

Coverage along the continuum of care



This section presents levels and trends in the *Countdown* coverage indicators, including measures of equity in coverage. Coverage refers to the proportion of a population in need of an intervention that actually receives it. Intervention coverage is closely related to maternal, newborn and child survival and nutrition. Increases in coverage suggest that countries are successfully implementing effective reproductive, maternal, newborn and child health policies and programmes; failure to increase coverage is a cause for urgent concern.

Countries with high coverage of a basket of key interventions, as measured by the Composite Coverage Index,²¹ tend to have lower child mortality, and countries with low coverage tend to have higher child mortality (figure 3). There is a strong correlation between the Composite Coverage Index and child mortality that remains strong even after adjusting for country GDP. The correlation supports *Countdown's* focus on tracking intervention coverage as central to accountability and counters suggestions that money can save lives directly.²² Financial well-being and maternal education are both of great importance to child health, but their impact is achieved primarily through more proximate interventions that address the causes of ill health and death.

Figure 4 shows median national coverage for 21 interventions, using the most recent available data since 2008. It provides a snapshot of how well the *Countdown* countries are doing in reaching women and children with a core set of effective interventions that should be available to all (table 3 shows the number of countries with available data, medians and ranges for each indicator). A grey dot indicates the national coverage for each reporting country; there is a wide range of variability across countries. Updated results for the remaining *Countdown* coverage indicators (Caesarean section, prevention of mother-to-child transmission of HIV and eligible HIV-positive pregnant women receiving antiretroviral treatment for their own health) are available at www.countdown2015mnch.org.

These interventions are presented along the continuum of care from pre-pregnancy to early childhood, and include improved drinking water sources and sanitation facilities as cross-cutting interventions relevant to women's and children's health. Only *Countdown* countries with a considerable proportion of the population at risk of *Plasmodium falciparum* (the most lethal form of malaria) transmission are included in the analysis of coverage for the malaria indicators.

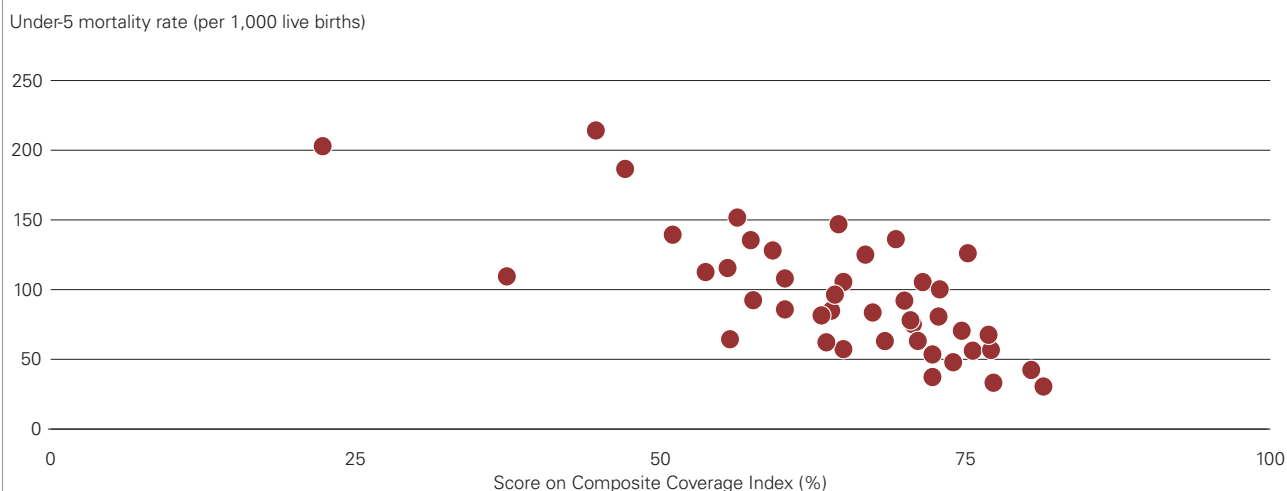
These results clearly show the critical gaps that remain for care around the time of birth, when the risk of mortality is highest for mother and newborn, and for case management of childhood illnesses. By contrast, median coverage is at least 75% for antenatal care (at least one visit), vitamin A supplementation (two doses), immunization and improved drinking water sources. Yet, even for these high-performing interventions, some countries report coverage well below 50%. At the same time, for every intervention except intermittent preventive treatment of malaria for pregnant women (possibly due to this intervention's relative newness or to changes in protocol and definition), there is at least one country with coverage that exceeds 75%.

The results also show that the enormous life-saving potential of appropriate infant and young child feeding is not being realized. Only a median of about 50% of mothers in *Countdown* countries reported early initiation of breastfeeding for their most recent child, and only 41% reported exclusive breastfeeding. Improvements in the coverage of exclusive breastfeeding remains one of the biggest missed opportunities to reduce child mortality.

These cross-sectional results should be interpreted in light of changes in coverage over time. For countries with representative survey data from both 2000–2007 and 2008–2012, table 4 shows the percentage point change in coverage from the first to the second time period for each intervention and the proportion of the gap between the first

FIGURE 3

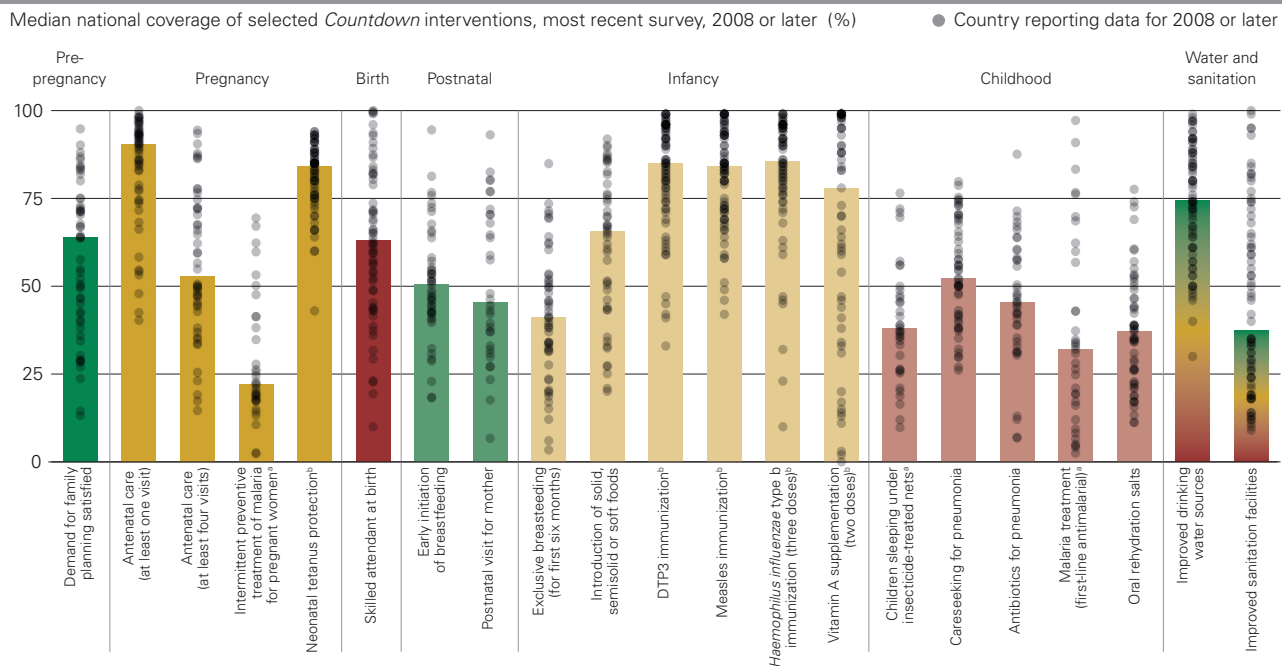
Countries with high coverage of key interventions tend to have lower child mortality



Source: Demographic and Health Surveys; UN Inter-agency Group for Child Mortality Estimation 2013.

FIGURE 4

Coverage of interventions varies across the continuum of care



a. Analysis is based on countries with 75% or more of the population at risk of *p. falciparum* transmission and 50% or more cases of malaria caused by *p. falciparum*.

b. Data are for 2012.

Source: Immunization rates, WHO and UNICEF; postnatal visit for mother, Saving Newborn Lives analysis of Demographic and Health Surveys; improved water and sanitation, WHO and UNICEF Joint Monitoring Programme; all other indicators, UNICEF global databases, April 2014, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

TABLE 3

National coverage of *Countdown* interventions, most recent survey, 2008 or later

Indicator	Number of countries with data	Median coverage (%)	Range (%)
Pre-pregnancy			
Demand for family planning satisfied	53	64	13–95
Pregnancy			
Antenatal care (at least one visit)	58	90	40–100
Antenatal care (at least four visits)	48	53	15–94
Intermittent preventive treatment of malaria for pregnant women ^a	34	22	2–69
Neonatal tetanus protection	67	84	43–94
Birth			
Skilled attendant at birth	60	63	10–100
Postnatal			
Early initiation of breastfeeding	47	50	18–95
Postnatal visit for mother	32	45	7–93
Postnatal visit for baby	17	30	5–83
Infancy			
Exclusive breastfeeding	51	41	3–85
Introduction of solid, semisolid or soft foods	47	66	20–92
Diphtheria-tetanus-pertussis (three doses)	75	85	33–99
Measles immunization	75	84	42–99
<i>Haemophilus influenzae</i> type b immunization (three doses)	66	86	10–99
Vitamin A supplementation (two doses)	55	78	0–99
Childhood			
Children sleeping under insecticide-treated nets ^a	36	38	10–77
Careseeking for symptoms of pneumonia	53	52	26–80
Antibiotic treatment for symptoms of pneumonia	40	46	7–88
Malaria treatment (first-line antimalarial) ^a	35	32	3–97
Oral rehydration therapy with continued feeding^b	45	47	12–76
Oral rehydration salts	55	37	11–78
Water and sanitation			
Improved drinking water sources (total)	72	75	30–99
Improved sanitation facilities (total)	72	38	9–100

a. Analysis is based on countries with 75% or more of the population at risk of *p. falciparum* transmission and 50% or more cases of malaria caused by *p. falciparum*.

b. Indicator is not included in figure 4.

Note: Bolded indicators are those recommended by the Commission on Information and Accountability for Women's and Children's Health.

Source: United Nations Children's Fund global databases, April 2014, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

measurement and 100% coverage that was closed by the time of the second measurement. The proportion of the gap closed metric is useful because it takes into account that coverage may have already been high during the first time period for some indicators (such as immunization and at least one antenatal care visit); looking only at percentage point change would mask any relative progress achieved by the second measurement.

The data in table 4 reveal three primary coverage patterns:

- For some interventions with high and sustained coverage at or over 80%, progress has continued in closing the remaining gap to universal coverage. These interventions include antenatal care (at least one visit) and the three indicators of vaccination coverage.
- For a second group of interventions, measurable progress has been made in absolute terms, but coverage remains low, and a large gap remains between current coverage and 100% coverage. These interventions include intermittent preventive treatment of malaria for pregnant women, children sleeping under insecticide-treated nets and treatment with recommended antimalarials—each of which showed absolute increases of around 20 percentage points

TABLE 4

Changes in national coverage of *Countdown* interventions from 2000–2007 to 2008–2012, by proportion of the coverage gap closed between the two periods

Indicator	Number of countries with data	Median coverage (%)		Change (percentage points)	Proportion of gap closed (%)
		2000–07	2008–12		
<i>Haemophilus influenzae</i> type b immunization (three doses)	24	86	91	5	36
Malaria treatment (first-line antimalarial) ^a	19	5	37 ^b	32	34
Antenatal care (at least one visit)	58	85	90	5	33
Children sleeping under insecticide-treated nets ^a	33	10	38	28	31
Antibiotic treatment for symptoms of pneumonia	21	26	47	21	28
Improved drinking water sources	71	66	75	9	26
Measles immunization	74	79	84	5	24
Skilled attendant at birth	60	54	63	9	20
Intermittent preventive treatment of malaria for pregnant women ^a	23	7	25 ^c	18	19
Demand for family planning satisfied	39	56	64 ^d	8	18
Diphtheria-tetanus-pertussis immunization (three doses)	74	82	85	3	17
Exclusive breastfeeding	47	34	41	7	11
Careseeking for symptoms of pneumonia	50	48	52	4	8
Oral rehydration salts treatment	52	29	35	6	8
Oral rehydration therapy with continued feeding	40	42	46	4	7
Improved sanitation facilities	71	36	40	4	6

a. Analysis is based on countries with 75% or more of the population at risk of *p. falciparum* transmission and 50% or more cases of malaria caused by *p. falciparum*.

b. Includes 2013 Demographic and Health Survey data for Gambia and Liberia.

c. Includes 2013 Demographic and Health Survey data for Gambia, Mali and Senegal.

d. Includes 2013 Demographic and Health Survey data for Pakistan and 2013 Performance Monitoring and Accountability Family Planning Survey data for Ghana.

Note: Table includes only indicators for which trend data are available in the data sets shared by the United Nations Children's Fund to date.

Source: UNICEF global databases, April 2014, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

between the two time periods. These examples show what can be accomplished with focused advocacy, sufficient resources and sustained effort.²³

- The third group contains interventions for which coverage is inadequate and has not increased significantly since 2000. These interventions include demand for family planning satisfied, the presence of a skilled attendant at birth, exclusive breastfeeding among children under six months of age, use of improved sanitation facilities and appropriate careseeking and treatment for diarrhoea and pneumonia, the two most important infectious causes of death among children under age 5.

We—the global reproductive, maternal, newborn and child health community—are accountable for the gap between the current, insufficient coverage and the universal coverage that we can and must achieve. Box 3 illustrates this challenge by comparing progress for one intervention from the rapid acceleration group (children sleeping under

insecticide-treated nets) with one from the stagnant group (oral rehydration salts treatment). It shows that although coverage for insecticide-treated nets increased rapidly in *Countdown* countries from about 2006 to about 2011, coverage for the correct treatment of diarrhoea with oral rehydration salts has stagnated and even declined in some countries.

Countdown has done similar analyses, and drawn similar conclusions, from a comparison of prevention of mother-to-child transmission of HIV (rapid acceleration) and careseeking for symptoms of pneumonia (stagnation). Both HIV and malaria are specifically named in Millennium Development Goal 6 and thus attracted resources for scaling up interventions, whereas diarrhoea and pneumonia interventions are lagging behind, perhaps because they have failed to attract sufficient attention from donors, even though they claim many more child lives than HIV or malaria do. Ensuring that all essential interventions benefit from focused advocacy and adequate financing is our responsibility, and discrepancies in attention and coverage must be redressed.

BOX 3

With adequate focus and financing, coverage can and should accelerate quickly for many proven interventions

The figure below compares the annual percentage point change in coverage of insecticide-treated nets for the prevention of malaria with coverage of oral rehydration salt solution for the prevention of diarrhoea-related dehydration for *Countdown* countries with two data points since 2000. These two interventions, both targeted at leading killers of children, show divergent coverage trajectories, with considerable gains for insecticide-treated nets and small gains and even some reversals with oral rehydration salts solution.

Recent gains in insecticide-treated net coverage in many malaria-endemic countries were achieved through a combination of political commitment, public-private partnerships, strong advocacy and considerable financial investment to support the integration of net delivery with maternal and child health programmes such as immunization.¹

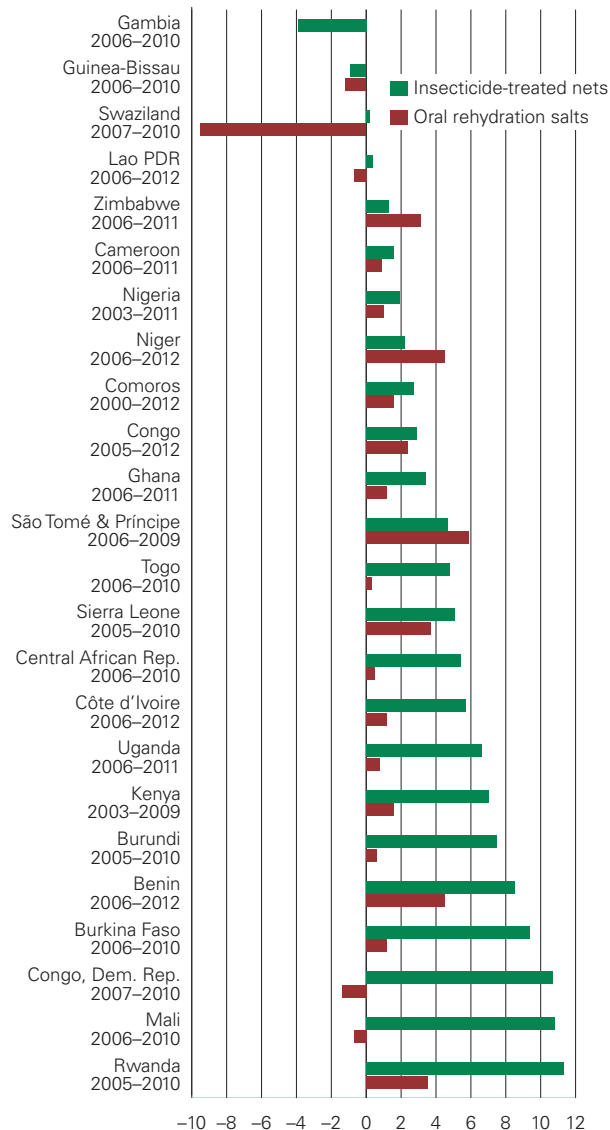
Lessons from the insecticide-treated nets success story should be applied to efforts to scale up oral rehydration salts and other preventive and treatment measures to combat childhood diarrhoea, as well as other leading killers of women and children. One step in this direction was the launch of the Global Action Plan for Pneumonia and Diarrhoea in 2013, which set targets to end preventable child deaths from the two diseases by 2025.² The plan calls for coordinating and integrating efforts to address the underlying environmental determinants of pneumonia and diarrhoea and to increase access to treatment.³

Notes

- 1. Walker and others 2013.
- 2. WHO and UNICEF 2013.
- 3. Bhutta and others 2013b.

Rapid gains for insecticide-treated nets—why can't we do the same for other interventions?

Average annual percentage point change in coverage over the specified period



Source: United Nations Children's Fund global databases, April 2014, based on Demographic and Health Surveys, Multiple Indicator Cluster Surveys and other national surveys.

Assessing country efforts to increase access to services and coverage of interventions requires understanding context. Simple statistics showing the proportion of a population that received an intervention do not always tell the full story.

Box 4 explores how population dynamics can affect progress in intervention coverage, and box 5 describes the destructive impact of conflict. Other key contextual variables that influence coverage patterns and health outcomes include

BOX 4

Demographic change affects coverage change

Expressed as proportions, coverage estimates can sometimes mask information on the number of people receiving care and thus must be interpreted in the context of population changes. A rising number of births translates into a parallel rise in the need for reproductive, maternal, newborn and child health services. In contrast, a falling number of births reduces service demand and makes it easier for countries to ensure health coverage for all. Projections show that in the absence of major changes, the highest levels of fertility will persist over the next generation in *Countdown* countries with the lowest per capita incomes and weakest health care infrastructures.²

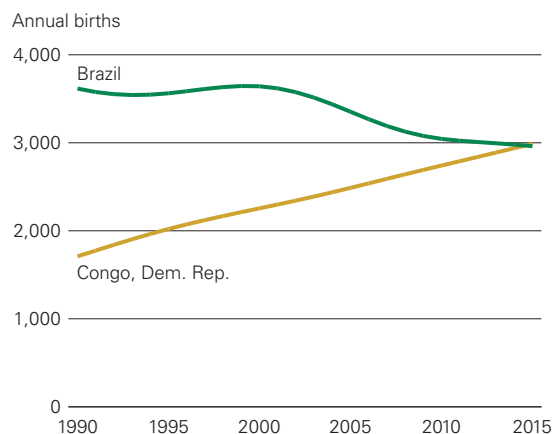
Between 1990–1995 and 2005–2010 the absolute number of annual births increased around 36% in Sub-Saharan Africa but around 6% in South America. Brazil and the Democratic Republic of Congo are two *Countdown* countries from these regions that show how population change affects a country’s ability to improve health coverage.

In Brazil the absolute number of births increased slightly from 3.62 million in 1990 to 3.64 million in 2000 and then dropped steadily to 3.04 million in 2010 and is expected to further decrease to 2.96 million by 2015 (see figure). The proportion of births attended by skilled health personnel increased over a similar time period, from approximately 70% in 1991 to 97% in 2006, and is now near 100%. The decline in the number of births means that need for skilled birth attendants is less now than a decade ago, reducing the pressure on the health system to train, deploy and retain this cadre of health care workers and enabling a greater focus on improving the quality of care.

In contrast, the Democratic Republic of Congo has seen steady increases in the number of births, from approximately 1.71 million in 1990 to 2.26 million in 2000 to 2.74 million in 2010—an increase of more than a million births a year over two decades. Meanwhile, the proportion of births attended by a skilled provider increased from 61% in 2001 to 80% in 2010. Had the number of births remained at 2001 levels, coverage of skilled birth attendants in 2010 would likely have been much higher.

Source: UNDESA 2013.

Since 1990 the number of births has decreased in Brazil but steadily increased in the Democratic Republic of Congo, yielding different pressures on the health system to ensure access to a skilled provider



Source: UNDESA 2013.

Although the absolute number of annual live births is converging in Brazil and the Democratic Republic of Congo, the population trends in the two countries reflect opposite patterns. Brazil is experiencing fertility declines, while the Democratic Republic of Congo has had sustained high fertility rates. These contrary trends have placed differing pressures on the health system. The Democratic Republic of Congo’s laudable 20 percentage point increase in coverage was achieved in a context of massive increases in the number of women and children needing care, showing that progress is possible even in the face of population growth. However, the sustainability of coverage gains as the population continues to grow remains an open question. Brazil’s almost universal coverage in skilled delivery care is equally impressive, and the country’s continued downward fertility trajectory suggests that the number of women of childbearing age will pose less of a programmatic challenge over time for increasing access to reproductive, maternal, newborn and child health services.

women’s social status, education levels and access to health services; natural disasters and other humanitarian crises; economic development; and environmental factors such as pathogen

burden (for example, HIV and tuberculosis prevalence, malaria endemicity, other parasite loads).

BOX 5**Conflict presents additional challenges for reproductive, maternal, newborn and child health**

Eight of the 10 Countdown countries with the highest under-5 mortality rates are currently affected by conflict (Afghanistan, Chad, Democratic Republic of Congo, Iraq, Somalia, Sudan, Pakistan and Yemen). Although the direct, short-term effects of armed violence usually receive considerable attention, the indirect and long-term impacts are often overlooked.¹ For example, the collapse of health systems and poor access to health care by populations in conflict regions have significant harmful effects that are not directly related to battle injuries and death. Access to populations is challenging during humanitarian crises. Coverage rates of interventions are often unknown, particularly because the denominator of populations in need is difficult to determine or constantly changing. Children in countries affected by conflict are at increased risk of dying from preventable causes such as measles, malaria, diarrhoeal diseases, respiratory tract infections and malnutrition.² Disruptions in the health care infrastructure and increased exposure to stress, food shortages and infectious diseases under conflict conditions also increase women's risk of experiencing a maternal death.³ Adolescent pregnancy and violence against women are also common in conflict situations, with a negative impact on maternal and newborn health outcomes.⁴

The Syrian Arab Republic provides a troubling example of how conflict can turn back the clock on progress for women and children and strain health systems in neighbouring countries. Since the start of the crisis in 2011, nearly 7 million inhabitants have been displaced, almost half of them children.⁵ An estimated 2.5 million people, over two-thirds of them women and children, have taken refuge in neighbouring countries, and this number is expected to reach 4.1 million by the end of 2014 (see map). Population health indicators that were improving before the war⁶ are now spiralling downward. The health system has deteriorated, even totally collapsing in some areas. More than 35% of hospitals have been destroyed, and many doctors and other skilled providers have been killed, imprisoned or tortured. Access to safe water has decreased by around two-thirds, increasing the risk of exposure to many infectious diseases. For families that leave Syria, living conditions and availability of health care are highly variable and depend on arrangements in each host country. Refugee women who need services for themselves and their children often face major

challenges, including high costs, a scarcity of female providers and lack of transport.

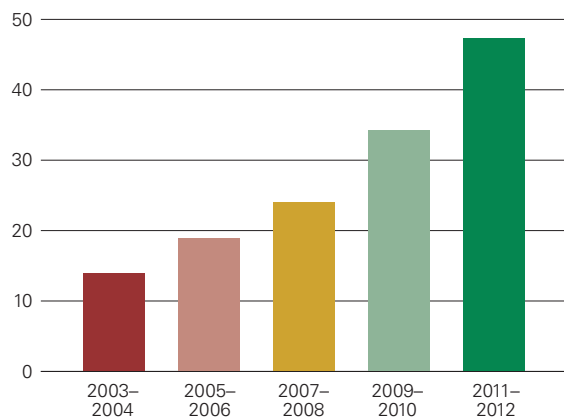
The crisis in the Syrian Arab Republic shows how conflict can strain health systems in neighbouring countries

In Afghanistan decades of widespread conflict have ravaged the country. Although it is difficult to estimate with certainty, at least 400,000 people lost their lives due to the conflict. Many medical professionals fled in the 1980s and 1990s, and most medical training programmes ceased to operate. Smouldering and overt conflict, population displacement, the collapse of the health system and landmine injuries contributed to a desperate situation, with the brunt borne by women and children. But Afghanistan has made remarkable progress in women's and children's health since 2001. With increased donor support and national commitments, the country focused on innovations, task-shifting to outreach workers and engagement of civil society organizations for service delivery. The Basic Package of Health Services, introduced in 2003, expanded access to primary health care, and the community midwifery education programme, started in 2002, deployed large numbers of community midwives in target provinces. Coverage of skilled attendant at birth subsequently more than tripled to 47.4% in 2012, up from 14.0% in 2003 (see figure) and immunization coverage has exceeded 75%.

(continued)

Conflict presents additional challenges for reproductive, maternal, newborn and child health**Despite challenges posed by conflict, coverage of skilled attendant at birth in Afghanistan more than tripled over 2003–2012**

Skilled attendant at birth (%)



Source: Multiple Indicator Cluster Survey (2003–2004 and 2009–2010), National Risk and Vulnerability Assessment (2005–2006, 2007–2008) and Afghanistan Health Survey (2005–2006, 2009–2010, 2011–2012).

Experience in both the Syrian Arab Republic and Afghanistan underscores the importance of resilience and targeted strategies in conflict-affected populations. Continued efforts are needed to strengthen the basic health care infrastructure, promote innovation and ensure independent monitoring and accountability. Data collection on health needs and intervention coverage rates must improve, and greater efforts must be made to ensure that internally and externally displaced refugees are included in country statistics. Country governments and the international community must mount—and intensify—a strong and sustained response focused on protective strategies for families, women and children in conflict zones, especially in regions in the grip of chronic conflict across generations.

Notes

1. UNICEF 2013b.
2. CRED 2013.
3. Austin and others 2008.
4. WHO 2012.
5. UN Office for the Coordination of Humanitarian Affairs website (<http://syria.unocha.org>, accessed 5 February 2014).



Equity: no women and children left behind



Focusing on coverage at the national level can mask large differences in access to services among different population groups within a country. A large part of the unfinished business in reproductive, maternal, newborn and child health is addressing pervasive inequity and ensuring that all women and children receive the services they need, regardless of differences in wealth, gender, ethnic group or geography. This section focuses on two summary metrics of socioeconomic inequity: the Composite Coverage Index and the co-coverage index. Details on how these indices are constructed are available at www.countdown2015mnch.org/reports-and-articles/equity.

Figure 5 shows the performance of *Countdown* countries with available data in achieving equitable coverage of eight preventive and curative interventions along the continuum of care, using the Composite Coverage Index. The message is clear: In virtually every country the coverage score among the richest—generally above 60%, and often above 80%—far exceeds coverage among the

poor. If such high coverage can be achieved among the wealthy, it should be possible to do the same across the whole population. And some countries have been able to do this. In Bolivia, Cambodia and Niger coverage has been increasing faster among the poor than among the rich (figure 6). In Nigeria, in contrast, inequality has remained unchanged over eight years. These examples indicate that rapid progress in reducing coverage inequality is possible in the *Countdown* countries, but that some countries are still lagging behind.

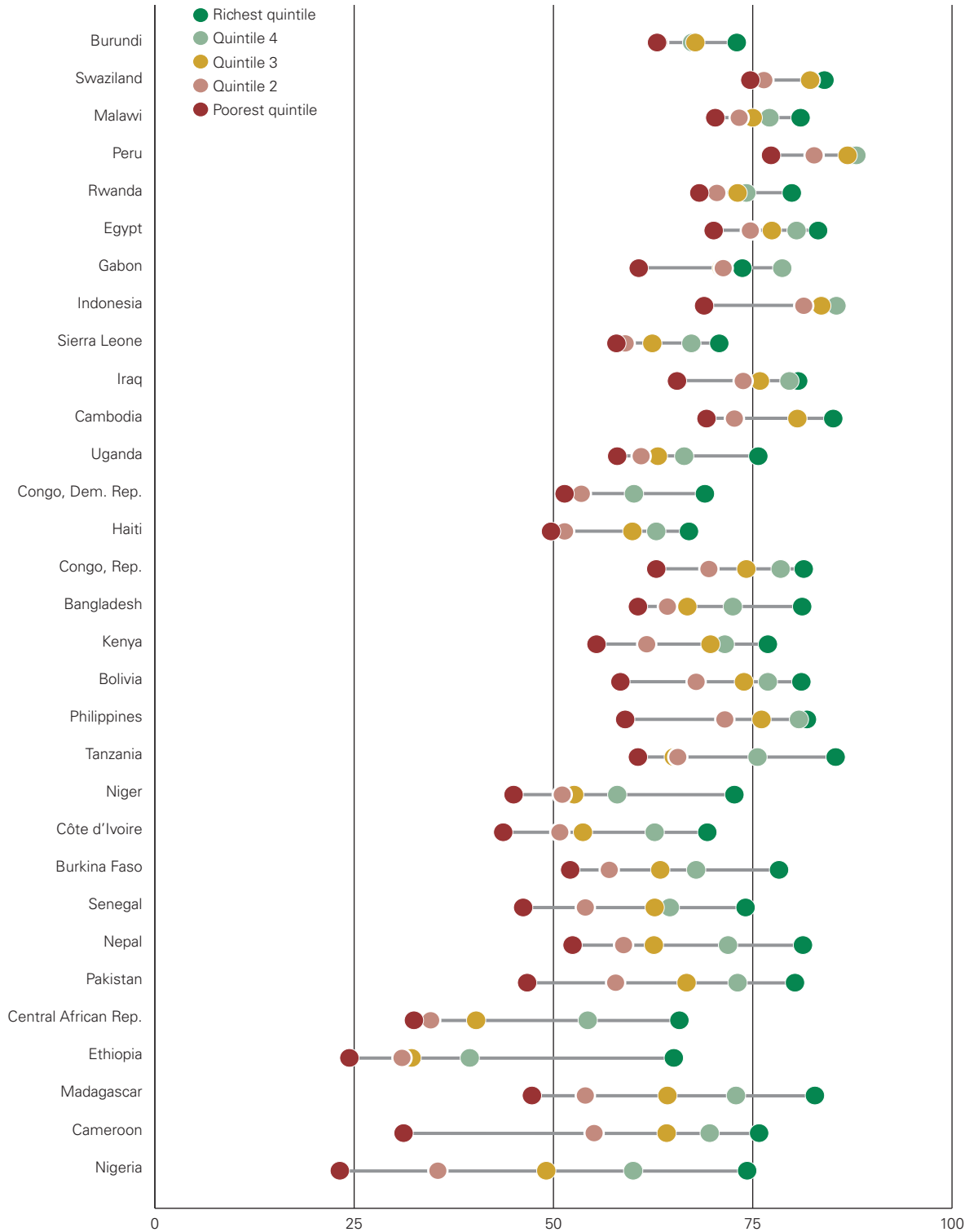
A second set of equity analyses uses the co-coverage index to assess the extent of inequity in the proportions of individual mothers and their children who receive eight well established interventions that have been available in most if not all countries—even the poorest—for at least a decade. Focusing on mothers and children in the poorest 20% of the population, it is striking that in countries such as Somalia, Chad, Yemen, Nigeria, Afghanistan and Ethiopia more than half have received two or fewer of the eight evidence-based interventions (figure 7).



FIGURE 5

In virtually every Countdown country with available data, coverage of eight preventive and curative interventions is higher among the richest than among the poor

Composite Coverage Index score for 31 Countdown countries with available data, by wealth quintile, 2008–2012



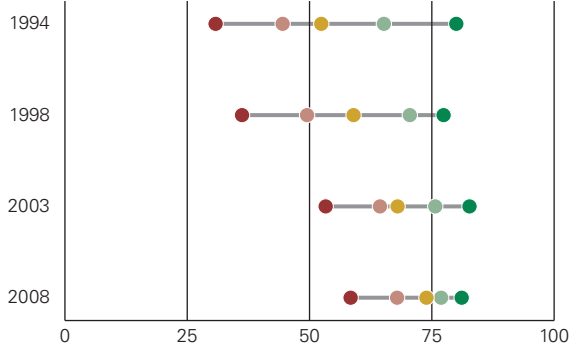
Source: Demographic and Health Surveys and Multiple Indicator Cluster Surveys.

FIGURE 6

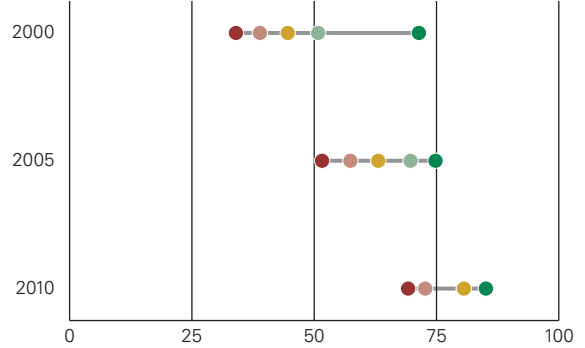
Some countries have been able to reduce inequality in coverage between rich and poor

Composite Coverage Index score, by wealth quintile, various years

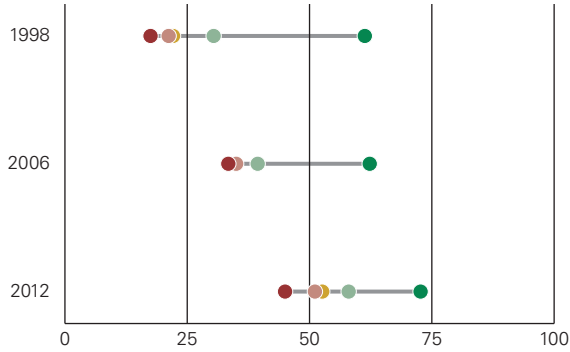
Bolivia



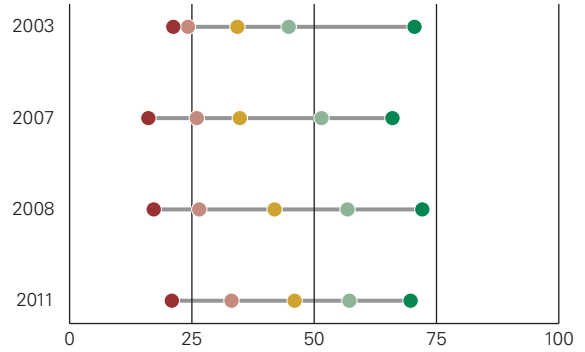
Cambodia



Niger



Nigeria



● Richest quintile ● Quintile 3 ● Poorest quintile
 ● Quintile 4 ● Quintile 2

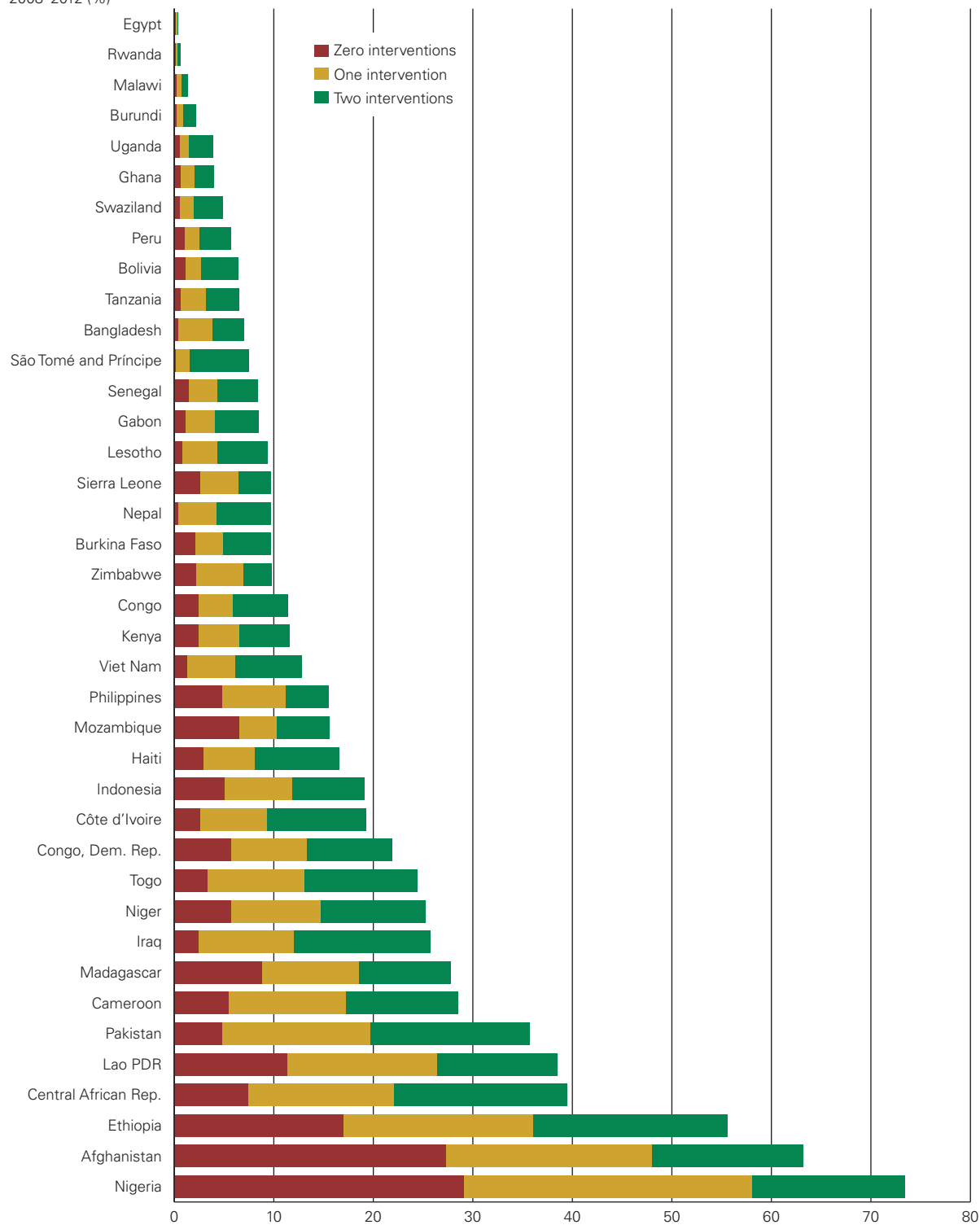
Source: Demographic and Health Surveys and Multiple Indicator Cluster Surveys.



FIGURE 7

In some countries more than half the mothers and children in the poorest 20% of the population have received two or fewer essential interventions

Share of mothers and children in the poorest 20% of the population who received none, one or two of eight essential preventive interventions, 2008–2012 (%)



Note: The length of the bar indicates the percentage of mothers and children who are receiving too few essential interventions. The ideal value is 0, which would indicate that all mothers and children in the poorest 20% of the population are receiving at least three of the eight interventions.

Source: Demographic and Health Surveys and Multiple Indicator Cluster Surveys.