

Maternal and newborn health in low- and middle-income countries:

A brief assessment of mortality, coverage and policies

Prepared for the AlignMNH Opening Forum, 20-21 April 2021

*Countdown to 2030
for Women's, Children's and Adolescent's Health*



A comprehensive approach to reaching the Sustainable Development Goals (SDGs) and Every Newborn Action Plan (ENAP) targets for maternal, stillbirth and neonatal mortality for 2030 is essential. Causes of death and other poor outcomes are interconnected for pregnant women and their babies. For instance, complications in labour may cause maternal, fetal or newborn death and long-term disabilities. Quality antenatal, delivery and postnatal care benefit women and babies alike. A skilled workforce, appropriate supplies, effective referral systems, solid infrastructure, higher levels of education in women and other social determinants all contribute to preventing maternal death, stillbirth, and newborn death.

This short report has been put together to inform **the AlignMNH opening forum 20-21 April 2021**. It uses selected statistics on survival, coverage of interventions and policies from low-and middle-income countries to provide a brief and integrated assessment of the current state, trend and inequalities in maternal and newborn health, including stillbirths.

This report is based on contributions by Countdown to 2030 core collaborators including:

- Staff from University of Manitoba, Canada,
- International Center for Equity in Health at the Federal University of Pelotas, Brazil,

- Johns Hopkins University, Baltimore, USA,

and

- African Population and Health Research Center, Nairobi and Dakar,

with inputs from

- Staff from United Nations Children's Fund.

It covers four parts:

Maternal mortality, stillbirth rates and neonatal mortality: based on the most recent regional and country estimates developed by the United Nations

Utilization of maternity services - current status and inequalities: combining three indicators of antenatal, delivery and postnatal care to assess the big picture emerging from recent surveys

Antenatal care coverage - intensity, timing, contents: assessing the losses in potential health gains of care for woman and baby due to late initiation, too few visits and too limited contents of care

Current policies for maternal and newborn health and stillbirths: based on a recent WHO Policy Survey including 100 low- and middle-income countries



Maternal mortality, stillbirth rates and neonatal mortality

The 2030 targets for survival are: for maternal mortality (SDG, globally 70 per 100,000 live births and no country above 140), stillbirths (ENAP, 12 per 1,000 births) and neonatal mortality (SDG, 12 per 1,000 live births). There are no equity-specific targets for these mortality indicators (e.g., for the poorest or rural population) in the SDG and, until today, few countries have established and are using such targets.

Major survival gains since 2000 but 2030 targets far-off in sub-Saharan Africa

Major global declines occurred at a similar pace for all three mortality indicators in the last two decades: On average, the annual rate of decline was 2.9% for the maternal mortality ratio (2000-2017), 2.3% for stillbirth rates (2000-2019) and 2.9% for neonatal mortality rate (2000-2019)¹.

Despite these declines, large survival differences persist between world regions (Figure 1)²:

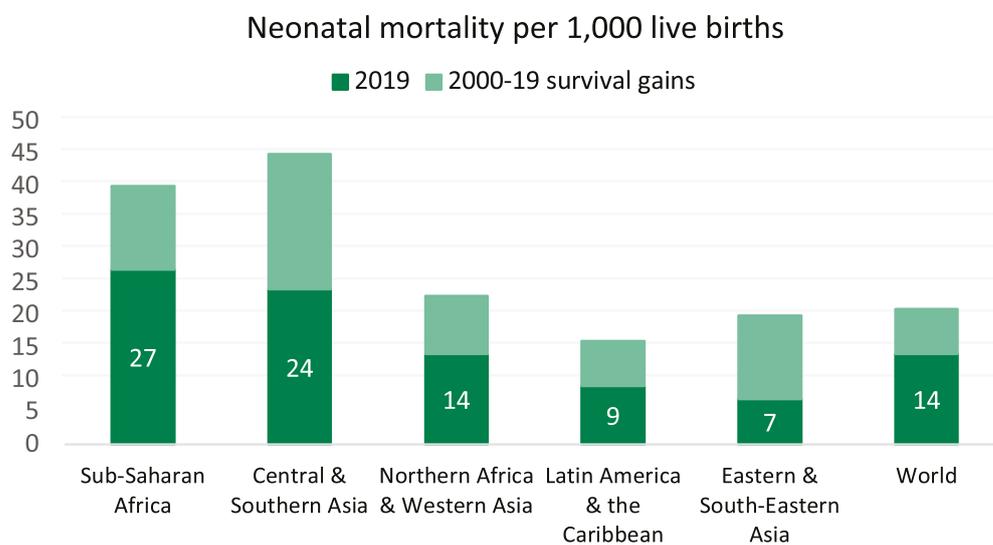
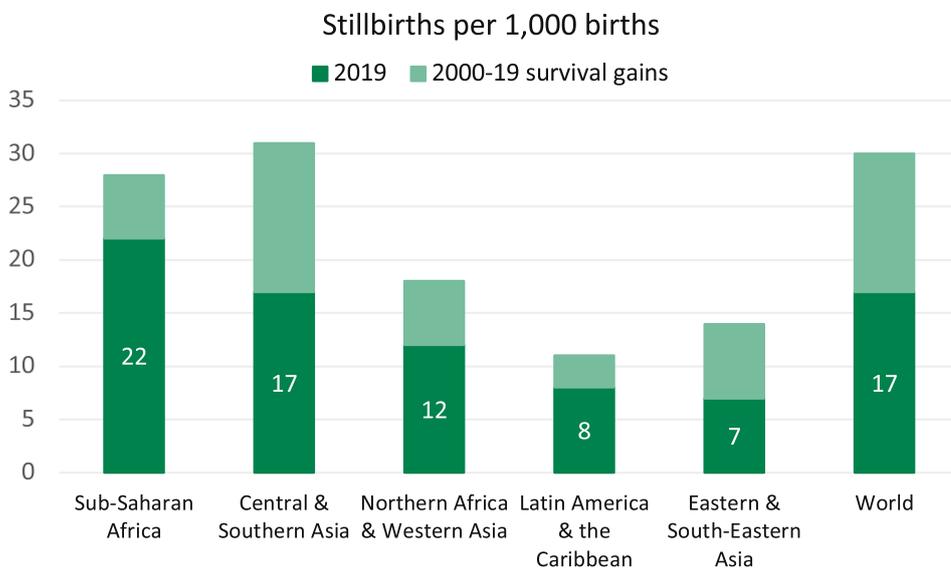
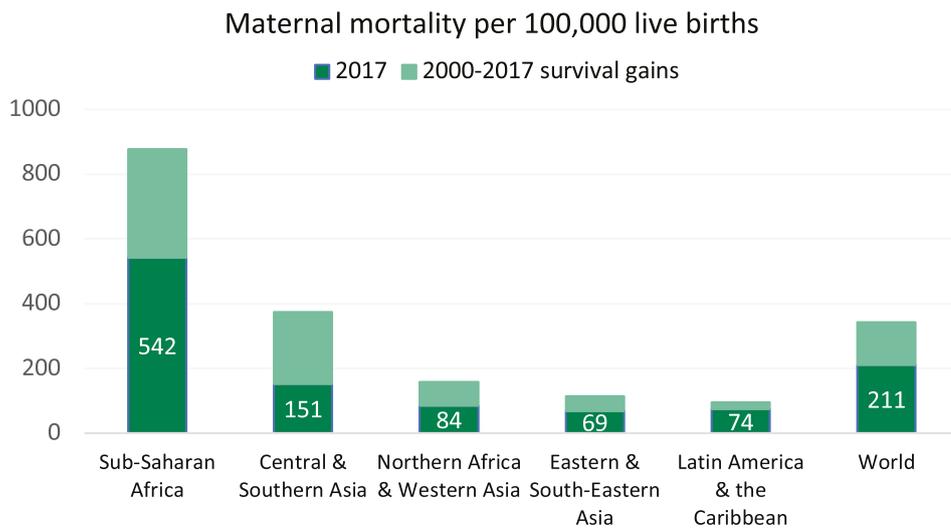
- The regions of Latin America & Caribbean and Eastern & Southeastern Asia have reached the 2030 targets of all three indicators. However, the overall success of these two regions masks wide disparities in progress across countries within those regions. Some countries are still far off the targets and within all countries there are populations that are still left behind.
- The region of Northern Africa & Western Asia has the three 2030 targets within reach, and much will depend on the extent to which the lagging countries in this region are able to catch up with the better-performing countries.
- The countries in Central & Southern Asia have made major progress during the last two decades, but further acceleration of progress is needed to achieve the 2030 targets, especially for neonatal mortality which was 24 per 1,000 live births in 2019.
- Substantial progress was made in sub-Saharan Africa for all three indicators, but often at a slower pace than in other regions. It is the highest mortality region in the world for all three indicators, especially for maternal mortality (542 per 100,000 live births, 80% uncertainty interval 498-649), and still far off from reaching any of the three 2030 targets. Sub-Saharan Africa will need at least a doubling of the average annual rate of decline in the preceding two decades between now and 2030 to reach the targets.



¹ Data were extracted from the United Nations Inter-Agency Group for Child Mortality Estimation (IGME) [CME Info - Child Mortality Estimates](#) (stillbirths and neonatal mortality) and Trends in maternal mortality 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization; 2019.

² The regions are based on the SDG classification. The regions of Europe and Oceania are not included because the number of low- and middle-income countries with comparable estimates in each region was less than 10.

Figure 1: Maternal mortality ratio, stillbirth rate and neonatal mortality rate in 2017-2019 with decline since 2000, by SDG region.



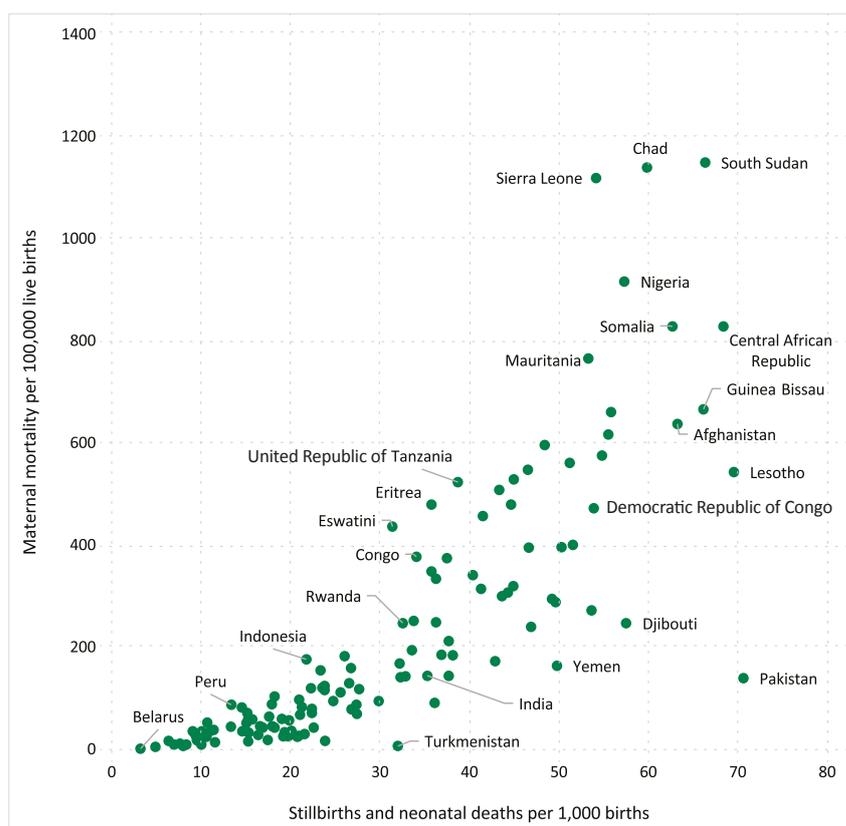
Nearly half of countries close to all three SDG targets

Country levels of maternal mortality are strongly correlated with rates of stillbirth and neonatal mortality which were combined and expressed per 1,000 births (Figure 2)³. Countries with higher levels of maternal mortality also have higher rates of stillbirths and neonatal deaths. Some countries, however, do relatively well on one indicator but less so on the other. For instance, Pakistan's maternal mortality was considerably lower than would have been expected from the combined stillbirth and neonatal mortality level which is still among the highest in the world. At the other end of the spectrum, Sierra Leone has higher levels of maternal mortality compared to what would be expected based on mortality during the late fetal and neonatal periods.

One third (43) of the 130 low- and middle-income countries⁴, had already reached all three targets before 2020. Another 25 countries could be considered to have all three targets within reach, as none would require average annual rates of decline above 5%⁵. These 68 countries are mostly upper middle-income countries but include several lower-middle income countries such as Mongolia, Sri Lanka and Uzbekistan in Asia, Egypt and Morocco in North Africa, Honduras and El Salvador in Central America.

The remaining 62 countries however will need to experience major declines in mortality, often much faster, to reach the targets by 2030. Many countries in this group, with maternal mortality levels above 500 per 100,000 live births and combined late fetal and neonatal mortality above 50 per 1,000 births, are still a long way from the 2030 targets. Most of these countries are located in sub-Saharan Africa.

Figure 2: Maternal mortality per 100,000 live births (2017) by combined stillbirths and neonatal deaths per 1,000 births (2019), low- and middle-income countries, UN estimates.



³ Data were obtained from the UN estimates for each indicator. The statistical model for stillbirths includes neonatal mortality level as a co-variate. In addition, both the maternal mortality and stillbirth estimation models use gross national income per capita, respectively, as one of the covariates. The country mortality estimates have considerable uncertainty intervals and should be interpreted with caution.

⁴ There are 135 low- and middle-income countries according to the World Bank classification June 2020. Four countries did not have estimates for all three indicators: American Samoa, Dominica, Kosovo, Marshall Islands, Tuvalu.

⁵ Within reach was defined as maternal mortality below 134 per 100,000 live births (2017) stillbirth rate below 21 per 1,000 live births (2019), and neonatal mortality below 21 per 1,000 births (2019). These arbitrary cut-off points were based on an average annual rate of decline of 5% per year until 2030.

Utilization of maternity services

Only half of women-baby pairs receive four antenatal visits, delivery and postnatal care

The coverage rates of key interventions before, during and after delivery are high in most countries out of 88 low- and middle-income countries with a national survey⁶ since 2010: 75% of pregnant women received four or more antenatal care contacts, 86% delivered in a health facility, and 87% of mother-baby pairs received a postnatal visit within two days of delivery (median of all countries)⁷.

All women-baby dyads should, as a minimum, receive all three contacts of care to receive basic antenatal, delivery and postnatal interventions. The median percentage for the 88 countries, however, was that only 57% women-baby dyads received all three: four antenatal care visits, institutional delivery care, and postnatal care visit within two days for mother or baby (Figure 3). One in 25 women-baby pairs received none of the three interventions⁸.

The differences between countries are enormous. For instance, in Yemen, Chad and Ethiopia more than half of women received none of the three interventions according to the most recent surveys. At the other end, more than 80% of women have received all three interventions in several Eastern European and Central Asian Republics, Armenia, and Costa Rica. It is likely that a low score on the combined service utilization is correlated with inadequate access to life saving emergency obstetric and newborn care which is a major challenge in many countries⁹.



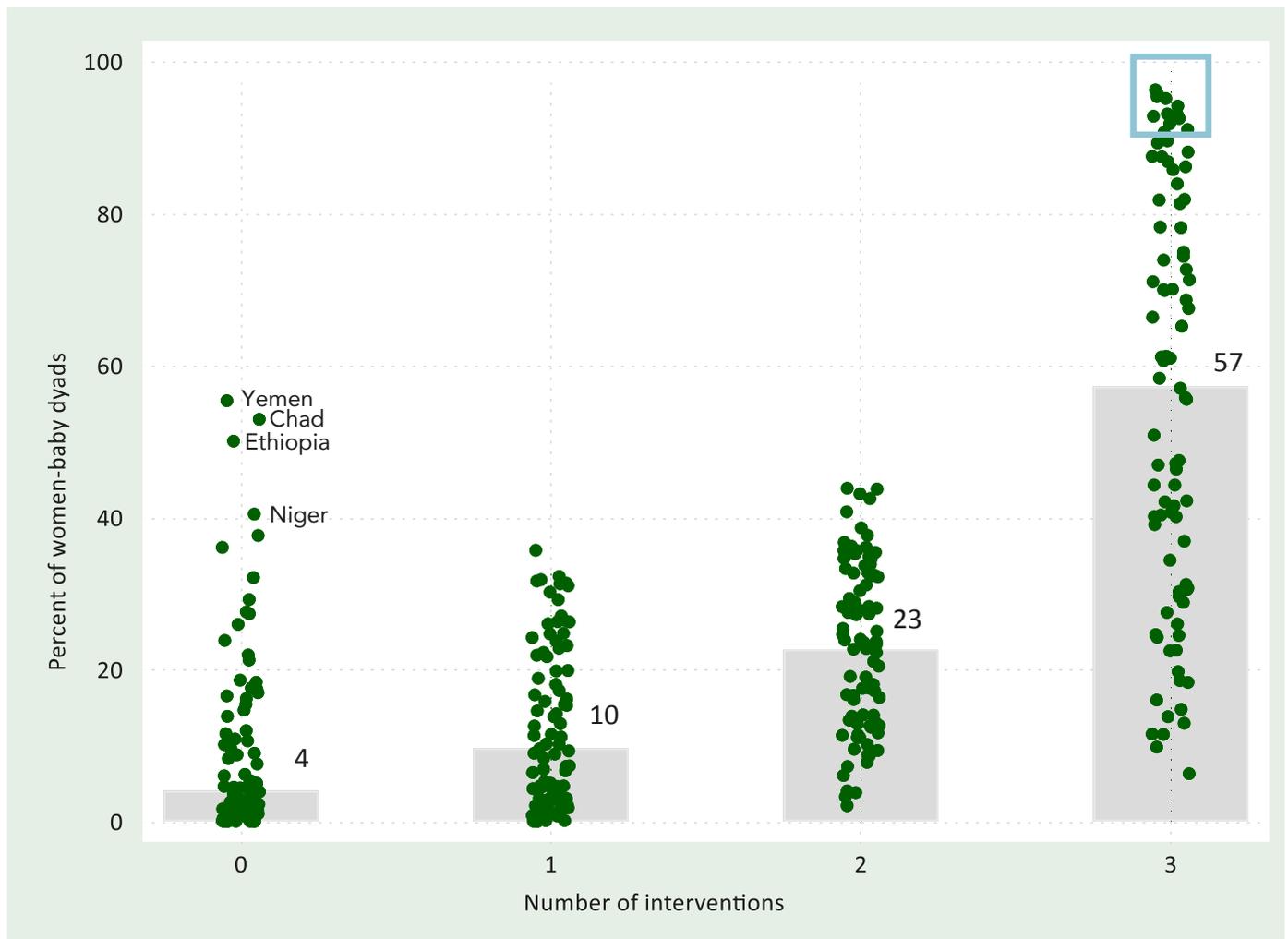
6 The analysis was limited to Demographic and Health Surveys and Multiple Indicator Cluster Survey which generally have comparable survey instruments and methods.

7 Percentages are country medians. For postnatal care we used either postnatal care of the mother or postnatal care of the child, whichever was highest. For details of the methodological issues with survey data on postnatal care. See Amouzou A, Mehra V, Carvajal-Aguirre L, Khan SM, Sitrin D, Vaz LM. Measuring postnatal care contacts for mothers and newborns: An analysis of data from the MICS and DHS surveys. *J Glob Health*. 2017 Dec;7(2):020502. Amouzou A, Hazel E, Vaz L, Sanni Y, Moran A. Discordance in postnatal care between mothers and newborns: Measurement artifact or missed opportunity? *J Glob Health*. 2020 Jun;10(1):010505.

8 The co-coverage of the three interventions can range from 0 to 3 points, as each woman-child dyad or pair is assigned one point for an intervention among deliveries in the last two years. Note that the figures are medians of the country values and do not add up to 100%.

9 UNFPA. The Maternal and Newborn Health Thematic Fund (MHTF) – Annual Report 2017, UNFPA, 2018.

Figure 3: Distribution of the country-level proportions of the number of interventions (four antenatal care visits, institutional delivery and postnatal care for mother or baby within two days) received according to 88 DHS and MICS, 2010-2019 (gray columns show the median intervention coverage levels, and the green dots show individual country values).

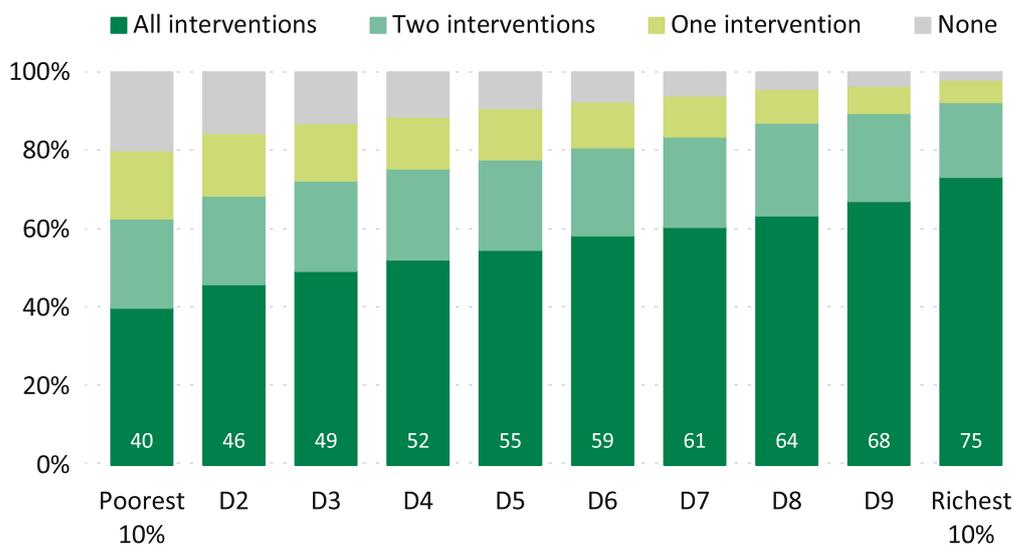


Countries inside the blue square: Armenia, Kazakhstan, North Macedonia, Moldova, Kyrgyzstan, Montenegro, Costa Rica, Kosovo, Dominican Republic, Mexico.

Low coverage of MNH interventions much more common among the poorest

Within countries, there are major inequalities between the poorest and the richest. Among the poorest 10% (D1 or first decile), 20% of woman-child pairs had received none the three interventions, while only 40% received all three. Among the richest 10%, it was rare to receive no interventions and 75% received all three. The gradual improvement in the utilization of services as households become richer is striking.

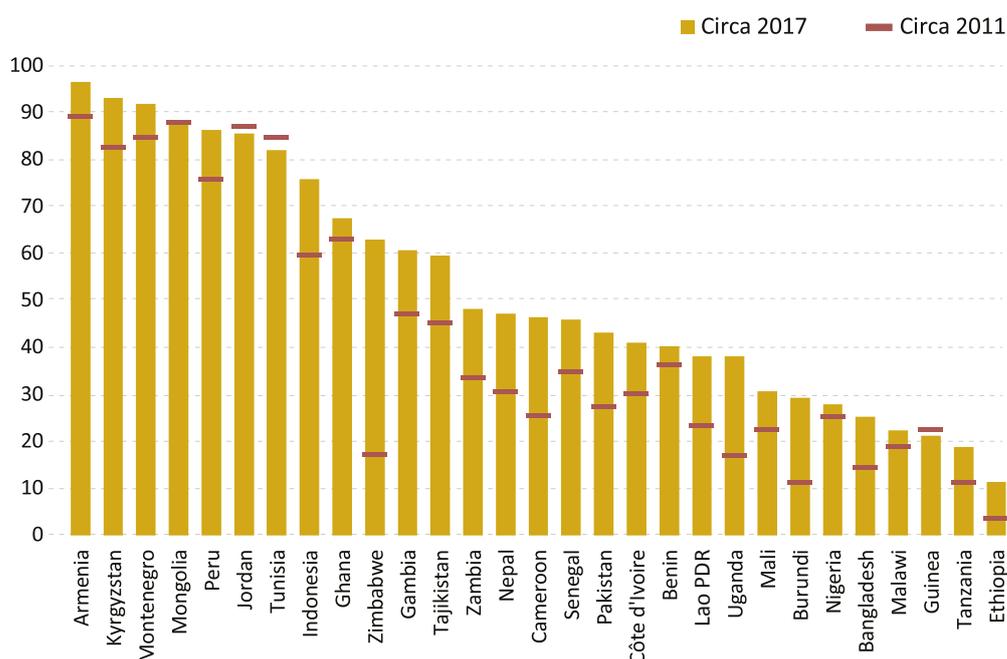
Figure 4. Number of interventions (four antenatal care visits, institutional delivery and postnatal care for mother or baby within two days) received by wealth deciles. Source: 88 DHS and MICS, 2010-2019.



Major progress in most countries since 2010

Most of 29 countries with two surveys, which were at least five years apart since 2010, made good progress in contact coverage at national level (Figure 5). Positive trends were observed irrespective of the levels of overage. For instance, Indonesia increased from 60% to 76% and, Zimbabwe from 17% to 63%, and Bangladesh from 14% to 25% (Figure 3). The number of countries with at least 40% coverage of the three interventions increased from 11 to 19.

Figure 5: Coverage of all three maternity interventions (four antenatal care visits, institutional delivery and postnatal care for mother or baby within two days) received at country level in first and last survey since 2010 in 29 countries with DHS/MICS (column)



Antenatal care: intensity, timing and contents

Against a backdrop of increasing utilization of maternal and newborn health services, quality of care is a primary concern. Quality of care is more difficult to measure through household surveys, but some aspects can be captured indirectly through questions to women of reproductive ages, providing an idea of the gaps.

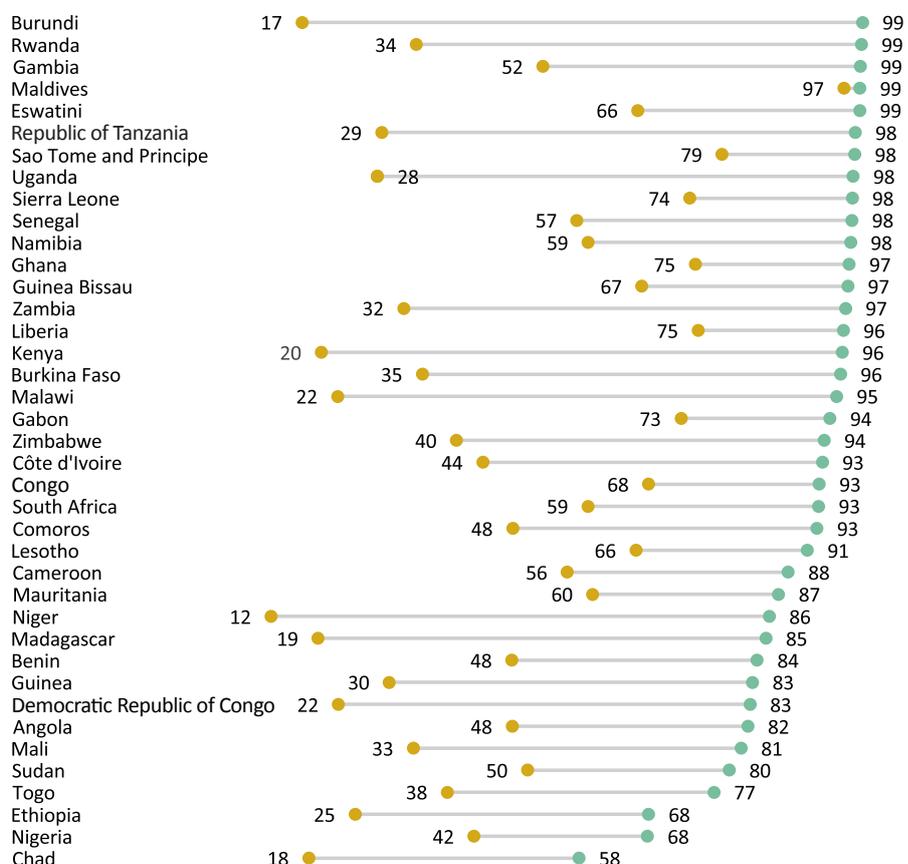
In most countries, nearly all women received at least one antenatal visit, a measure a basic access to services. If we add measures of intensity and basic contents of antenatal care, including the number of visits, the timing of the first visit, skilled provider contact in at least one visit, blood pressure measured, urine and blood taken for lab testing and two or more doses of tetanus toxoid received - coverage of antenatal care services drops dramatically in most countries. This is indicative of losses in potential effectiveness of antenatal care: starting too late in pregnancy, too little visits, and too limited in contents¹⁰. The indicator has been referred to as ANCq coverage.

Major losses in the potential benefits of increased attendance

In most countries in sub-Saharan Africa, more than 90% of pregnant women received at least one antenatal care visit (Figure 6). This is indicative of high levels of access but does not translate into high levels of ANCq coverage. For instance, in Burundi, Rwanda, Tanzania, Uganda, Kenya and several other countries where more than 95% of women attended antenatal care at least once, major drops in coverage to 35% or lower were observed once timing, frequency and content dimensions are considered.

Only five countries had an ANCq coverage of 70% or higher, all located in West and Central Africa, including Gabon, Ghana, Liberia, Sao Tome and Principe and Sierra Leone.

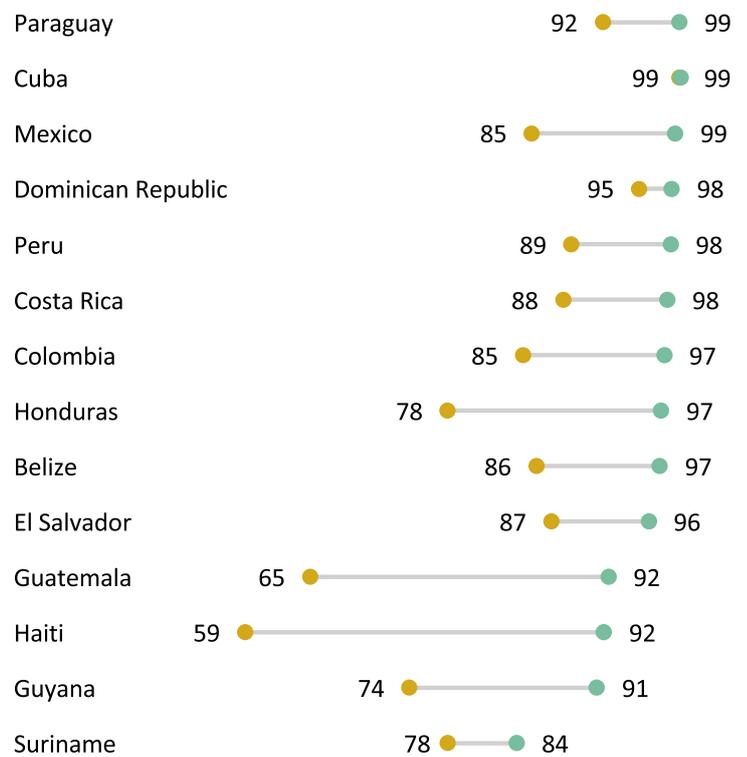
Figure 6: Coverage of first antenatal visit (green dots) and percent pregnant women who received antenatal care with selected characteristics (ANCq) (yellow dots), sub-Saharan Africa.



10 The ANCq indicator has been described as "a content qualified ANC indicator and is a weighted indicator calculated as a score, composed of seven variables which add points to the score. The maximum score is 10 points. Here we considered 8-10 points as adequate. Arroyave L, Saad GE, Victora CG, Barros AJD. A new content-qualified antenatal care coverage indicator: Development and validation of a score using national health surveys in low- and middle-income countries. J Glob Health. 2021;11:04008.

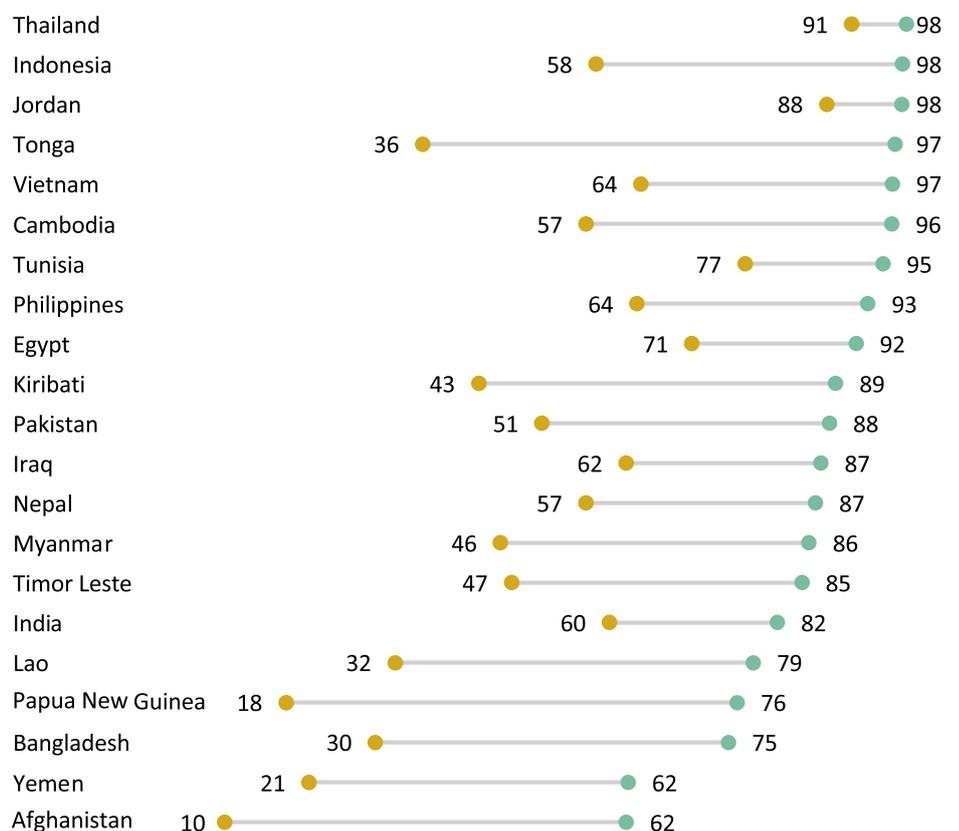
In the Latin America & Caribbean region, coverage of the first antenatal visit was nearly universal in most countries (Figure 7). The drops in coverage, when taking into account frequency, timing and contents, were small to modest in most countries (less than 20%), with the exceptions of Haiti and Guatemala. Twelve of the 15 countries have ANCq above 70%.

Figure 7: Coverage of first antenatal visit (green dots) and percent pregnant women who received antenatal care with selected characteristics (ANCq) (yellow dots), Latin America & Caribbean



In countries in North Africa and Asia there was much variation, even in coverage of the first antenatal care visit (Figure 8). Only five of 23 countries had ANCq coverage above 70%. The drop in coverage between ANC first visit and antenatal coverage with frequent visits, early first visit and specified contents was substantive in most countries. Five countries had ANCq coverage below 35% including Lao PDR, Papua New Guinea, Bangladesh, Yemen and Afghanistan.

Figure 8: Coverage of first antenatal visit (green dots) and percent pregnant women who received antenatal care with basic contents (ANCq) (yellow dots), North Africa and Asia.





Current policies for maternal and newborn health: results from the WHO Policy Survey

National level policies, guidelines and laws are essential to promote and implement evidence-based practices for maternal and newborn health and the prevention of stillbirths. It is a foundation for universal access to quality maternal and newborn care. In 2018/2019, WHO conducted a policy survey on sexual, reproductive, maternal, newborn, child and adolescent health in its member states including 100 low- and middle-income countries¹¹. In most instances, the responses were provided by key informants from the Ministry of Health, working with WHO country offices.

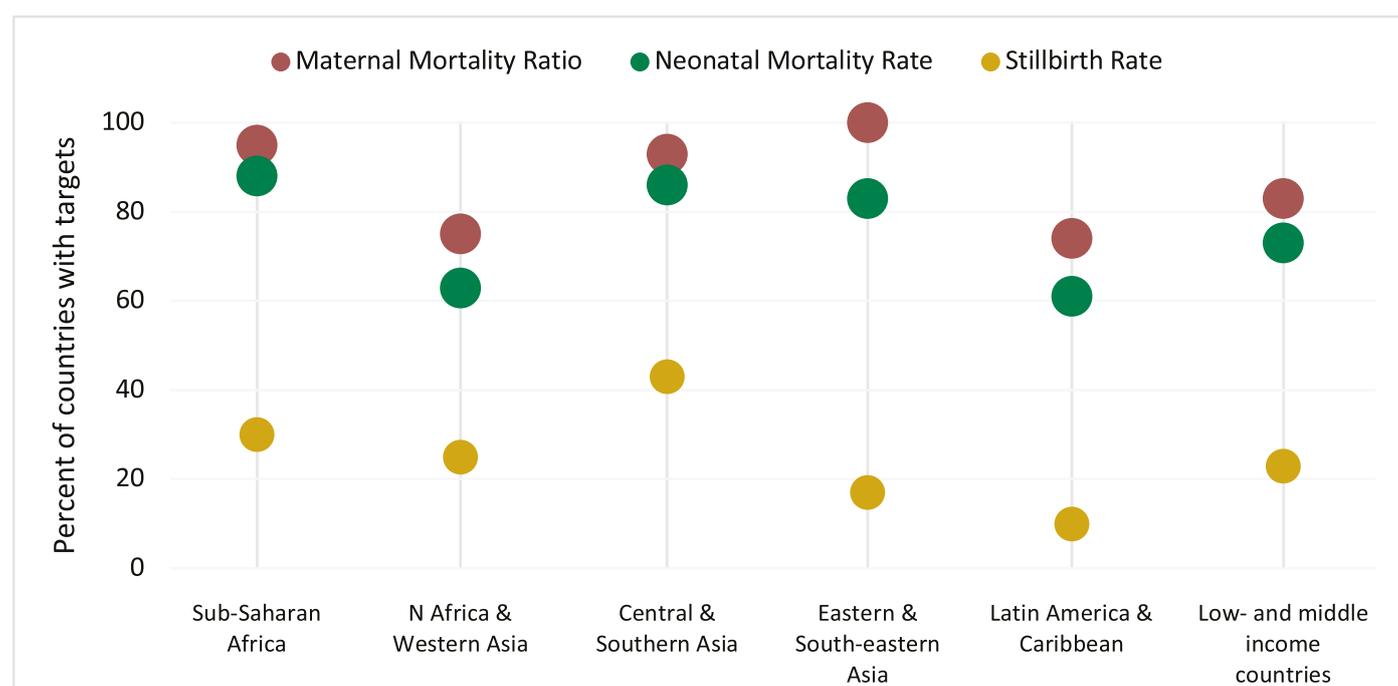
Country target setting: common for maternal and neonatal mortality, but not for stillbirth rates

Among 100 reporting low- and middle-income countries, 92% had set explicit country targets for maternal mortality, 82% for neonatal mortality, but only 25% for stillbirth rates (Figure 9).

In all SDG regions, targets for maternal mortality were slightly more common than for neonatal mortality. The practice of target setting for maternal and neonatal mortality was most frequent in the higher mortality regions of sub-Saharan Africa and Central & Southern Asia, as well as Eastern & South-eastern Asia, with more than 80% of countries reporting the presence of targets.

Targets for stillbirth rates are still uncommon, which is likely reflective of measurement challenges and neglect in policies and programs. In all regions, the percentage of countries with a stillbirth target was less than 50%, and only one in four countries reported a national target.

Figure 9: Percent of low- and middle-income countries with targets for maternal and neonatal mortality, and stillbirth rates by SDG region, WHO SRMNCAH Policy Survey, 2018/19.



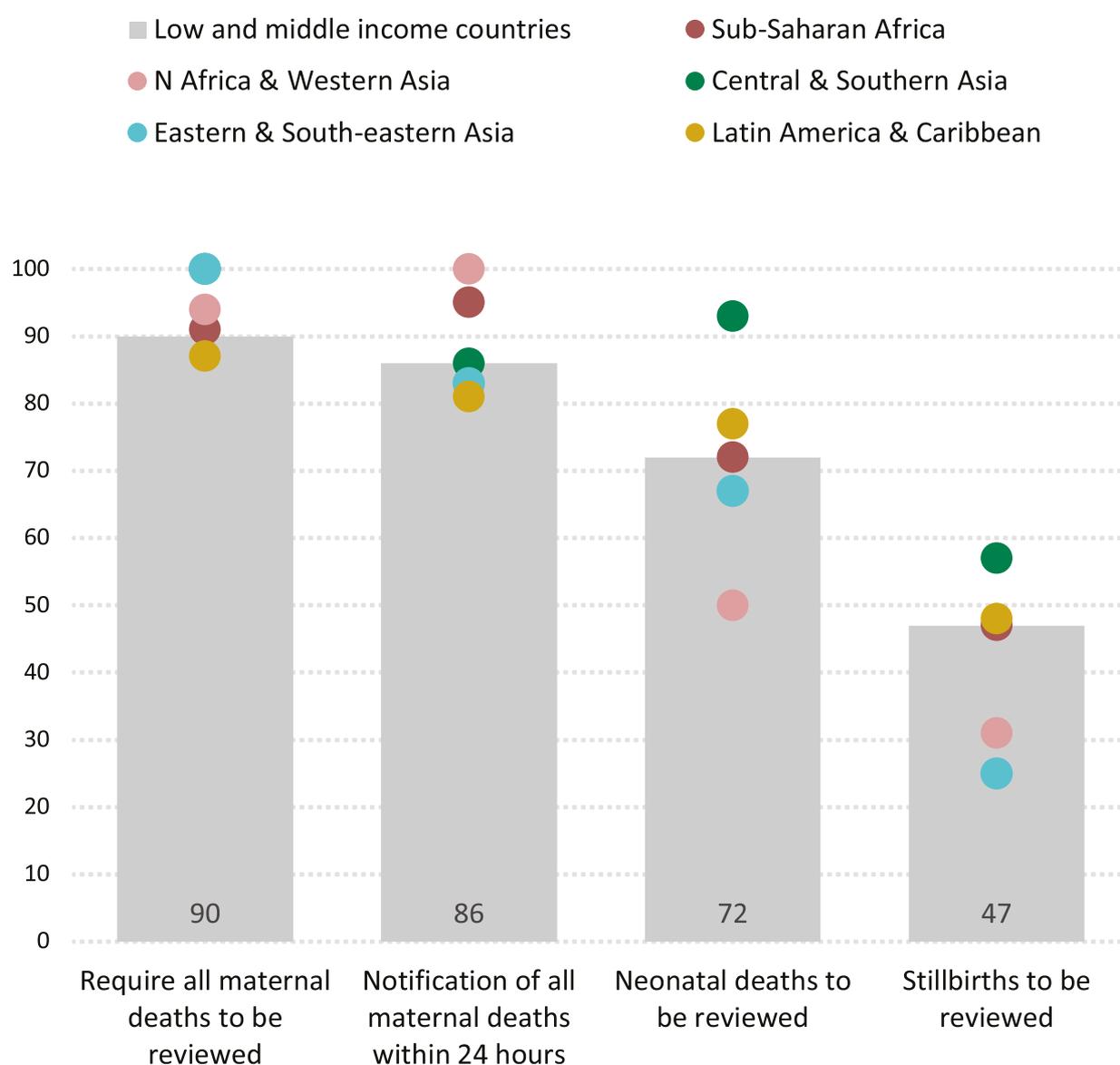
¹¹ SDG regions with less than 10 low- and middle-income countries with data were excluded (Europe & North America n=7 and Oceania n=2).

Policies to review deaths: reported by most countries, but not for stillbirths

A similar gap to national mortality targets is observed across regions for the notification and review of maternal and newborn deaths and stillbirths. Overall, nearly all 100 reporting low- and middle-income countries, including 40 countries in sub-Saharan Africa, reported the presence of a national policy/guideline/law that stipulates a review of all maternal deaths (95% of countries) and notification of all maternal deaths within 24 hours (90% of countries). This was common in all SDG regions (Figure 10). The implementation of these policies, however, is still poor in many countries¹².

Policies/guidelines or laws to review neonatal deaths were reported by 75% of all countries, ranging from 55% of countries in North Africa & West Asia to 93% of countries in Central & Southern Asia. Overall, less than half of countries (45%) reported a national policy/guideline/law to review stillbirths. In no region more than 60% of countries reported policies on stillbirth reviews.

Figure 10: Percent of low- and middle-income countries with national policy/guideline law to review deaths for maternal and neonatal death and stillbirths, overall and by selected SDG region.



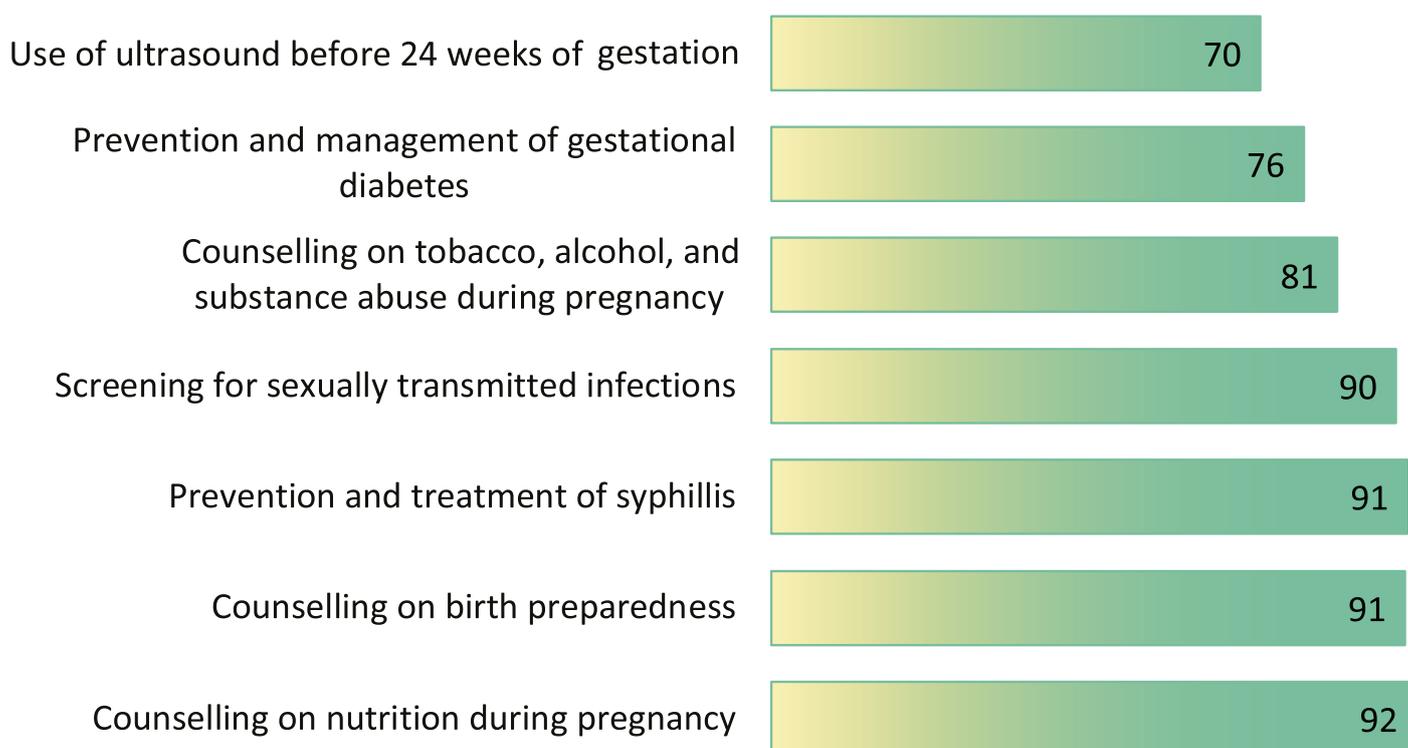
12 UNFPA, The Maternal and Newborn Health Thematic Fund (MHTF) – Annual Report 2019, UNFPA, 2020.

Policies for antenatal, delivery and postnatal care are in place, with some content gaps

Almost all countries across SDG regions reported a national policy on antenatal care (97% of low- and middle-income countries), a national policy on women’s right to skilled care during childbirth (91%), and a national policy for postnatal care for women and newborns (95%).

The content of the policy/guideline was assessed for seven interventions related to antenatal care (Figure 11). Almost all countries reported national policy/guidelines on antenatal care that included screening for sexually transmitted infections (93% of countries), prevention and treatment of syphilis (90%), and counseling on birth preparedness (90%). Also common were counselling on nutrition during pregnancy (88%) and prevention and management of gestational diabetes (83%). The least common were counselling on tobacco, alcohol and substance abuse during pregnancy (69%) and use of ultrasound before 24 weeks of gestation (64%). The contents for the 42 countries with reported data in the sub-Saharan Africa region were close to that for all countries combined.

Figure 11: Percent of countries with specified contents of national antenatal care policy/guidelines in 100 low- and middle-income countries (n=100), WHO Policy Survey 2018/19.





Conclusion

One third of 130 low- and middle-income countries had reached the SDG and ENAP 2030 targets for maternal mortality, stillbirth rates and neonatal mortality, and another 19% had the three targets within reach if sufficient investment are made in the current decade. The remaining 62 countries are still far from the 2030 targets, sometimes on one or two of the three indicators, but mostly on all three. Among those countries, 43 are located in sub-Saharan Africa. A major integrated national and international effort is required to rapidly reduce maternal and neonatal survival, and stillbirth rates in these countries, to reach even the vicinity of the targets by 2030.

Basic contact coverage, as measured by four antenatal visits, institutional delivery and a postnatal visit with two days, was still low as only 57% of woman-baby dyads had all three contacts. The low coverage is concentrated among the poor: one-fifth of women-baby dyads received none of the three interventions among the poorest. An integrated approach ensuring continuity of care through pregnancy, delivery and postpartum period is essential.

To realize the potential impact of health services on survival of women and their babies, quality care is essential but often lacking. A combined indicator of the timing, intensity and contents of antenatal care, shows that, in spite of high levels of contact coverage, much of the care is too little, too late and too limited in contents. Major improvements in the quality of care in an integrated and continuous manner are urgently needed.

Policies are often the first step towards better practices. In most countries policies for maternal and newborn health are in place, as well as targets, but stillbirths are still much neglected. The translation of policies into programme implementation at national scale is a major challenge for many countries.

The findings on mortality, coverage, quality of care in this multi-country analysis provide a strong case for a concerted and integral approach to address maternal mortality, stillbirth rates and neonatal mortality. A major focus on sub-Saharan Africa, and the poorest in all countries, is imperative to reach the 2030 targets.

The Covid-19 pandemic is putting hard-fought gains and future acceleration of progress in the MNH indicators under stress. Mortality declines may slow down or even reverse. Inequalities may aggravate, throwing the poorest further behind. Even greater action is now needed to counter adverse effects of the pandemic on health financing, access, utilization and quality of services, as well on the socioeconomic determinants such as education and poverty.






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