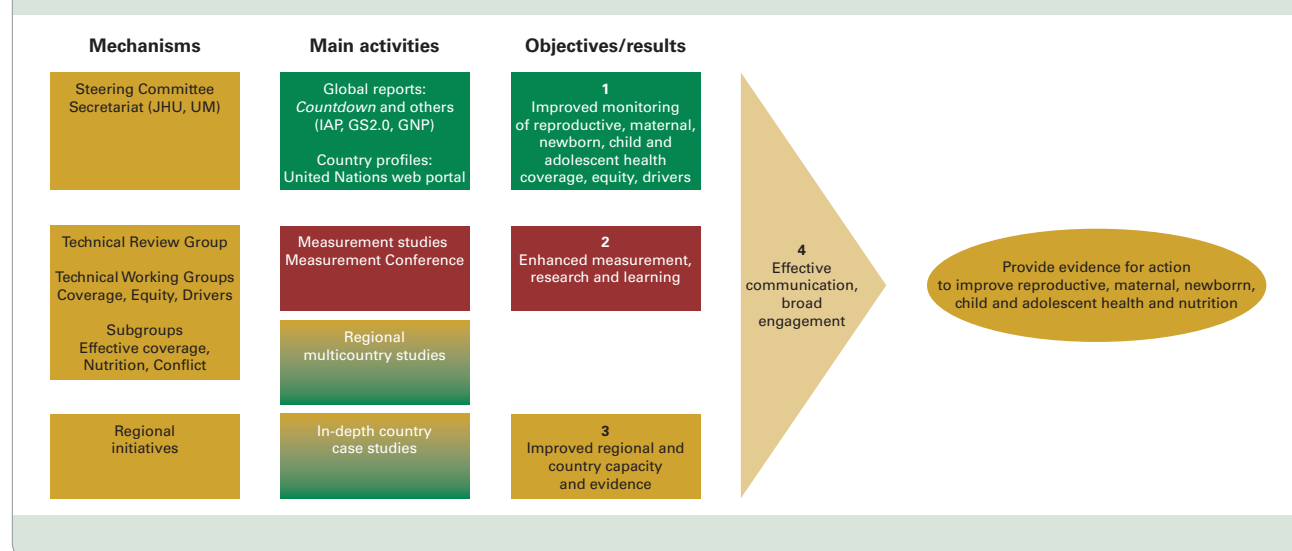
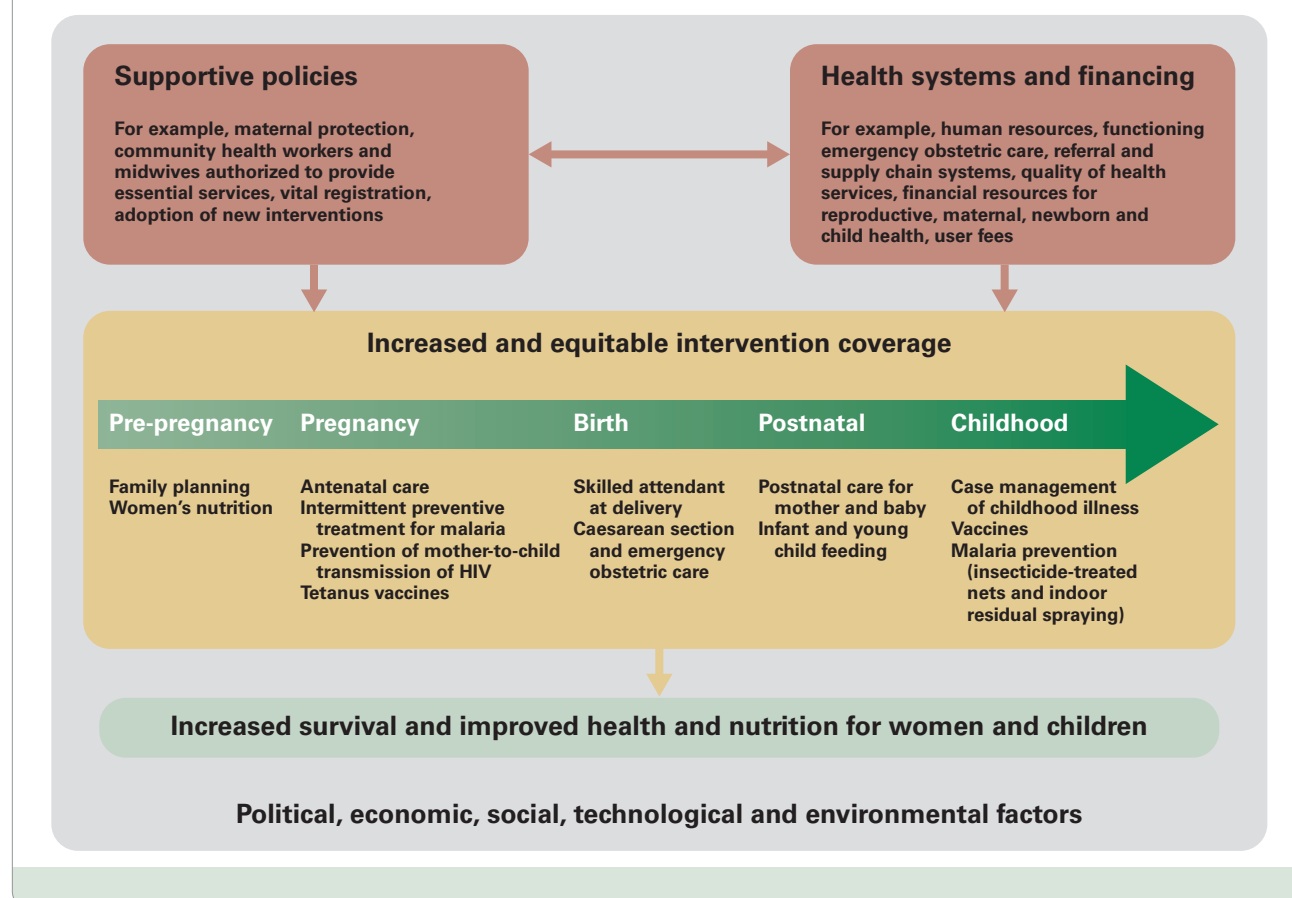


FIGURE A2

Countdown to 2030 evaluation framework guiding all analyses



Annex B. Countdown to 2030 technical review process, 2016–17

Countdown to 2030 builds on *Countdown to 2015*'s 12 years of monitoring experience and aims to provide the best and most recent scientific evidence on country-level progress towards improving women's, children's and adolescents' health.¹ It also aims to improve the use of national data to accelerate attention, accountability and action for scaling up coverage of priority reproductive, maternal, newborn, child, adolescent health and nutrition interventions.

Countdown adds value to global and country accountability efforts by forging a clear, evidence-based consensus on priority interventions for reproductive, maternal, newborn, child, adolescent health and nutrition and on key coverage determinants. This consensus is achieved through a rigorous annual technical review process that enables *Countdown* to re-assess its indicator list in response to changes in the evidence base on effective interventions and changes in country priorities; examine the range of equity analyses (including stratifiers); ensure its monitoring efforts are harmonized with other major global, regional and country accountability initiatives; and review its priority country list based on country progress and global and country targets and goals.

Countdown's technical review process for the 2016–17 reporting year resulted in updates to the list of priority countries, the indicator list and equity analyses.

Priority countries

The initial list of *Countdown to 2015* priority countries, created in 2004, included all countries with at least 50,000 child deaths and all countries with an under-five mortality rate of at least 90 deaths per 100,000 live births. The 60 countries that met those criteria were profiled in the 2005 *Countdown* report (*Tracking Progress in Child Survival: The 2005 Report*) and were home to 500 million children under age 5—more than 75% of the world total at the time—and accounted for 94% of all child deaths.

In 2008 the list of priority countries was expanded to include countries with a maternal mortality ratio of more than 550 deaths per 100,000 live births or at least 750 maternal deaths and a maternal mortality ratio of more than 200 deaths per 100,000

live births. Because many countries with high maternal mortality also had high child mortality, only eight countries were added to the list. These 68 countries were profiled in the 2008 *Countdown* report (*Tracking Progress in Maternal, Newborn and Child Survival: The 2008 Report*) and the 2010 *Countdown* report (*Countdown to 2015 Decade Report [2000-2010]*).

In 2011 *Countdown* agreed to take responsibility for major parts of the follow-up agenda of the Commission for Information and Accountability for Women's and Children's Health, and the seven low-income countries discussed in the first Global Strategy for Women's and Children's Health that were not already included as *Countdown* priority countries were added to the list. These 75 countries were profiled in the 2012 *Countdown* report (*Building a Future for Women and Children: The 2012 Report*), the 2015 *Countdown* report (*A Decade of Tracking Progress for Maternal, Newborn and Child Survival: The 2015 Report*) and other reports and analyses.

The process for selecting the list of priority countries for 2017 was in keeping with the evidence-based process used during *Countdown to 2015*. It involved reviewing the criteria previously used for country selection; assessing country maternal, newborn and child mortality rates and trends (as well as absolute numbers of deaths); and taking into consideration country lists used by other major global initiatives (such as the Sustainable Development Goals, the Global Financing Facility, Family Planning 2020, The Every Woman Every Child Global Strategy for Women's, Children's and Adolescents' Health and the Global Nutrition Report).

Three criteria were used to select the priority countries for *Countdown to 2030*:

- Population greater than 500,000 population in 2015.
- Under-five mortality rate of more than 25 deaths per 1,000 live births or maternal mortality ratio of more than 70 deaths per 100,000 live births. (Although the under-five mortality rate is based on a national target and the maternal mortality ratio is based on a global target, these figures were used because they are recognized as Sustainable Development Goal targets.)
- Inclusion on other agency lists (including low- or middle-income countries, International

1. Countdown's focus on adolescents is currently centered on reproductive and maternal health of adolescent girls.

Development Association countries and Global Financing Facility priority countries).

The application of these criteria resulted in three country groupings (table B1):

- Group 1 countries: 53 countries (51 of which were *Countdown to 2015* countries) with an under-five mortality rate or maternal mortality ratio above the Sustainable Development Goal target and included among the countries that account for 95% of all under-five or maternal deaths.
- Group 2 countries: 28 countries (17 of which were *Countdown to 2015* countries) with an under-five mortality rate or maternal mortality ratio above the Sustainable Development Goal target but not included among the countries that account for 95% of all under-five or maternal deaths.
- Group 3 countries: 9 countries (6 of which were *Countdown to 2015* countries) with an under-five mortality rate or maternal mortality ratio below the Sustainable Development Goal target but included among the countries that account for 95% of all under-five or maternal deaths. These countries are all upper-middle-income or high-income countries.

The final list of *Countdown to 2030* priority countries includes the 81 countries in groups 1 and 2. For each of these countries *Countdown* will regularly produce two-page profiles that include an agreed upon core set of indicators as well as equity-specific profiles and regular reports that summarize data across the Countdown countries. In addition, *Countdown* has identified a subset of core indicators (on mortality, stillbirths, fertility, vaccine indicators and the like) for all of the world's countries, including high-income countries. It has also begun to prepare special profiles for conflict-affected countries and fragile states, including for those that are not *Countdown* priority countries.

Five *Countdown to 2015* priority countries are not *Countdown to 2030* priority countries due to improvements in maternal and child survival: Brazil, China, Egypt, Peru and Viet Nam. São Tomé and Príncipe is no longer a priority country because of its small population. There are 13 new priority countries: Algeria, Bhutan, Dominican Republic, Guyana, Honduras, Jamaica, Namibia, Nicaragua, Panama, Paraguay, Suriname, Timor-Leste and Venezuela.

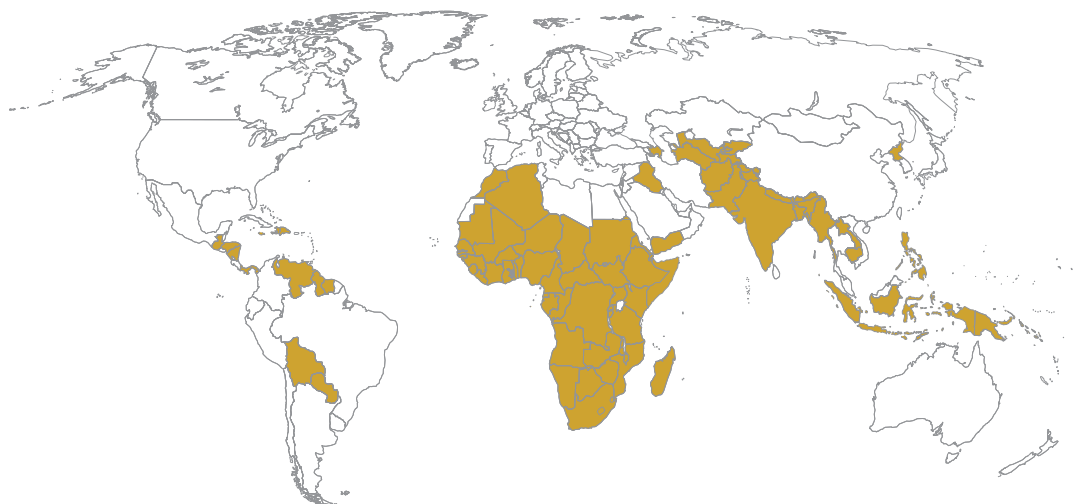
Interventions and indicators

Countdown's selection of priority interventions and indicators is guided by the summary impact

TABLE B1
Countdown country groupings for 2017

Group 1	Group 2	Group 3	Other conflict countries
Afghanistan Algeria Angola Bangladesh Benin Bolivia Burkina Faso Burundi Cambodia Cameroon Central African Republic Chad Congo Congo, Democratic Republic of the Côte d'Ivoire Eritrea Ethiopia Gambia, The Ghana Guinea Haiti India Indonesia Iraq Kenya Liberia	Madagascar Malawi Mali Mauritania Morocco Mozambique Myanmar Nepal Niger Nigeria Pakistan Papua New Guinea Philippines Rwanda Senegal Sierra Leone Somalia South Africa South Sudan Sudan Tanzania, United Republic of Togo Uganda Venezuela, RB Yemen Zambia Zimbabwe	Azerbaijan Bhutan Botswana Comoros Djibouti Dominican Republic Equatorial Guinea Gabon Guatemala Guinea-Bissau Guyana Honduras Jamaica Korea, Democratic People's Republic of Kyrgyzstan Lao PDR Lesotho Namibia Nicaragua Panama Paraguay Solomon Islands Suriname Swaziland Tajikistan Timor-Leste Turkmenistan Uzbekistan	Bosnia and Herzegovina Kiribati Kosovo Libya Marshall Islands Micronesia, Federated States of Syria Tuvalu West Bank and Gaza

Note: Bolding indicates countries that are in conflict.

Map of *Countdown* countries

model presented in annex A. *Countdown's* main focus is coverage—the proportion of individuals needing a service or intervention who actually receive it. All the interventions that *Countdown* tracks are scientifically proven to improve health and survival among mothers, newborns, children or adolescents. Coverage of service contact indicators such as antenatal and postnatal care, childbirth and family planning services also need to be tracked because they provide the basic platform for delivery of multiple effective interventions. Ideally, *Countdown* will be able to track more of the actual content of care received during these service contacts as data become more available and as measurement improves. *Countdown*, through its coverage technical working group, is focusing on improving measures of effective coverage, which take into consideration the quality and content of care. The indicators selected for *Countdown's* global monitoring activities (that is, country profiles and global reports) are valid, reliable, comparable across countries and time, nationally representative and useful for policymakers and programme managers.

The technical review process for 2017 provided an opportunity for *Countdown* to review and update the indicator list so that it reflects the latest evidence on effective interventions for reproductive, maternal, newborn, child, adolescent health and nutrition. The process took advantage of the recent extensive indicator consultations for developing the Sustainable Development Goal framework; the Monitoring Framework for the Every Woman Every

Child Global Strategy for Women's, Children's, and Adolescent Health (2016–2030); and other initiatives and efforts (such as the Every Newborn Action Plan, Ending Preventable Maternal Mortality, the Global Nutrition Report, the Lancet Commission on Adolescent Health, Family Planning 2020, the World Health Organization list of 100 core indicators and Primary Health Care Performance Initiative).

The technical review process for 2017 took place in two phases. The first involved selecting the demographic and coverage indicators and revising the list of stratifiers used for the equity analyses. The second involved selecting the indicators for determinants and drivers of coverage (the health systems, policies and financing indicators), which depended on the coverage and demographic indicators since the two sets of indicators should be linked on the same causal pathway.

Both phases involved the following general steps:

- Mapping indicators (creating separate files for demographic, coverage, and determinants and drivers indicators that show indicator lists by major global initiatives and how they overlap).
- Creating a matrix with details for each indicator such as numerator, denominator and data sources.
- Ranking and organizing the indicators into three tiers. In general, tier 1 indicators are included on the two-page country profiles, tier 2 indicators

are complementary or additional to tier 1 indicators and are reported on the *Countdown* website in the interactive dashboard version of the country profiles, and tier 3 indicators capture information about proven interventions but lack readily available data or are still under development or aspirational.

- Consulting with technical working group members and additional content area experts (such as experts working on water, sanitation and hygiene; nutrition; HIV; and malaria) on the matrix and tiered ranking of the indicators.
- Soliciting feedback from the broader group of *Countdown* partners. All organizations involved in the 2015 report were invited to provide comments on the indicator lists and to submit proposals for changes to existing indicators or to add indicators.
- Finalizing the list through consensus in the working groups and in the Technical Review Group.

The full list of indicators in tiers 1, 2 and 3 are available on the *Countdown* website.

Equity analyses

Decisions on the scope of the equity technical working group included:

- Stratification of indicators by:
 - Wealth quintiles.
 - Woman's education.
 - Woman's age (current, at child's birth).
 - Urban–rural residence.
 - Region of the country.
 - Sex of child (relevant outcomes).
- New stratifiers being examined and used for specific analyses:
 - Ethnicity.
 - Religion.
 - Double stratification—wealth quintiles x urban–rural residence.
 - Wealth deciles.

The equity technical working group disaggregates the following indicators using the stratifiers listed above:

- Coverage indicators.
- Nutritional status.
- Mortality (neonatal, infant and under-five).
- Fertility (total and adolescent).

The equity technical working group is expanding its analyses to include:

- The new Sustainable Development Goal indicators related to reproductive, maternal, newborn, child and adolescent health and nutrition.
- Contraceptive use and family planning coverage with modern methods for sexually active women.

Data sources and analysis

Households surveys, notably Demographic and Health Surveys and Multiple Indicator Cluster Surveys, are the primary source of data for the coverage indicators. The estimates for the coverage indicators are based on analyses of statistics from the United Nations Children's Fund's global databases and the World Health Organization's Global Health Observatory by the Johns Hopkins Bloomberg School of Public Health's Institute for International Programs. The estimates for the disaggregated coverage indicators are based on analyses by the University of Pelotas International Centre for Equity in Health.

Countdown uses mortality and cause of death estimates from UN interagency groups and academic collaborations for its analyses. It relies on World Health Organization global databases on policies, health workforce and financing indicators for many of the analyses related to drivers. Data on availability of emergency obstetric care are from the United Nations Population Fund and the Averting Maternal Death and Disability programme, and data on the legal status of abortion are from the UN Population Division database for 2015. Analyses of official development assistance were conducted by the London School of Hygiene and Tropical Medicine based on data from the Organisation for Economic Co-operation and Development Creditor Reporting System database.

Annex C. Country profile indicators and data sources

TABLE C1

Country profile indicators and data sources

Indicator	Data source	Global database
Demographics and contextual factors		
<i>Demographics</i>		
Total population	United Nations Population Division	United Nations Population Division
Total under-5 population	United Nations Population Division	United Nations Population Division
Total adolescent (10–19) population	United Nations Population Division	United Nations Population Division
Completion rate (upper secondary education, female)	United Nations Children's Fund Global databases based on Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national household surveys	
	United Nations Children's Fund Global databases based on Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national household surveys	
Births	United Nations Population Division	United Nations Population Division
Total fertility rate	United Nations Population Division	United Nations Population Division
Adolescent (15–19) 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 and MDG Global database
Birth registration	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national household surveys, censuses and vital registration systems	United Nations Children's Fund
<i>Mortality</i>		
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	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	World Health Organization	World Health Organization
Stillbirth rate	Blencowe, H., S. Cousens S, F. B. Jassir, and others. 2016. "National, Regional, and Worldwide Estimates of Stillbirth Rates in 2015, with Trends from 2000: A Systematic Analysis." <i>Lancet Global Health</i> 4(2): e98–108.	Blencowe, H., S. Cousens S, F. B. Jassir, and others. 2016. "National, Regional, and Worldwide Estimates of Stillbirth Rates in 2015, with Trends from 2000: A Systematic Analysis." <i>Lancet Global Health</i> 4(2): e98–108.
Neonatal deaths, as % of all under-5 deaths	UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank Group)	UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank Group)
Total under-5 deaths	UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank Group)	UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank Group)
Adolescent (10–19) mortality rate, by sex	World Health Organization, Global Mortality Database	World Health Organization, Global Mortality Database
Neonatal mortality rate	UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)	UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank)
Under-5 mortality rate	UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank Group)	UN Inter-agency Group for Child Mortality Estimation (United Nations Children's Fund, World Health Organization, United Nations Population Division, World Bank Group)
Causes of neonatal deaths	World Health Organization, Maternal and Child Epidemiology Estimation	World Health Organization, Maternal and Child Epidemiology Estimation
Causes of under-5 deaths	World Health Organization, Maternal and Child Epidemiology Estimation	World Health Organization, Maternal and Child Epidemiology Estimation

TABLE C1 (CONTINUED)

Country profile indicators and data sources

Indicator	Data source	Global database
Continuum of care		
Demand for family planning satisfied with modern methods	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Survey and other national surveys	SDG Global Database
Antenatal care (four or more visits)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Survey and other national surveys	United Nations Children's Fund
Pregnant women living with HIV receiving antiretroviral therapy	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 Joint United Nations Programme on HIV/AIDS Spectrum estimates	Joint United Nations Programme on HIV/AIDS
Neonatal tetanus protection	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage	United Nations Children's Fund and World Health Organization
Skilled birth attendant	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Surveys and other national sources	United Nations Children's Fund and World Health Organization
Postnatal care for mothers	Multiple Indicator Cluster Surveys and Demographic and Health Surveys	United Nations Children's Fund
Postnatal care for babies	Multiple Indicator Cluster Surveys and Demographic and Health Surveys	United Nations Children's Fund
Early initiation of breastfeeding	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	United Nations Children's Fund
Exclusive breastfeeding	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	United Nations Children's Fund
Continued breastfeeding (one year)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys	United Nations Children's Fund
Immunized with three doses of diphtheria–tetanus–pertussis	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage
Immunized against measles (first dose vaccine coverage)	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage
Immunized against rotavirus	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage
Vitamin A supplementation, full coverage	United Nations Children's Fund from administrative sources	United Nations Children's Fund
Careseeking for symptoms of pneumonia	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	United Nations Children's Fund
Diarrhoea treatment: oral rehydration salts	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	United Nations Children's Fund
Population using basic drinking water services	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene
Population using basic sanitation services	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene
Population with basic handwashing facilities at home	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene
Maternal and newborn health		
<i>Pregnancy and delivery care</i>		
Antenatal care (four or more visits), women aged 15–49	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Survey and other national surveys	United Nations Children's Fund
Skilled birth attendant, women aged 15–49	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Surveys and other national sources	United Nations Children's Fund and World Health Organization

TABLE C1 (CONTINUED)

Country profile indicators and data sources

Indicator	Data source	Global database
Adolescent health		
Demand for family planning satisfied, modern methods (ages 15–17, 18–19)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Surveys and other national surveys	SDG Global Database
Antenatal care (four or more visits) (ages 15–7, 18–19)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Survey and other national surveys	Special data analysis by Federal University of Pelotas, Brazil
Skilled birth attendant (ages 15–17, 18–19)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Surveys and other national surveys	Special data analysis by Federal University of Pelotas, Brazil
Additional maternal/neonatal health interventions		
Pregnant women living with HIV receiving antiretroviral therapy	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 Joint United Nations Programme on HIV/AIDS Spectrum estimates	Joint United Nations Programme on HIV/AIDS
Intermittent preventive treatment for malaria during pregnancy, three or more	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Malaria Indicator Surveys and other national surveys	United Nations Children's Fund
Neonatal tetanus protection	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage
Institutional delivery (public, private, total)	Multiple Indicator Cluster Surveys and Demographic and Health Surveys	United Nations Children's Fund
Cesarean section rate (urban, rural, total)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Survey and other national surveys	United Nations Children's Fund
Essential nutrition indicators		
Anemia in women aged 15–49	World Health Organization	World Health Organization
Women of reproductive age, short stature	Demographic and Health Surveys	
Women (20+) with low body mass index (<18.5)	NCD Risk Factor Collaboration	NCD Risk Factor Collaboration
Women (20+) with body mass index 25–30 (overweight)	NCD Risk Factor Collaboration	NCD Risk Factor Collaboration
Women (20+) with body mass index >30 (obese)	NCD Risk Factor Collaboration	NCD Risk Factor Collaboration
Iron/folic acid supplementation during pregnancy	Demographic and Health Surveys	
Low birth weight prevalence	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys and routine reporting	United Nations Children's Fund
Vitamin A supplementation, full coverage	United Nations Children's Fund from administrative sources	United Nations Children's Fund
Minimum dietary diversity among 6–23 month olds	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	United Nations Children's Fund
Child nutrition status		
Children under-5 who are stunted	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys and surveillance systems	United Nations Children's Fund, World Health Organization and World Bank Group joint child malnutrition estimates country dataset
Children under-5 who are wasted	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys and surveillance systems	United Nations Children's Fund, World Health Organization and World Bank Group joint child malnutrition estimates country dataset
Children under-5 who are overweight	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, other national surveys and surveillance systems	United Nations Children's Fund, World Health Organization and World Bank Group joint child malnutrition estimates country dataset

TABLE C1 (CONTINUED)

Country profile indicators and data sources

Indicator	Data source	Global database
Breastfeeding practices		
Early initiation of breastfeeding	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	United Nations Children's Fund
Exclusive breastfeeding	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	United Nations Children's Fund
Continued breastfeeding (one year)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	United Nations Children's Fund
Child health		
Immunization		
Immunized with three doses Haemophilus influenzae type b	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage
Immunized with three doses diphtheria–tetanus–pertussis	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage
Immunized with three doses pneumococcal conjugate vaccine	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage
Immunized against rotavirus	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage
Immunized against measles	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage	World Health Organization/United Nations Children's Fund Estimates of National Immunization Coverage
Pneumonia treatment		
Children <5 years with symptoms of pneumonia taken to appropriate health provider	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	United Nations Children's Fund
Diarrhoeal disease treatment		
Children <5 years with diarrhoea treated with oral rehydration salts	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	United Nations Children's Fund
Children <5 years with diarrhoea treated with oral rehydration salts and zinc	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	United Nations Children's Fund
Malaria prevention and treatment		
Malaria diagnostics in children <5 years	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Malaria Indicator Surveys and other national surveys	United Nations Children's Fund
Population sleeping under insecticide-treated nets or sleeping in a house sprayed by indoor residual spraying	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Malaria Indicator Surveys and other national surveys	United Nations Children's Fund
Malaria prevention in children under-5—sleeping under insecticide-treated nets	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Malaria Indicator Surveys and other national surveys	United Nations Children's Fund
Environmental		
Population using basic drinking-water services	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene
Population using basic sanitation services	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene
Population with hand washing facilities with soap and water at home	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene	World Health Organization/United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene
Equity		
Demand for family planning satisfied with modern methods	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Surveys and other national surveys	Special data analysis by Federal University of Pelotas, Brazil
Neonatal tetanus protection	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	Special data analysis by Federal University of Pelotas, Brazil

TABLE C1 (CONTINUED)

Country profile indicators and data sources

Indicator	Data source	Global database
Antenatal care (four or more visits)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	Special data analysis by Federal University of Pelotas, Brazil
Skilled birth attendant	Multiple Indicator Cluster Surveys, Demographic and Health Surveys, Reproductive Health Surveys and other national surveys	Special data analysis by Federal University of Pelotas, Brazil
Postnatal care for mothers	Multiple Indicator Cluster Surveys and Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
Postnatal care for babies	Multiple Indicator Cluster Surveys and Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
Early initiation of breastfeeding	Multiple Indicator Cluster Surveys and Demographic and Health Surveys, other national surveys	Special data analysis by Federal University of Pelotas, Brazil
Exclusive breastfeeding	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	Special data analysis by Federal University of Pelotas, Brazil
Continued breastfeeding (one year)	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	Special data analysis by Federal University of Pelotas, Brazil
Immunized against rotavirus	Multiple Indicator Cluster Surveys and Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
Immunized with three doses diphtheria–tetanus–pertussis	Multiple Indicator Cluster Surveys and Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
Immunized against measles	Multiple Indicator Cluster Surveys and Demographic and Health Surveys	Special data analysis by Federal University of Pelotas, Brazil
Careseeking for symptoms of pneumonia	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	Special data analysis by Federal University of Pelotas, Brazil
Oral rehydration salts treatment of diarrhoea	Multiple Indicator Cluster Surveys, Demographic and Health Surveys and other national surveys	Special data analysis by Federal University of Pelotas, Brazil
Policies, systems and financing		
<i>Legislative policies</i>		
Family planning for adolescents without spousal or parental consent	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey 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
Maternity protection (Convention 183)	International Labour Organization	International Labour Organization
International code of marketing of breastmilk substitutes	World Health Organization, United Nations Children's Fund and International Baby Food Action Network	World Health Organization, United Nations Children's Fund and International Baby Food Action Network Marketing of Breast-milk Substitutes: National Implementation of the International Code: Status Report 2016
Legislation on food fortification—wheat, rice and maize	Food Fortification Initiative and Global Alliance for Improved Nutrition	Global Fortification Data Exchange
<i>Governance</i>		
Costed national implementation plans for maternal, newborn and child health available	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey by the World Health Organization Department of Maternal Child Adolescent Health
Maternal death review	World Health Organization and United Nations Population Fund	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey by the World Health Organization Department of Maternal Child Adolescent Health and Time to Respond: A Report on the Global Implementation of Maternal Death Surveillance and Response
Civil society involvement in review of national maternal, newborn and child health programmes	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey by the World Health Organization Department of Maternal Child Adolescent Health

TABLE C1 (CONTINUED)

Country profile indicators and data sources

Indicator	Data source	Global database
Financing		
Total expenditure on health, per capita	World Health Organization	Global Health Expenditure Database
Government expenditure on health, per capita	World Health Organization	Global Health Expenditure Database
Out of pocket expenditure as % of total expenditure on health	World Health Organization	Global Health Expenditure Database
General government expenditure on health as % of total government expenditure	World Health Organization	Global Health Expenditure Database
Official development assistance to reproductive, maternal, newborn and child health, total and per capita	Organisation for Economic Co-operation and Development's Development Assistance Committee	London School of Health and Tropical Medicine
Service delivery		
Lifesaving commodities in essential medicine list—reproductive health	US Agency for International Development Deliver Project and World Health Organization	US Agency for International Development Deliver Project (emergency contraceptives and implants) and World Health Organization essential medicines list database (female condoms)
Lifesaving commodities in essential medicine list—maternal health	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey by the World Health Organization Department of Maternal Child Adolescent Health
Lifesaving commodities in essential medicine list—newborn health	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey by the World Health Organization Department of Maternal Child Adolescent Health; & the Chlorhexidine Working Group
Lifesaving commodities in essential medicine list—child health	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey by the World Health Organization Department of Maternal Child Adolescent Health
National availability of functional emergency obstetric care	Health facility surveys, routine facility monitoring, census or other population data source, and United Nations Population Fund	Averting Maternal Death and Disability, United Nations Children's Fund, United Nations Population Fund, World Health Organization special data compilation
Density of skilled health professionals	World Health Organization	World Health Statistics 2017
Midwives authorized for specific tasks	World Health Organization	Global Maternal Newborn Child and Adolescent Health Policy Indicator Survey by the World Health Organization Department of Maternal Child and Adolescent Health

Annex D. Definitions of *Countdown* coverage indicators

TABLE D1

Definitions of *Countdown* coverage indicators

Intervention	Indicator definition	Numerator	Denominator
Reproductive health			
Demand for family planning satisfied with modern methods	Percentage of women of reproductive age (15–49 years) who have their need for family planning satisfied with modern methods	Number of women of reproductive age (15–49 years) who have their need for family planning satisfied with modern methods	Total number of women of reproductive age (15–49 years) in need of family planning
Maternal and newborn health			
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
Intermittent preventive treatment for malaria during pregnancy	Percentage of women who received intermittent preventive treatment for malaria during their last pregnancy	Number of women age 15–49 years at risk for malaria who received three or more doses of 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 age 15–49 years with a live birth in the X years preceding the survey
Treatment of pregnant women living with HIV	Percentage of pregnant women living 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
Iron/folic acid supplementation during pregnancy	The percentage of pregnant women who received iron-folic acid supplementation for 90 or more days	Number of pregnant women who received the recommended number of iron/folic acid tablets during last pregnancy	Total number of pregnant women with a birth in last two years
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
Skilled birth attendant	Percentage of live births attended by skilled health personnel	Number of live births to women ages 15–49 years in the X years prior to the survey who were attended during delivery by skilled health personnel	Total number of live births to women ages 15–49 years in the X years preceding the survey
Institutional deliveries	Percentage of women (ages 15–49) who gave birth in a health facility	Number of interviewed women who had one or more live births in a public or private health facility in the five years preceding the survey	Total number of interviewed women who had one or more live births in the five years preceding the survey
Caesarean section rate	Percentage of births delivered by Caesarean section	Number of live births to women ages 15–49 years in the X years preceding the survey delivered by caesarean section	Total number of live births to women age 15–49 years in the X years preceding the survey
Postnatal care for mothers	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 who received a health check while in facility or at home following delivery, or a postnatal care visit within 2 days after delivery	Total number of last live birth the X years prior to the survey (regardless of place of delivery)
Adolescent health			
Demand for family planning satisfied with modern methods among adolescent women	Percentage of adolescent women (15–17 and 18–19) years who are sexually active and who have their need for family planning satisfied with modern methods	Number of adolescent women (15–17 and 18–19 years) who have their need for family planning satisfied with modern methods	Total number of adolescent women (15–17 and 18–19 years)
Antenatal care (four or more visits) among adolescents	Percentage adolescent women (15–17 and 18–19 years) with a live birth in a given time period that received antenatal care four or more times	Number of adolescent women (15–17 and 18–19 years) who attended at least four times during pregnancy by any provider (skilled or unskilled) for reasons related to the pregnancy	Total number adolescent women (15–17 and 18–19 years) who had a live birth occurring in the same period

TABLE D1 (CONTINUED)

Definitions of *Countdown* coverage indicators

Intervention	Indicator definition	Numerator	Denominator
Skilled birth attendant among adolescents	The proportion of live births to an adolescent women (15–17 and 18–19 years) in a given time period, attended by skilled health personnel	Number of adolescent women (15–17 and 18–19 years) who reported having been attended by skilled health personnel at the time of delivery	Total number of adolescent women respondents (15–17 and 18–19 years) who reported a live birth in a given time period
Child health			
Immunized against measles (first dose)	Percentage of surviving infants who received the first dose of measles containing vaccine	Number of surviving infants who received the first dose of measles containing vaccine by their first birthday (or as recommended in the national immunization schedule)	Total number of surviving infants
Immunized with three doses of diphtheria–tetanus–pertussis	Percentage of infants who received three doses of diphtheria–tetanus–pertussis vaccine	Number of surviving infants who received three doses of diphtheria with tetanus toxoid and pertussis containing vaccine	Total number of surviving infants
Immunized with three doses of Haemophilus influenzae type B vaccine	Percentage of infants who received three doses of Haemophilus influenzae type B vaccine	Number of surviving infants who received three doses of Haemophilus influenzae type B vaccine	Total number of surviving infants
Immunized against rotavirus	Percentage of infants who received two or three doses of rotavirus vaccine (according to manufacturer's schedule)	Number of surviving infants who received the last dose of rotavirus vaccine (second or third dose depending on vaccine used)	Total number of surviving infants
Immunized with three doses of pneumococcal conjugate vaccine	Percentage of infants who received three doses of pneumococcal conjugate vaccine	Number of surviving infants who received the third dose of pneumococcal conjugate vaccine	Total number of surviving infants
Careseeking for symptoms of pneumonia	Percentage of children ages 0–59 months with suspected pneumonia taken to a health care 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 a health care 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
Oral rehydration salts and zinc treatment of diarrhoea	Percentage of children ages 0–59 months with diarrhoea receiving treatment with low-osmolality oral rehydration salts and zinc supplement	Number of children ages 0–59 months with diarrhoea in the two weeks prior to the survey receiving low osmolality oral rehydration salts and zinc	Total number of children ages 0–59 months with diarrhoea in the two weeks prior to the survey
Oral rehydration salts treatment of diarrhoea	Percentage of children ages 0–59 months with diarrhoea receiving oral rehydration salts (oral rehydration solution packets or pre-packaged oral rehydration solution fluids)	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
Malaria diagnostics in children under-5	Proportion of children ages 0–59 months with fever in the last two weeks who had a finger or heel stick	Number of children ages 0–59 months who had a fever in the previous two weeks who had a finger or heel stick	Total number of children ages 0–59 months who had a fever in the previous two weeks
Population sleeping under insecticide-treated nets or sleeping in a house sprayed by indoor residual spraying	Percentage of population sleeping under an insecticide-treated net the previous night or sleeping in a house sprayed by indoor residual spraying in the past 12 months	The number of people sleeping under an insecticide-treated net the previous night or living in a household sprayed by indoor residual spraying within the last 12 months	Population
Malaria prevention in children under-5 sleeping under insecticide-treated nets	Percentage of children ages 0–59 months who slept under an insecticide-treated mosquito net the night prior to the survey	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	Percentage of children aged 0–5 months who are fed exclusively with breast milk in the 24 hours prior to the survey	Number of infants ages 0–5 months who are exclusively breastfed during the previous day	Total number of infants ages 0–5 months surveyed
Continued breastfeeding (year one)	Proportion of children 12–15 months of age who are fed breast milk	Number of children 12–15 months old who received breast milk during the previous day	Total number of children 12–15 months old

TABLE D1 (CONTINUED)

Definitions of *Countdown* coverage indicators

Intervention	Indicator definition	Numerator	Denominator
Minimum dietary diversity	Proportion of children ages 6–23 months who receive foods from four or more of a total of seven standardized food groups	Number of children ages 6–23 months who received foods from four or more of a total of seven standardized food groups during the previous day	Total number of children ages 6–23 months
Vitamin A supplementation, full coverage	Percentage of children age 6–59 months reached with two doses of vitamin A supplements approximately four to six months apart in a calendar year	Number of 6- to 59-month-olds reached with one high-dose vitamin A supplement in semester 1 (January–June) or semester 2 (July–December), whichever is lower	Total number of children ages 6–59 months old in the given semester
Environmental: water, sanitation and hygiene			
Population using basic drinking-water services	Population using drinking-water from an improved source provided collection time is not more than 30 minutes for a roundtrip including queuing; compliant with faecal and priority chemical standards	Population using drinking water from an improved source (piped water into dwelling, yard or plot; public taps or standpipes; boreholes or tubewells; protected dug wells; protected springs and rainwater) provided collection time is not more than 30 minutes for a roundtrip, including queuing; compliant with faecal and priority chemical standards	Total number of household members in households surveyed
Population using basic sanitation services	Population using a basic sanitation facility that is not shared with other households	Population using a basic sanitation facility (flush or pour-flush toilets to sewer systems, septic tanks or pit latrines, ventilated improved pit latrines, pit latrines with a slab, and composting toilets) that is not shared with other households	Total population (or households)
Population with hand washing facilities with soap and water at home	Proportion of population with a hand washing facility with soap and water in the household	Number of people with a hand washing facility with soap and water in the household	Number of people in survey sample
<i>Note:</i> 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.			

Annex E. Definitions of drivers indicators (policies, systems and financing)

TABLE E1

Definitions of drivers indicators (policies, systems and financing)

Indicator	Definition	Criteria for ranking
Legislative policies		
Family planning for adolescents without spousal or parental consent	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
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.
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.
Legislation on food fortification (wheat, rice, maize)	National status of legislation on food fortification of wheat, rice or maize	Mandatory = the country has legal documentation that has the effect of mandating fortification of the food vehicle in question with one or more priority micronutrients. Voluntary = The country has legal documentation indicating standardized fortification levels of the food vehicle in question (that is, fortification standard = yes) but does not have legal documentation that has the effect of mandating fortification (that is, mandatory fortification = no)
Governance		
Costed national implementation plan(s) 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.

TABLE E1 (CONTINUED)

Definitions of drivers indicators (policies, systems and financing)

Indicator	Definition	Criteria for ranking
Maternal death review	National policies or protocols to track maternal deaths according to seven possible components	Maternal death surveillance and response survey results tracking the following seven components: • A national policy to notify all maternal deaths. • A national policy to review all maternal deaths. • A national maternal death review committee. • A subnational maternal death review committee. • Both national and subnational maternal death review committees in large countries. • At least biannual meetings of the national maternal death review committee. • An annual national Maternal Death Surveillance and Response report to disseminate findings and recommendations. A checkmark = yes, and an X = no
Civil society involvement in review of national maternal newborn and child health programmes	• Is there a national policy or strategy to ensure engagement of civil society organization representatives in national level planning of maternal, newborn, child and adolescent health programmes? • Is there a national policy or strategy to ensure engagement of civil society organization representatives in periodic review of national programmes for maternal, newborn, child and adolescent health	Yes = civil society is involved in review of all maternal, newborn, and child health programmes Partial = civil society is involved in review of some components of maternal, newborn and child health programmes No = civil society is not engaged in the review of maternal, newborn and child health programmes
Financing		
Total expenditure on health, per capita	The sum of public and private health expenditures as a ratio of total population (current US \$)	Numerical
General government expenditure on health, per capita	Health expenditures incurred by central, state/ regional and local government authorities, excluding social security schemes. Included are nonmarket, nonprofit institutions that are controlled and mainly financed by government units	Numerical
Out-of-pocket expenditure as % of total expenditure on health	Level of out-of-pocket expenditure expressed as a percentage of total expenditure on health	Numerical
General government expenditure on health as % of total government expenditure	Level of general government expenditure on health expressed as a percentage of total expenditure on health	Numerical
Official development assistance to reproductive, maternal, newborn and child health (total and per capita)	Official development assistance to reproductive, maternal, newborn and child health using the Muskoka method	Numerical
Service delivery		
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
National availability of functional emergency obstetric care facilities (% of recommended minimum)	The recommended minimum emergency obstetric care facilities is defined as at least five emergency obstetric care facilities per 500,000 people, including one comprehensive and four basic emergency obstetric care facilities	Expressed as a percentage Numerator: Number of obstetric care facilities that provided emergency obstetric care signal functions in the last three months Denominator: Per 500,000 population This value is then compared to the recommended minimum to derive the percentage value
Density of skilled health professionals	Proportion of physicians, nurses and midwives who are available per 10,000 population	Expressed as a percentage Numerator: number of health workers (physicians, nurses and midwives) Denominator: 10,000 population

TABLE E1 (CONTINUED)

Definitions of drivers indicators (policies, systems and financing)

Indicator	Definition	Criteria for ranking
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: • Parenteral antibiotics. • Parenteral oxytocin. • Parental anticonvulsants. • Manual removal of placenta. • Removal of retained products of conception. • Assisted vaginal delivery. • Newborn resuscitation.

Annex F. Maternal and under-five mortality rates in *Countdown* countries

TABLE F1

Maternal mortality ratio, 2015, and under-five mortality rate, 2016, *Countdown* countries

Country	Maternal mortality ratio, 2015 (deaths per 100,000 live births)	Under-five mortality rate, 2016 (deaths per 1,000 live births)	Country	Maternal mortality ratio, 2015 (deaths per 100,000 live births)	Under-five mortality rate, 2016 (deaths per 1,000 live births)
Afghanistan	396	70.4	Lesotho	487	93.5
Algeria	140	25.2	Liberia	725	67.4
Angola	477	82.5	Madagascar	353	46.4
Azerbaijan	25	30.9	Malawi	634	55.1
Bangladesh	176	34.2	Mali	587	110.6
Benin	405	97.6	Mauritania	602	81.4
Bhutan	148	32.4	Morocco	121	27.1
Bolivia	206	36.9	Mozambique	489	71.3
Botswana	129	40.6	Myanmar	178	50.8
Burkina Faso	371	84.6	Namibia	265	45.2
Burundi	712	71.7	Nepal	258	34.5
Cambodia	161	30.6	Nicaragua	150	19.7
Cameroon	596	79.7	Niger	553	91.3
Central African Republic	882	123.6	Nigeria	814	104.3
Chad	856	127.3	Pakistan	178	78.8
Comoros	335	73.3	Panama	94	16.4
Congo	442	54.1	Papua New Guinea	215	54.3
Congo, Democratic Republic of the	693	94.3	Paraguay	132	19.9
Côte d'Ivoire	645	91.8	Philippines	114	27.1
Djibouti	229	64.2	Rwanda	290	38.5
Dominican Republic	92	30.7	Senegal	315	47.1
Equatorial Guinea	342	90.9	Sierra Leone	1360	113.5
Eritrea	501	44.5	Solomon Islands	114	25.8
Ethiopia	353	58.4	Somalia	732	132.5
Gabon	291	47.4	South Africa	138	43.3
Gambia, The	706	65.3	South Sudan	789	90.7
Ghana	319	58.8	Sudan	311	65.1
Guatemala	88	28.5	Suriname	155	20.0
Guinea	679	89.0	Swaziland	389	70.4
Guinea-Bissau	549	88.1	Tajikistan	32	43.1
Guyana	229	32.4	Tanzania, United Republic of	398	56.7
Haiti	359	67.0	Timor-Leste	215	49.7
Honduras	129	18.7	Togo	368	75.7
India	174	43.0	Turkmenistan	42	51.0
Indonesia	126	26.4	Uganda	343	53.0
Iraq	50	31.2	Uzbekistan	36	24.1
Jamaica	89	15.3	Venezuela	95	16.3
Kenya	510	49.2	Yemen	385	55.3
Korea, Democratic People's Republic of	82	20.0	Zambia	224	63.4
Kyrgyzstan	76	21.1	Zimbabwe	443	56.4
Lao People's Democratic Republic	197	63.9			

Source: WHO, UNICEF, UNFPA, World Bank Group and United Nations Population Division 2015; UN Inter-agency Group for Child Mortality Estimation 2017.

Annex G. List of *Countdown* countries considered malaria endemic and included in the analyses of the malaria indicators that *Countdown* tracks, and results of the malaria indicator analyses

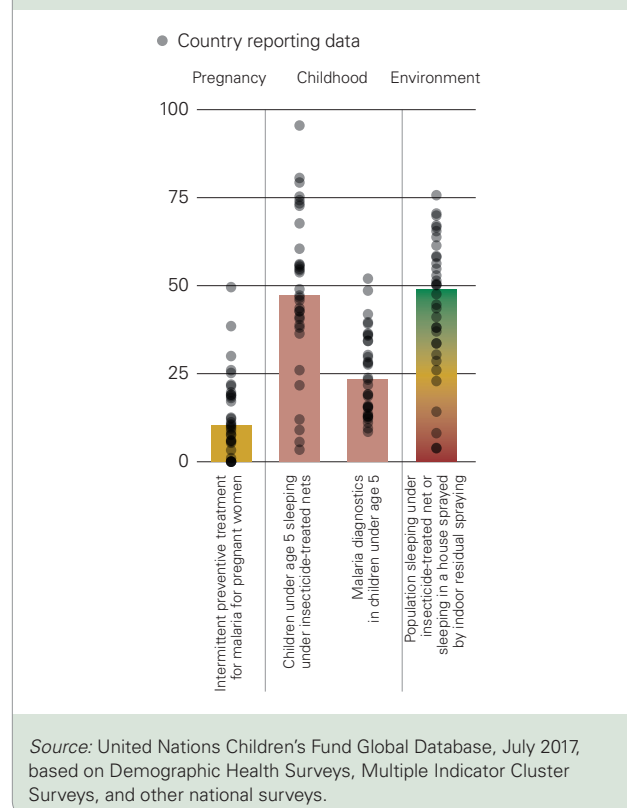
TABLE G1

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 <i>Plasmodium falciparum</i> (N = 43)	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 <i>Plasmodium falciparum</i> (N = 6)
Angola Benin Burkina Faso Burundi Cameroon Central African Republic Chad Comoros Congo Congo, Democratic Republic of the Côte d'Ivoire Equatorial Guinea Eritrea Gabon Gambia, The Ghana Guinea Guinea-Bissau Haiti India Kenya	Liberia Madagascar Malawi Mali Mauritania Mozambique Namibia Niger Nigeria Rwanda Senegal Sierra Leone Somalia South Sudan Sudan Tanzania, United Republic of Timor-Leste Togo Uganda Yemen Zambia
	Bhutan Botswana Djibouti Ethiopia Myanmar Philippines

FIGURE G1

Analysis of the malaria indicators in endemic *Countdown* countries with available data since 2012



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

Mortality

Countdown to 2030 relies on UN interagency estimates on child and maternal mortality that are produced for official Sustainable 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-five mortality rate and number of under-five 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 1990–2015 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 under-reporting. 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 2015. Covariates used in the models include gross domestic product per capita, general fertility rate and skilled birth attendance. For more information, see WHO, UNICEF, UNFPA, World Bank Group and United Nations Population Division (2015).

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 2017 as well as methods, data sources and brief description of trends, see www.data.unicef.org and www.who.int/immunization/monitoring_surveillance/data/en/.

Water and sanitation

The drinking-water and sanitation coverage estimates in this report are produced by the World Health Organization–United Nations Children's Fund Joint Monitoring Programme for Water Supply, Sanitation and Hygiene. 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.washdata.org.

