More actions needed:
Building on Ethiopia's success to accelerate survival of mothers and newborns

December 2022

MINISTRY OF HEALTH-ETHIOPIA

Ethiopian Public Health Institute

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

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Countdown to 2030
Women's, Children's & Adolescents' Health

APHRC
African Population and Health Research Center

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Background

Providing quality healthcare for all women and babies is vital for healthy societies. In spite of significant advances in maternal and newborn health over the last 30 years, too many women and babies are still dying from preventable causes. This brief describes maternal and neonatal mortality trends, inequalities in health interventions and recommendations for improving maternal and neonatal health in Ethiopia.

In 2017, 295,000 women died globally from pregnancy related complications and 2.5 million newborn babies died at birth (1,2). In 2019, the neonatal mortality rate dropped to 17 deaths per 1,000 live births from 37/1,000 in 1990 and 30/1,000 in 2000, representing declines of 52% and 42%, respectively. Neonatal deaths in Ethiopia accounted for a larger share of under-five deaths over time due to a faster decline in mortality among babies aged 1-59 months compared to babies in their first month of life. In 2020, more than half (56%) of all deaths of children under-five years occurred in the neonatal period, up from 47% in 2010, 36% in 2000 and 31% in 1990 (3).

The Sustainable Development Goals' (SDG) agenda to 'leave no-one behind', is an internationally adopted set of universal principles, standards and values to facilitate action for sustainable development across all countries worldwide (4). Sustainable Development Goal 3.2 aims to reduce the death of neonates to less than 12 per 1,000 live births (5). Ethiopia's 2030 targets are: to attain a maternal mortality ratio (MMR) of 140 or less per 100,000 live births; to raise the proportion of deliveries conducted by skilled health personnel to 95%; and to achieve a neonatal mortality rate (NMR) of 12 per 1,000 live births. In addition, Ethiopia intends to attain 100% primary healthcare coverage; 100% immunization coverage for children under five years; a healthcare worker density of 2.3 per 1,000 people; and to ensure that 100% of health facilities will have a core set of relevant essential medicines available (6).

Ethiopia has made substantial progress in reducing maternal and neonatal mortality. This is linked to many factors including policies and programs which resulted in increases in the coverage of several primary healthcare and reproductive health indicators. However, the Ethiopian Demographic and Health Surveys (EDHS) showed neonatal mortality rates decreased from 49 deaths per 1,000 live births in 2000 to 29 deaths per 1,000 live births in 2016 and then increased to 33 deaths per 1,000 live births in 2019 (7,8). Data on the magnitude of maternal and neonatal deaths occurring outside of institutions are still limited.

Therefore, monitoring the progress on the coverage of maternal, newborn and child health (MNCH) interventions and the magnitude of the decline in maternal and neonatal mortality rates using community-level data is an important step towards developing appropriate strategies for achieving the national and global targets.

Methods

The Maternal and Newborn Health (MNH) Exemplar Study utilized a mixed methods approach to explore how policy development, strategic planning, health system performance, and funding for healthcare contributed to improvements in maternal and neonatal survival. The specific methods used were: extensive desk reviews and synthesis of existing research studies, policy and program documents; in-depth analysis of quantitative data from national surveys (five rounds of national DHS from 2000 to 2019, facility surveys from 2008 and UN Inter-agency Group for Child Mortality Estimation (UN-IGME); and triangulation of evidence using expert opinions from in-depth interviews. The qualitative study was based on a discussion about Ethiopia's health system policies and strategies, as well as key informant interviews at national and regional (in Oromia and Amhara) levels. Discussions also included stakeholders based in Addis Ababa. A range of coverage indicators and equity measures were analyzed, while estimates of deaths averted were estimated using the Lives Saved Tool.

Key Findings

Remarkable reductions in maternal and neonatal mortality

- Through the implementation of various reproductive, maternal, newborn and child health (RMNCH) policies and strategies, Ethiopia accelerated the decline of maternal and neonatal mortality rates in the 2000-2019 period. The estimated MMR has declined from nearly 1,030 in 2000 to 401 per 100,000 live births in 2017, a 61% reduction. The country further halved MMR in the years between 2005 and 2017.

- In 2020, the neonatal mortality rate dropped to 27 deaths per 1,000 live births from 60/1,000 in 1990 and 49/1,000 in 2000, representing declines of 55% and 45%, during the 1990-2020 and 2000 - 2020, respectively.

- Neonatal deaths in Ethiopia accounted for a larger share of under-five deaths over time due to a faster decline in mortality among babies aged 1-59 months compared to babies in their first month of life. In 2020, more than half (56%) of all deaths of children under-five years occurred in the neonatal period. This represented an increase from 47% in 2010, 36% in 2000 and 31% in 1990. By 2017, nearly 82% of neonatal deaths occurred in the first week after birth.

- NMR in Ethiopia declined at an average rate of 2.3% per year during the 1990-2019 period. The decline was fastest after 2010 as NMR dropped at an average rate of 3.5% per year from 2010 to 2019, compared to 2.0% and 2.2% during the 1990-1999 and 2000-2009 periods, respectively. As a result of the NMR declines, the reduction in total fertility and the counteracting effect of population growth, the number of newborn deaths in Ethiopia reduced from nearly 140,000 deaths in 2000 to less than 100,000 in 2019 (Figure 1).

- During the last 20 years, early neonatal mortality, still births, perinatal mortality, and post-neonatal mortality rates decreased by an average annual rate of 2.4%, 1.5%, 2.0%, and 6.2%, respectively. The drivers for the reduction of early neonatal mortality and perinatal mortality rate rates were due to their reduction in rural areas by 2.7% and 2.3%, respectively, in comparison to urban areas. The reductions in still births and post-neonatal mortality were due to the reductions in urban areas by 3.6% and 8.2%, respectively (Figure 1).
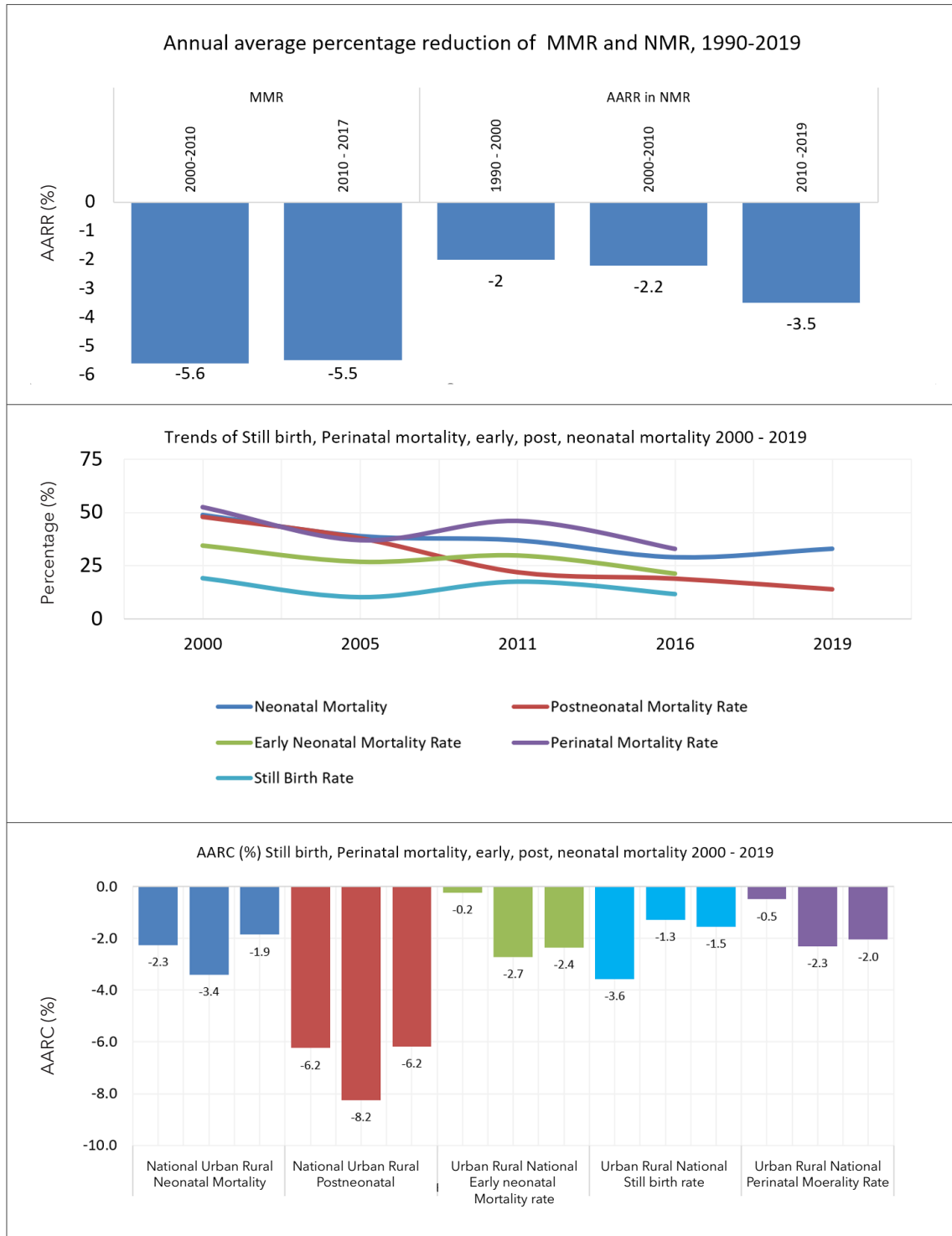
Figure 1: Reduction of MMR and NMR as well as the average annual rate of reduction (AARR) of MMR and NMR, 2000-2019.

- Neonatal mortality declined substantially among babies born in health facilities during the last two decades. It reduced by nearly 46% and 66% among babies born in public and private facilities respectively. Mortality rates for home deliveries also declined. Neonatal mortality among home deliveries is close to 30 per 1,000 live births which is somewhat lower than those born in health facilities. This is due to the fact that majority of deliveries in health facilities are complicated arising from health-seeking behavior that sees most deliveries attended to at home until complications develop. It is only at this stage that home delivery attendants will refer the pregnant mother to nearby health facilities which may then result in neonatal death.

Improved access and utilization of essential healthcare services

- Ethiopia substantially increased coverage for interventions across the continuum of care. The coverage of key maternal health interventions improved dramatically in the last 20 years, i.e., between EDHS 2000 and EDHS 2019. Three out of four women received antenatal care (ANC) in the first trimester (an increase from 28% to 74% in the 2000-2019 period); four out of ten women received four or more ANC visits (ANC4+) (an increase from 10% to 43% in the 2000-2019 period), while ANC visits with a quality component (timing, frequency and contents of visits) rose in tandem with increased ANC first-visit attendance. Demand for family planning satisfied with modern methods increased from 14% in 2000 to 61% in 2016 and initiation of breastfeeding within one hour after birth increased from 48% to 72% (Figure 2).The average annual rate of change (AARC) showed that ANC4+ increased by 8.7%, demand for family planning satisfied with modern methods increased by 9.2%, contraceptive prevalence increased by 10.1%, and births assisted by skilled personnel increased by 21.1%.

- Health facility deliveries increased from 5% in 2000 to 48% in 2019, while there was a greater reduction in home deliveries from 95% in 2000 to 51% in 2019. The AARC for health facility deliveries increased by 14.1% while home deliveries reduced by 3.7% over the last two decades. The rates of Caesarean-section deliveries increased from 1% in 2000 to 5% in 2019. A little over one-third of women (34%) and newborns (35%) received their first post-natal care (PNC) visit within the first two days after birth, an increase from nearly 7% for women and 0.3% for newborns in 2010.

- The rise in institutional deliveries is mainly attributed to increased births at public health facilities. Births at private facilities remained below 5%. Lower-level facilities (health centers, private clinics and primary hospitals) were the main drivers of the increase in institutional facilities, accounting for 2.6% of births in EDHS 2000, 6.1% in EDHS 2011 and 35.4% in EDHS 2019. The proportion of births in hospitals increased from 2.2% in 2000 to 4.4% in 2011 and 13.2% in 2019. Lower-level health facilities contributed 77% of the total increase in institutional deliveries between 2000 and 2019.

- A substantial increase was also recorded in the newborn health intervention coverage of immunizations including tetanus toxoid (Figure 2). Childhood health interventions such as immunization, increased from 2000 to 2019. In terms of percentage change, BCG immunization rates increased by 60%, DPT3 immunization rates experienced a more than two-fold increase, measles increased by a little over 100%, polio increased by 29%, and full immunization rates experienced a two-fold increase.

- The rates of childhood malnutrition represented by stunted, wasted and underweight children also reduced in the last two decades by 29%, 31%, and 55%, respectively. Major progress was recorded from 2000 to 2011 across all vaccination rates, while greater reductions in stunting and wasting were recorded from 2011 to 2019.
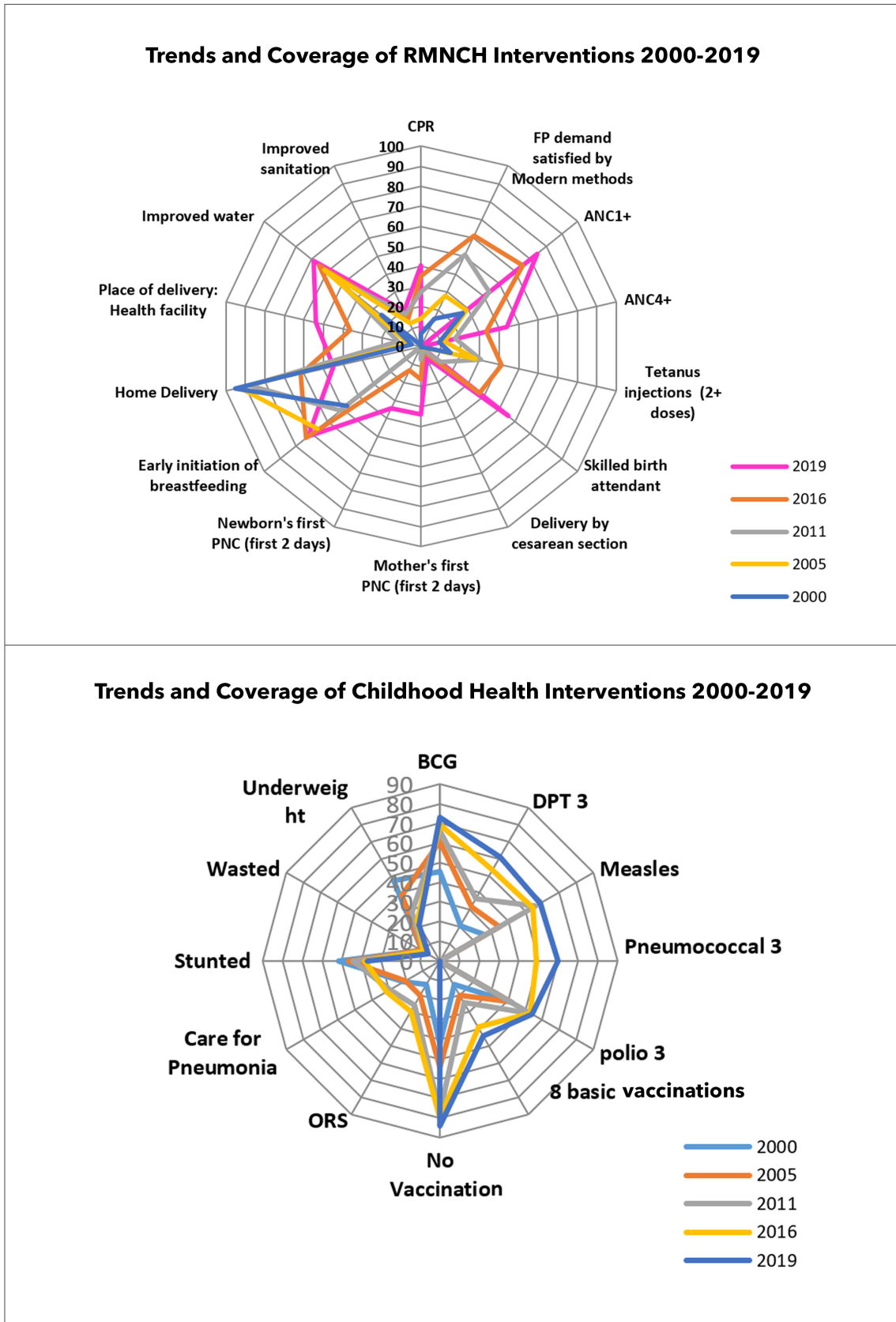
Trends and Coverage of RMNCH Interventions 2000-2019

Trends and Coverage of Childhood Health Interventions 2000-2019

Figure 2: Trends in RMNCH interventions, 2000-2019.

- Delivery care provided by skilled professionals such as physicians and nurses or midwives also dramatically increased from 11% in 2011 to 50% in 2019. The majority of births were attended to by nurses or midwives, which increased four-fold in the last decade (from nearly 7% to 35%), while the proportion of births assisted by doctors has increased from nearly 4% to 8%, (increasing at an average rate of 11% annually). Nearly 6% of births were attended to by health officers in 2016 (Figure 3).
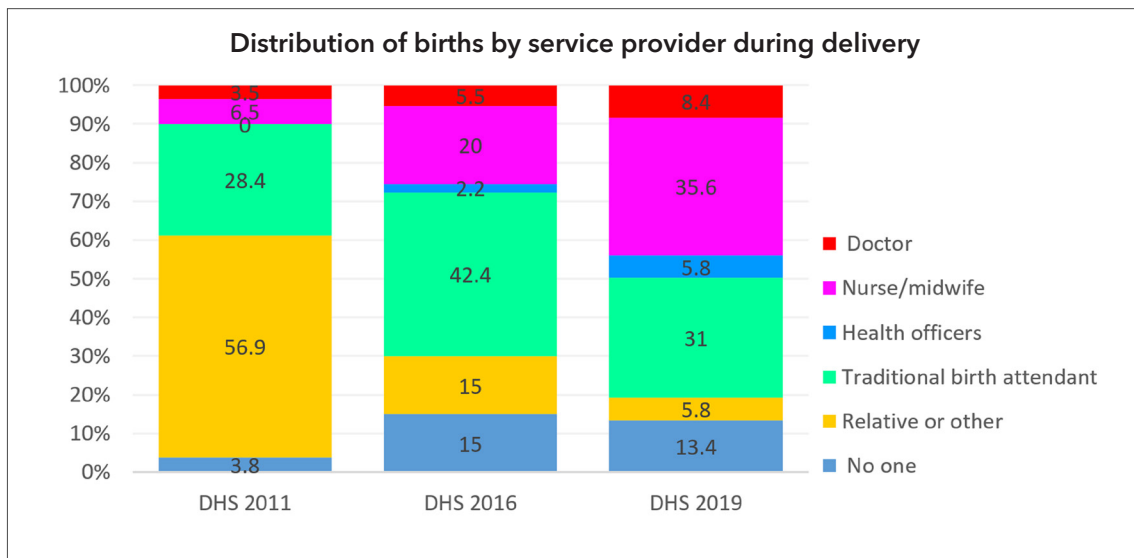
Figure 3: Distribution of births by type of service provider during delivery (data points represent the 5-year period before each EDHS).

- The average annual rates of change in childhood vaccinations were 1.6% (Polio), 2.2% (BCG), 4.3% (Measles), 5.6% (DPT3) and 6.2% (full vaccination) for the 2000-2019 period (Figure 4). Childhood malnutrition rates experienced very small annual reductions over the last two decades. Rates of wasted, stunted and underweight children were 1.5%, 1.7%, and 4.2%, respectively, indicating that more attention is required to achieve the Health Sector Transformation Plan-II (HSTP-II) targets by 2025.
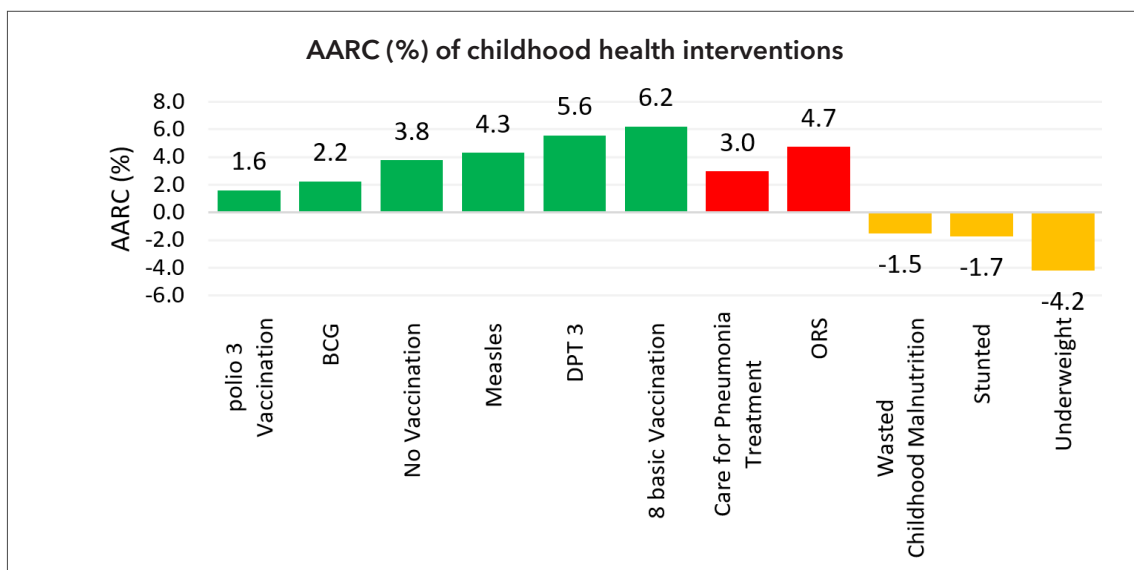
Figure 4: The average annual rate of change of childhood health intervention coverage, 2000-2019.

Ethiopia averted 51,488 maternal deaths and 121,940 neonatal deaths. How?

- Analysis using the Lives Saved Tools (LiST) showed that the lives of nearly 51,488 mothers have been saved by interventions during the 2000-2019 period. Pre-conception related interventions saved 38,992 mothers' lives, pregnancy-related interventions saved 6,625 mothers' lives, and childbirth-related interventions saved 5,871 mothers' lives. The leading interventions which contributed to additional mothers' lives saved were contraceptive use, Caesarean delivery, and hypertensive disorder case management (Figure 5).
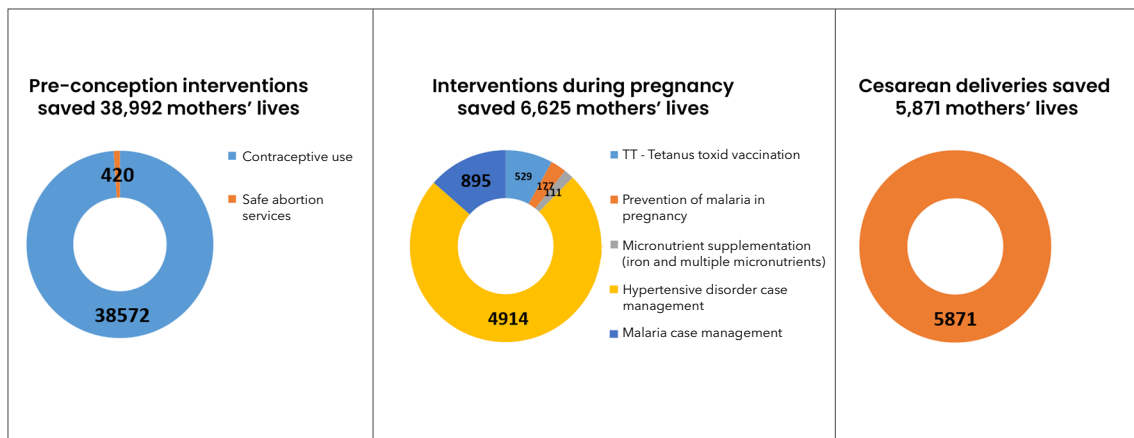

Figure 5: Maternal deaths averted by interventions during the last two decades, 2000-2019.

- A total of 121,940 neonatal lives were saved by interventions during the 2010-2019 period. The leading interventions which contributed to additional neonatal lives saved were: Case management of neonatal sepsis/pneumonia (40,754 lives saved); Tetanus toxoid vaccination (38,024 lives saved); and Caesarean deliveries (28,016 lives saved) over the last one decade (Figure 6).

Total neonatal deaths averted through health interventions from 2010 to 2019

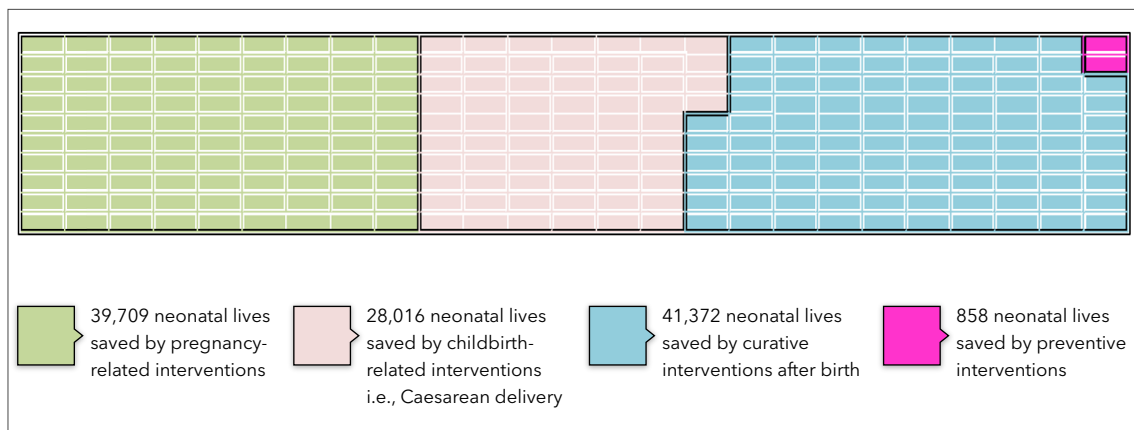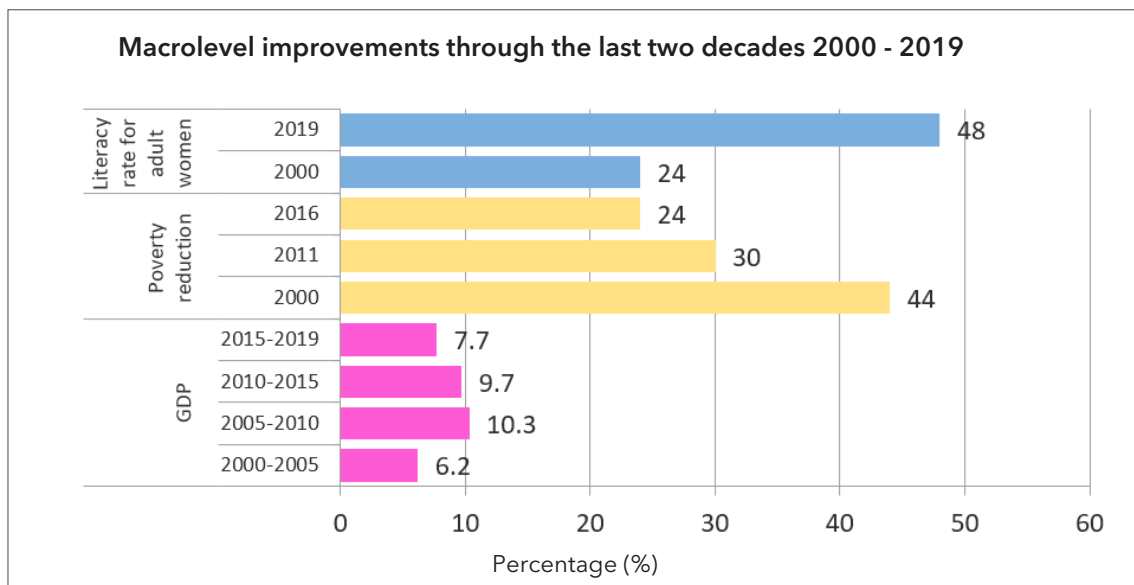**Each square represents 440 neonatal lives saved**

Figure 6: Neonatal deaths averted by interventions, 2010-2019.

Keys to Success

Macro-level developments coupled with high-level commitment and multi-sectoral policy platform

Comprehensive macro-level developments implemented with extraordinary commitment resulting in the attainment of high economic growth and significant poverty reduction in Ethiopia, have contributed substantially to the country's health gains.

- High levels of engagement by the government in the development and implementation of pro-poor health policies and strategies including road network construction; economic development through prioritization of agriculture and education; early adoption of global initiatives including the Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs); as well as mobilization of funding and establishment of stronger collaborations and partnerships.

- Implementation of the Health Development Army and the Women's Development Army.

- Ethiopia's national multi-sectoral policies and strong coordination across multiple development sectors, including poverty reduction, education, nutrition, transportation and water, sanitation and hygiene (WASH), have also contributed substantially to the country's health gains.

Macrolevel improvements through the last two decades 2000 - 2019

Literacy rate for adult women	2019	48
	2000	24
Poverty reduction	2016	24
	2011	30
	2000	44
GDP	2015-2019	7.7
	2010-2015	9.7
	2005-2010	10.3
	2000-2005	6.2

Percentage (%)

Figure 7: Trends of gross domestic product, poverty reduction, and literacy of adult women in the last two decades, 2000-2019.

Comprehensive health sector planning

- The health sector implemented a comprehensive twenty- year's health sector development program (1997 – 2015), followed by health sector transformation plan.

- Health Extension Programme, community-based neonatal care strategies, and extensive reproductive, maternal, newborn care strategies, as well as prioritization of RMNCH services, with focus on quality, and so on has been implemented in the last three decades – all of these initiatives helped bring essential health services to rural areas.
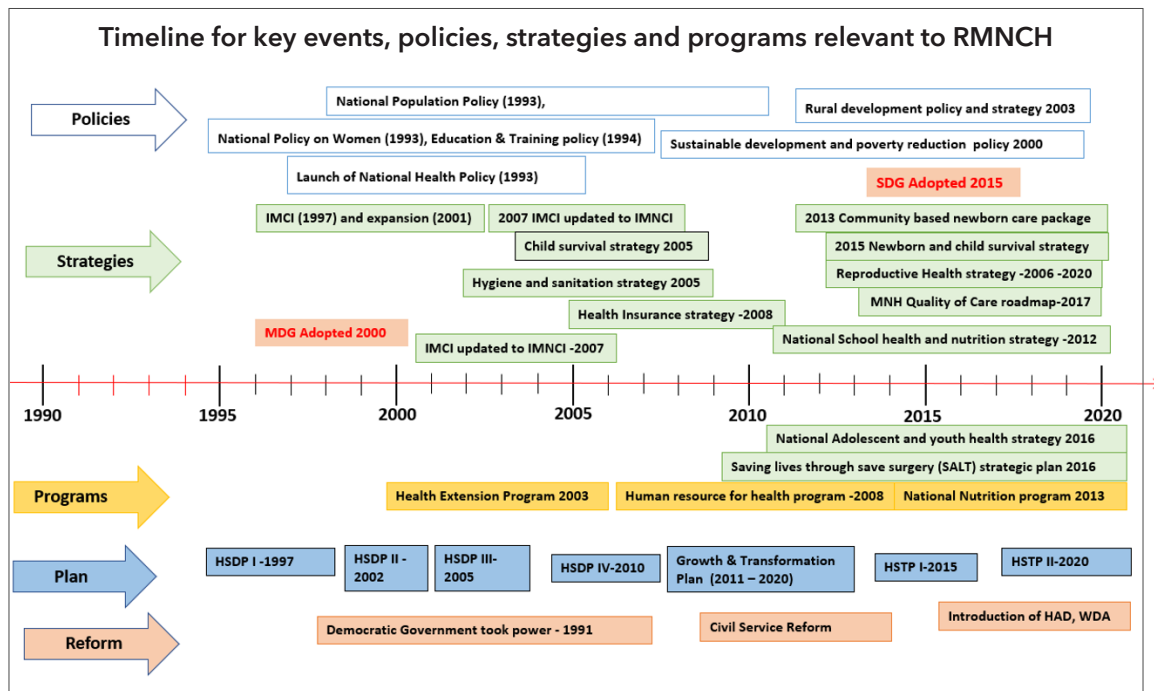
Figure 8: Key policies, strategies, and programs relevant to RMNCH in the health sector during the last three decades, 1990-2022.

Improving infrastructure enhanced the availability and readiness of health facilities to provide MNH interventions

- Over the past 20 years, Ethiopia invested extensively in the expansion of health infrastructure, strengthening of human resources and improving the functionality of health facilities.

  - Health facility density increased dramatically in the years between 2000 and 2020. Health post density rose from 6.0 per 100,000 people in 2005 to 17.4 per 100,000 people in 2020. Other notable statistics in this regard are one health center per 27,000 people and 3.5 hospitals per 100,000 people in 2020 (Figure 9).

  - The health workforce density increased over time. Nurse density rose to 6.8 per 10,000 people; general practitioners and specialists' density increased to 1.2 per 10,000 people and midwife density increased to 2.0 per 10,000 people in 2020. The number of health extension workers (HEWs) rose to a ratio of one HEW for 2,363 people by 2017 (Figure 9).

- Emergency transport services such as ambulances as well as neonatal bags and masks became almost universally available in hospitals and health centers. The functionalities of Neonatal Intensive Care Units (NICUs) in hospitals are increasing while Kangaroo Mother Care (KMC), and maternal waiting homes are also provided in hospitals and health centers.

- The expansion of health facilities along with the increased density of health workforce staff accelerated the availability of RMNCH services such as ANC services, delivery services, Caesarean deliveries, blood transfusions as well as Basic and Comprehensive Emergency Obstetric and Newborn Care (BEmONC and CEmONC) services in majority of hospitals and health centers across the country. Increases were seen gradually over time (Table 1 and Figure 9).
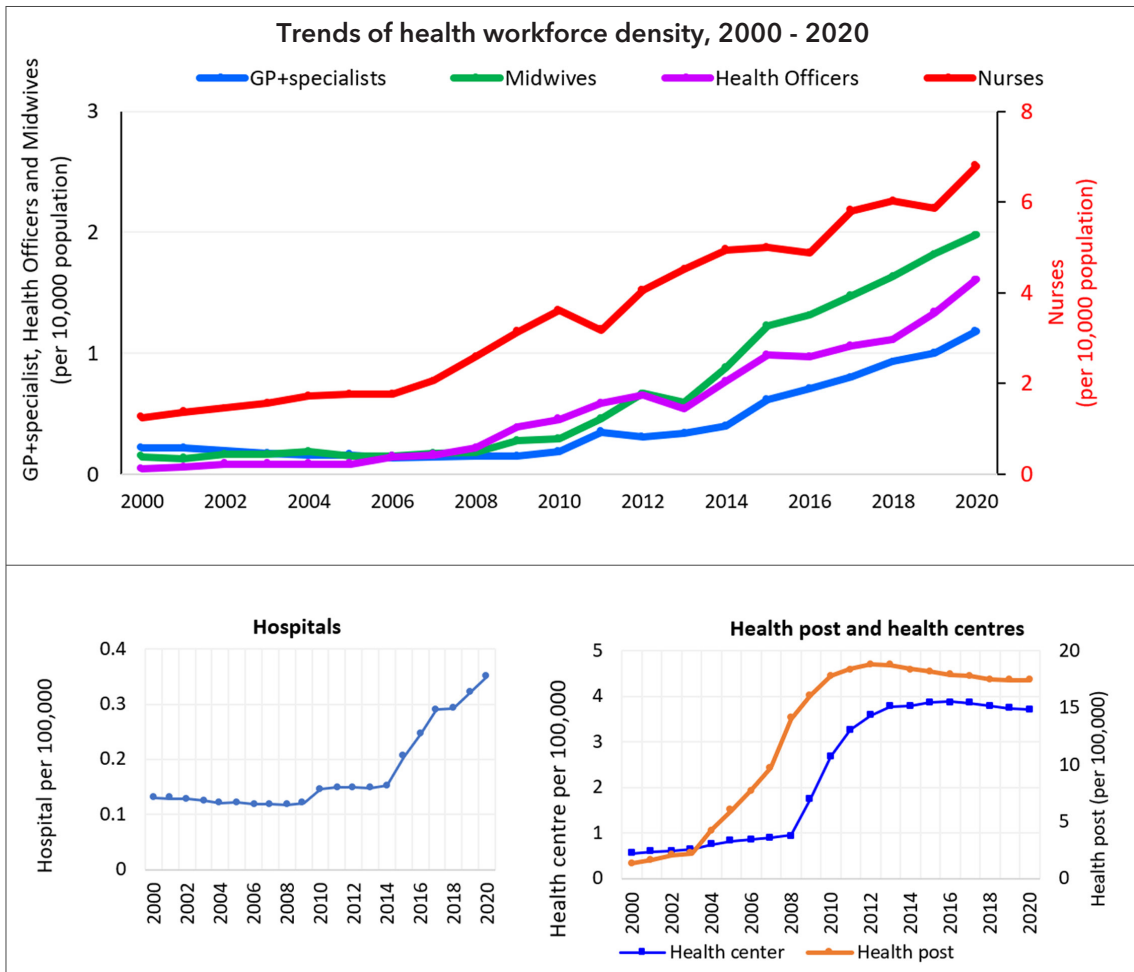
Figure 9: Trends of human resources and health facilities density in Ethiopia, 2000-2020.
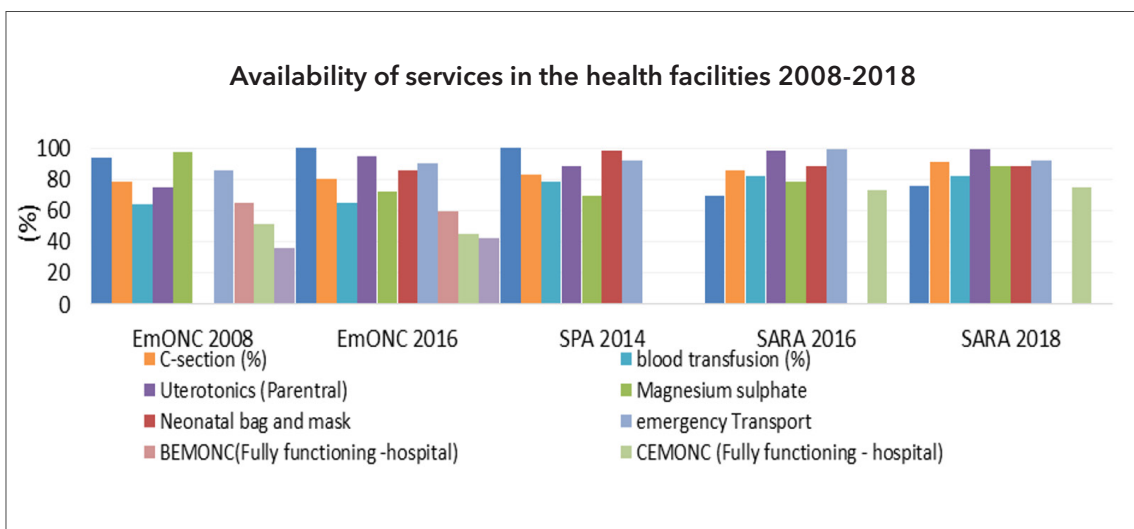

Figure 10: Availability of basic health services in Ethiopia's health facilities, 2008-2018

Table 1 : Selected readiness indicators for antenatal care (ANC) from health facility assessments, 2014-2018.

	SPA 2014	SARA 2016	SARA 2018
Number of facilities	1,165	698	764
Antenatal care offered (%)	87	80	78
At least one ANC trained staff (%)	54	44	31
BP apparatus present (%)	71	69	54
Hemoglobin test available (%)	26	8	6
Urine dipstick, protein (%)	52	15	15
Iron tablets (single or with folic acid, %)	52	66	38
Tetanus toxoid vaccine (%)	42	60	39

Rapid increase in health funding, especially from international donors. Government health expenditure has grown more slowly

Comprehensive macro-level developments implemented with extraordinary commitment resulting in the attainment of high economic growth and significant poverty reduction in Ethiopia, have contributed substantially to the country's health gains.

- The National Health Accounts study showed increasing total health expenditures over time. In 1995/96, total health expenditure was US$ 230 million. This increased to US$ 1.6 billion in 2010/11 (a 596% increase), and then increased further to US$ 3.63 billion in 2019/20 (a 127% increase from 2010) (Figure 11a).

- The per capita total health expenditure increased from US$ 13.6 in 1995/96 to US$ 107 in 2019/20, while the per capita government expenditure on health (PPP) increased from US$ 5.3 in 1995/96 to US$ 34 in 2019/20 (Figure 11c).

- Total health expenditure as a percentage of Gross Domestic Product (GDP) increased from 3.8% in 1995 to 6.3% in 2020. Funding from external sources was large, ranging from 9% in 1995 to 50% in 2010 of total health expenditure, attaining its highest level from 2004 onwards (Figure 11b).
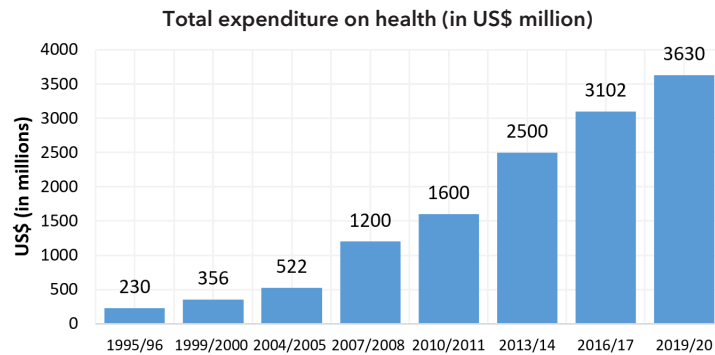
Total expenditure on health (in US$ million)

Figure 11 (a)

Trends in health financing by source of financing (1995-2020)
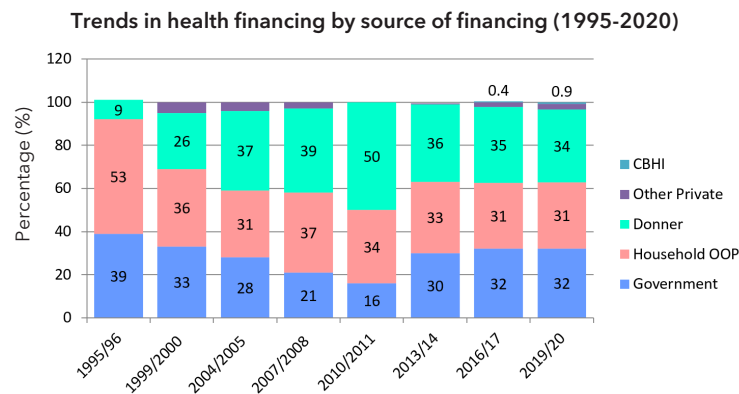
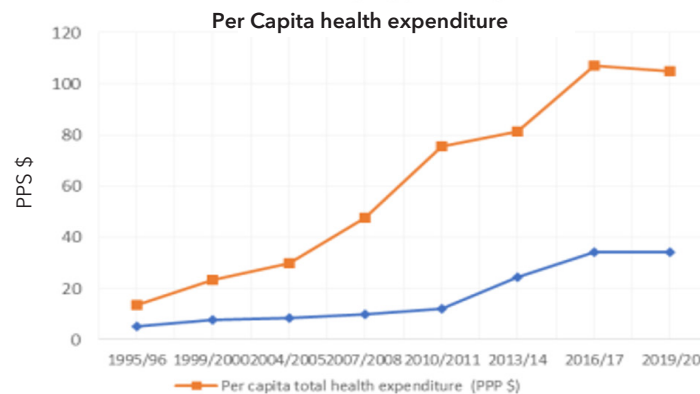

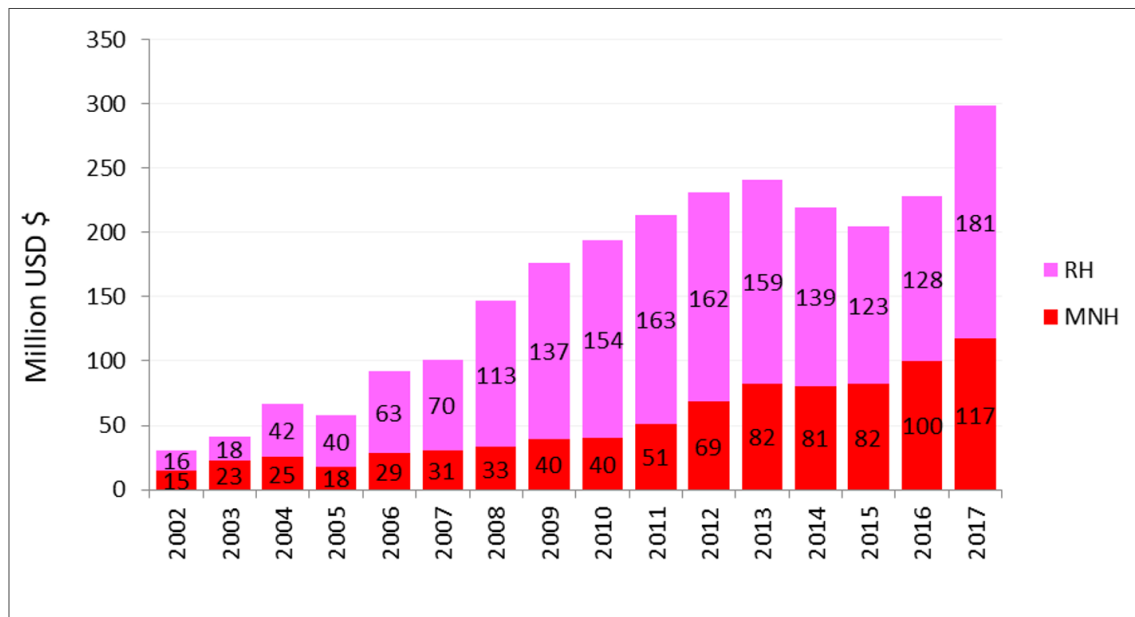Figure 11 (b)

Per Capita health expenditure

Figure 11 (c)

Figure 11: Trends in total health expenditure on health, source of financing, and per-capita in health expenditure at national level, 1995 -2020.

- The Muskoka-2 Expenditure on Health database showed a similar pattern as the total health expenditure. Health expenditure from external sources for maternal and neonatal health increased from US$ 15 million to US$ 117 million in 2018 while expenditures on reproductive health rose from US$ 16 million in 2002 to US$ 181 million in 2018. Maternal and newborn health received the largest amounts of external funding from 2012 (Figure 12).

Figure 12: Trends in health expenditure on reproductive, maternal and newborn health, 2002-2017.
(RH = reproductive health, MNH = maternal and newborn health)

Improvements in social determinants of health

- The maternal and newborn mortality reductions occurred during two decades of strong economic growth which also resulted in decreases in the proportion of people living below the poverty line, i.e., from 44% in 2000, to 30% in 2011 and 24% in 2016.

- Government investments in education increased from 2000, resulting in doubling of the female literacy rate (24% in 2000 to 48% in 2016) as well as major increases in primary school enrolment (from 24% in 2000 to 74% for girls in 2016). However, progress in secondary enrolment was limited (20% for both boys and girls in 2019).

- Fertility declined from 6 to 4.1 children per women during 2000-2019 which was a major contributor to the progress in survival of mothers and neonates. Declines in maternal mortality by 26% and neonatal mortality by 29% can be attributed to the fertility decline. The median age at first marriage increased from 18.1 to 19 years and adolescent fertility declined by about one-third.

- Living conditions improved including an increase in basic access to water from 19% in 2000 to 69% in 2019 but access to basic sanitation remained low, 1% in 2000 to 19.5 % in 2019. The proportion of households with electricity increased from 13% in 2000 to 23% in 2011, rising to 35% in 2019.

- Nutritional status improved, seen for instance, in a major reduction of women classified as thin from 30% in 2000 to 22% in 2016. Similarly, the proportion of women with short stature declined from 3.6% in 2000 to 2.4% in 2016.

- Female empowerment increased overtime. In 2016, Females decision own her health care needs reached to 45% and using family planning to 82.0%
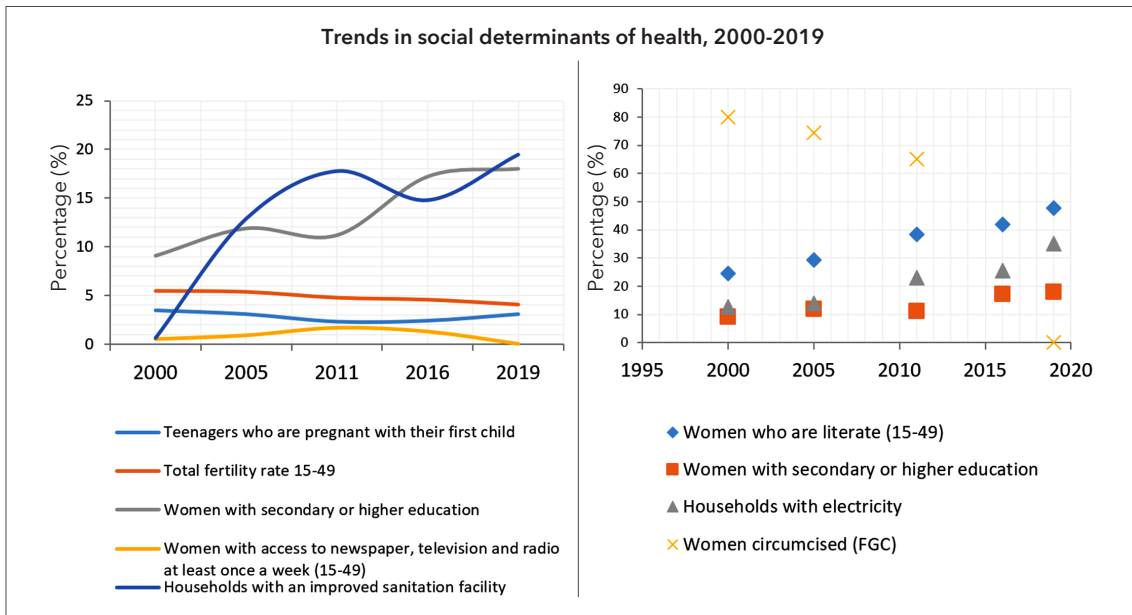
Figure 13: Improvements in the social determinants of health, 2000 to 2019.

Remaining Gaps

- Although Ethiopia registered remarkable reductions in maternal and newborn deaths over the past 20 years, these indicators are still among the world's highest and need more focused attention to address them.

- Ethiopia's rise in almost all reproductive, maternal, neonatal and child health (RMNCH) interventions and the reduction of neonatal and maternal mortality during the last three decades was remarkable. As Figure 14 shows, there were increases in the number of deliveries assisted by skilled personnel, health facility deliveries and the number of women attending four or more ANC visits. However, childhood mortality rates, especially the neonatal mortality rate remained stagnant or even showed a rise in the 2019 survey.
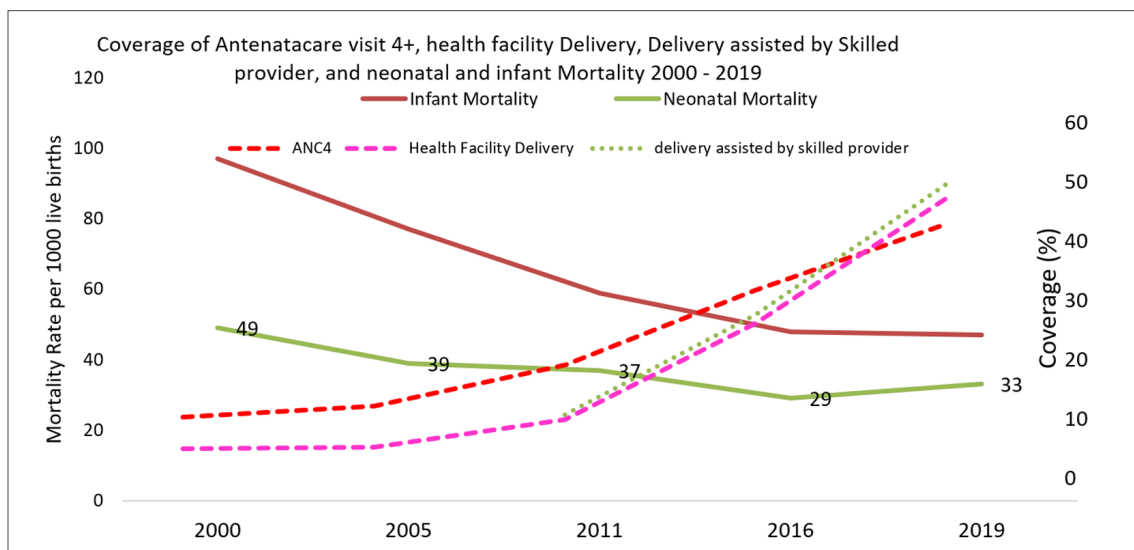

Figure 14: Trends in health interventions and childhood mortality rates, 2000-2019.

- There are major disparities in neonatal mortality rates (NMR) between regions, as well as on the basis of educational level, residence and wealth quintiles. Rural Ethiopia, where the majority of the population lives (about 78% in 2020), was the main driver of the changes seen in the national mortality levels , as recorded mortality declined a faster in rural areas than urban areas (AARR: 2.1% in rural areas versus 1.4% in urban areas) (Figure 15). The gap between the highest and lowest wealth quintiles remained large as progress among the poorest was only marginally faster than among the wealthiest. The main reductions were observed in the three middle wealth quintiles. Most wealthy households are likely to be found in urban areas, and so a relatively slower reduction in neonatal mortality among the wealthiest households may be influenced by trends and patterns observed in urban areas.

- All regions experienced NMR declines over the past three decades, with average annual rates of reduction ranging between 1.7% and 2.8% per year. The two outliers were Tigray which had the fastest rate of decline (3.9% per year) and Somali with the slowest decline (0.6%).

- Evidence for the reduction in inequalities for neonatal mortality based on socio-economic indicators is mixed. The absolute differences between urban and rural, educated and uneducated, wealthiest and poorest, as well as between non-pastoralists and pastoralists decreased from 2000 to 2016, while it increased from 2016 to 2019. This indicates that the disparities among groups have been increasing in the past few years. The results of the mini-DHS 2019 show greater disparities than the previous surveys, especially compared to DHS 2016, with particularly high mortality rates in Benishangul-Gumuz and Somali regions (Figure 15).

- Early neonatal mortality rates in urban areas have been a little higher than those in rural areas. Early neonatal mortality in rural and urban areas declined at an average annual rate of 1.4% and 1.9%, respectively, while the rate of reduction in late neonatal mortality was more pronounced in rural areas, declining at an average rate of 3.6% per year. This is more than twice the rate of reduction observed in urban areas (1.5%).
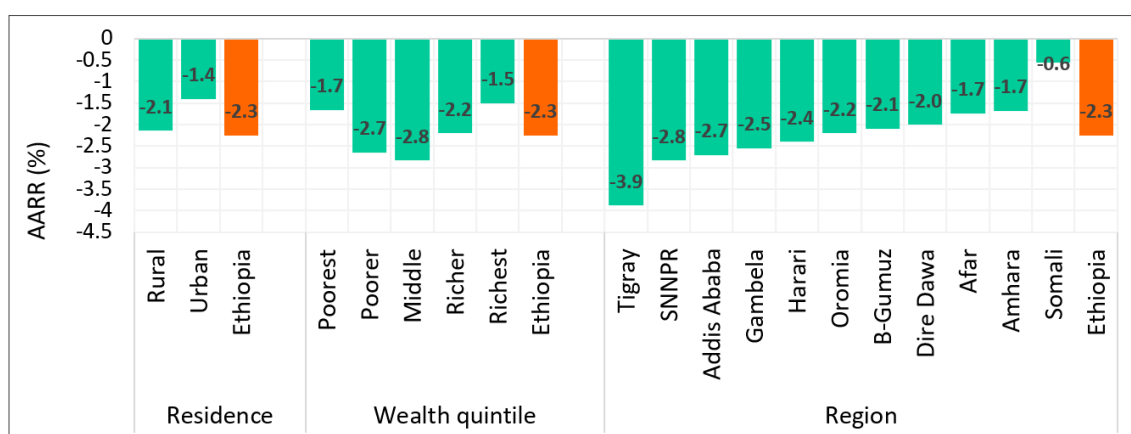

Figure 15: Average annual rate of reduction in NMR (negative value represents reduction) at sub-national level compared to national level, 1990-2019.

- Among regions, results of the mini-DHS (2019) show greater disparities than in previous surveys, especially compared to DHS 2016, with particularly high mortality rates in Benishangul-Gumuz and Somali regions. Amhara and Oromia, the two regions with the largest populations were important drivers of the national mortality decline, even though their NMRs were still above the national level. However, the trends by region have to be interpreted with caution (Figure 16).
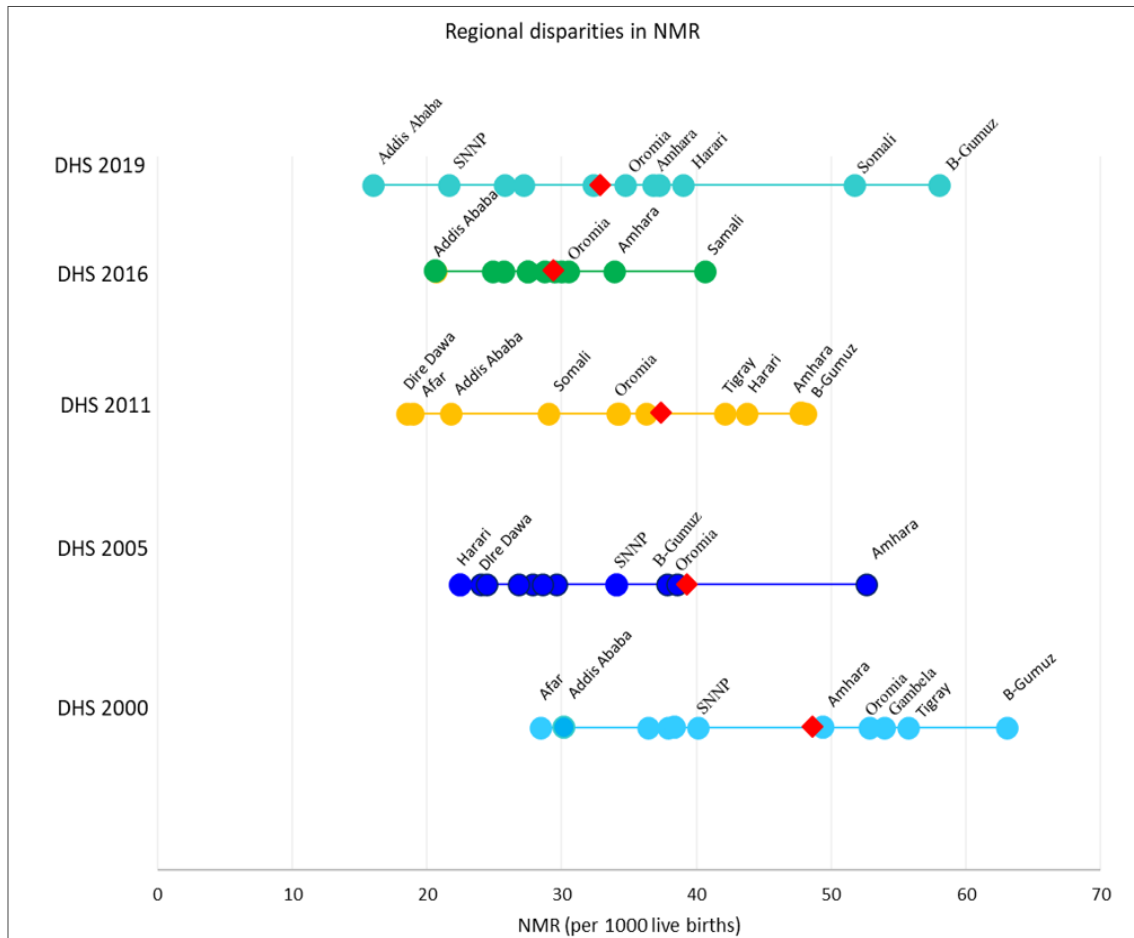
Figure 16: Inequalities in NMR between regions in Ethiopia (red diamond represents national level mortality; NMR represents 5-years period preceding each survey).

- There are major disparities in Ethiopia's RMNCH interventions. While overall coverage increased, the inequalities also persisted. The gap in coverage is still wide between rural and urban populations, as well as between the highest and lowest wealth quintiles. The gap between the highest and lowest wealth quintiles remained large as progress among the poorest was only marginally faster than among the richest. Inequalities are also evident across regions and among people at different educational levels.

- We observe lower utilization of key maternal and neonatal health interventions among women from rural areas and those from the poorest households in Ethiopia. The greatest coverage progress in most MNH indicators was made in rural areas leading to reductions in rural-urban inequalities. Progress was also seen to a lesser extent among the poorest compared to the richest wealth quintiles. However, utilization remained low in the rural and poorest segments of the population (Figure 17).

- Large regional inequalities persisted in terms of RMNCH intervention coverage. However, Amhara, Tigray and the Southern Nations, Nationalities and Peoples' Region (SNNPR) made greater progress than the national coverage. Nevertheless, high levels of coverage are still found in urban regions such as Addis Ababa, Dire Dawa, and Harari regions.
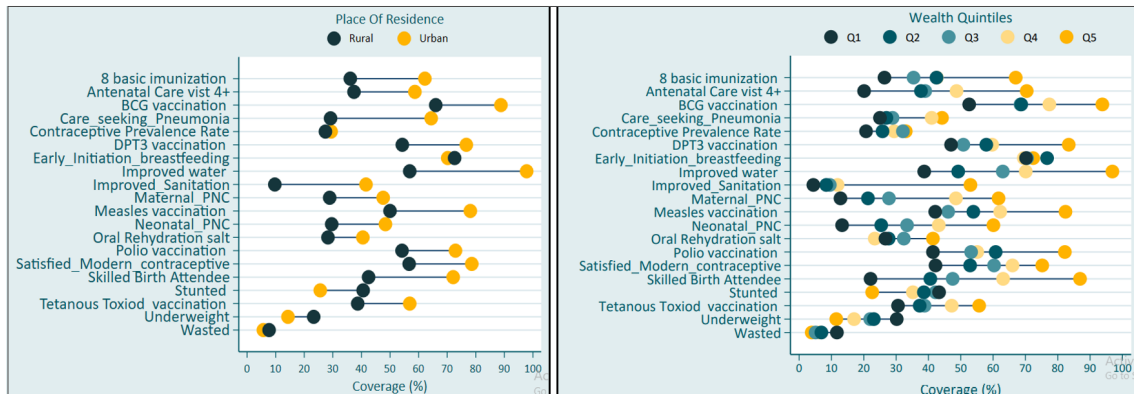
Figure 17: Coverage of basic RMNCH interventions national level stratified by type of residence and wealth quintile, 2019

- The composite coverage index (CCI) showed improvement in the last two decades. The CCI increased in all regions except the two urban regions of Dire Dawa and Harari, as well as in SNNPR and Somali regions, where it decreased in 2019. In 2000, the lowest CCI was in Amhara region followed by Afar region, while in 2019 the lowest CCI was in Somali region which scored 24, followed by Afar (31), Oromia (45), and SNNPR (45). In addition, the inequalities did not significantly decrease from 2000 to 2019. Better CCI progress was recorded in the Tigray, Amhara and Benishangul-Gumuz regions, while little progress was seen in the Addis Ababa, Afar, Harari and Somali regions (Figure 18).

- The CCI based on the continuum of care was 54% in 2019 which leaves 46 percentage points to achieve the SDG 2030. A remarkable reduction from 79% to 46% was achieved in the gap between the CCI score and SDG target of 100% from 2000 to 2019. The coverage gap ranges from 43% in non- pastoralist areas to 58% in pastoralist areas. Among regions, it ranges from the lowest gap of 22% in Addis Ababa to 76% in the Somali region. In the poorest wealth quintile, the gap was 63% while in rural areas it was 57% (Figure 19).

Figure 18: Composite coverage index of of RMNCH indicators along the continuum of care by regions, 2000-2019.
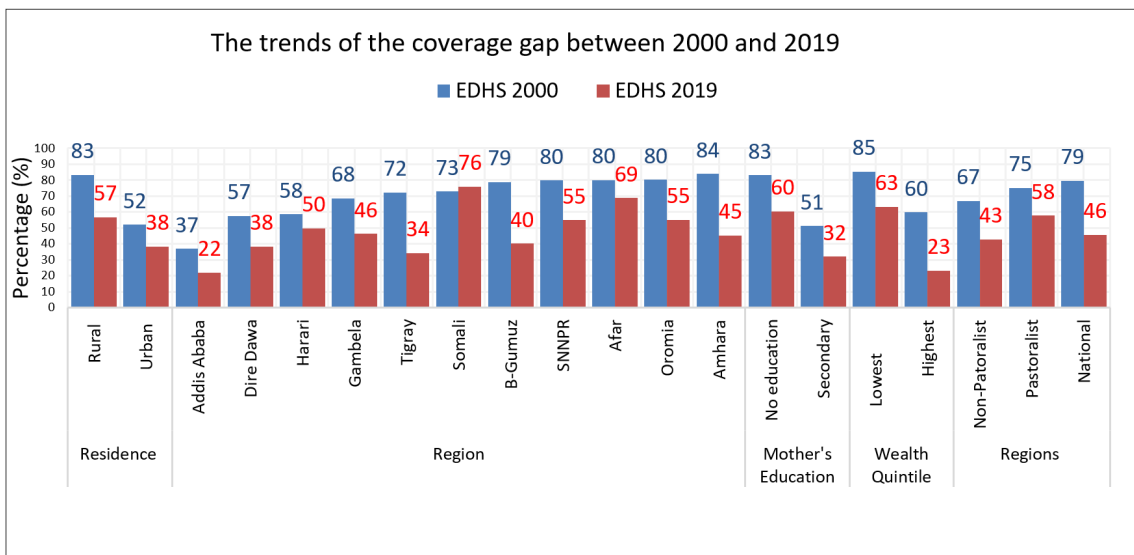

Figure 19: Remaining gaps in the coverage of RMNCH indicators along the continuum of care, 2000-2019.

- While there have been rapid increases in the growth of health funding, especially from international donors, government health expenditure has grown more slowly, and high out-of-pocket expenditures are still a source of concern.
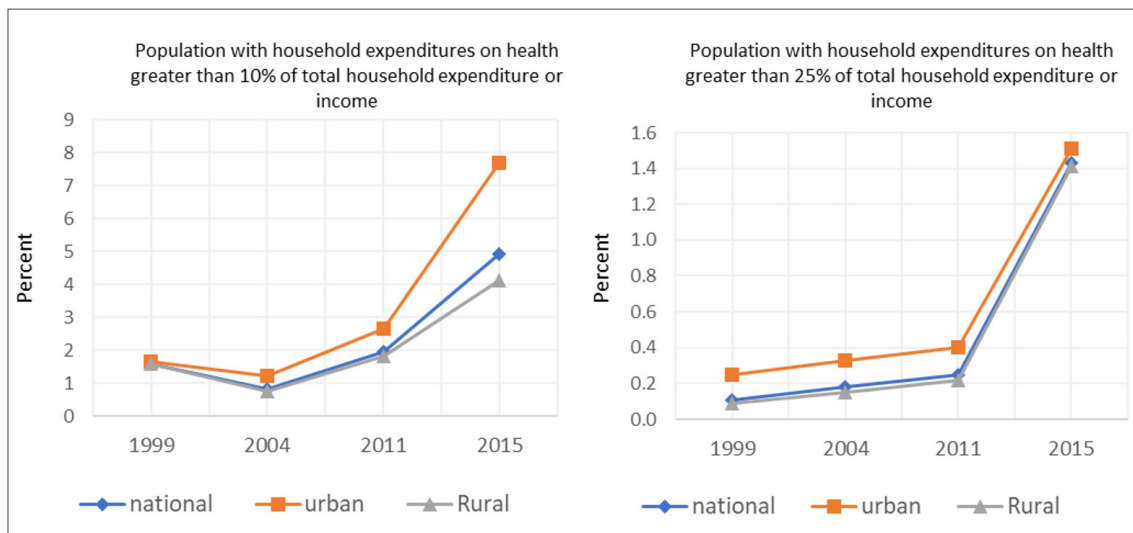

Figure 20: Household expenditures on health greater than 10% and 25% of total household expenditure, 1999-2015.

Causes of maternal and neonatal deaths

- Figure 21 presents estimated rates of the top causes of neonatal death in the years 2000 and 2019 based on two global efforts: Maternal and Child Epidemiology Estimation (MCEE) and Global Burden of Diseases, Injuries and Risk Factors (GBD). Both models attribute about 45% of the decline in NMR to a decline in infectious disease mortality including neonatal sepsis, tetanus, lower respiratory infections, diarrheal diseases and meningitis. Substantial reductions were also estimated for prematurity and intrapartum causes (asphyxia and birth trauma), the two leading causes of neonatal death, with each contributing about 25% to the neonatal mortality decline.

- Maternal deaths due to obstructed labor/uterine rupture – the top cause of death according to the review - increased from 31% in 1980-1999 to 36% in 2000-2012. This suggests that, in addition to improvements in basic maternal health interventions, better infection control and contraceptive use, as well as safe abortion laws could have contributed further to the reduction in maternal deaths that arise from unsafe abortions, sepsis and other infections.
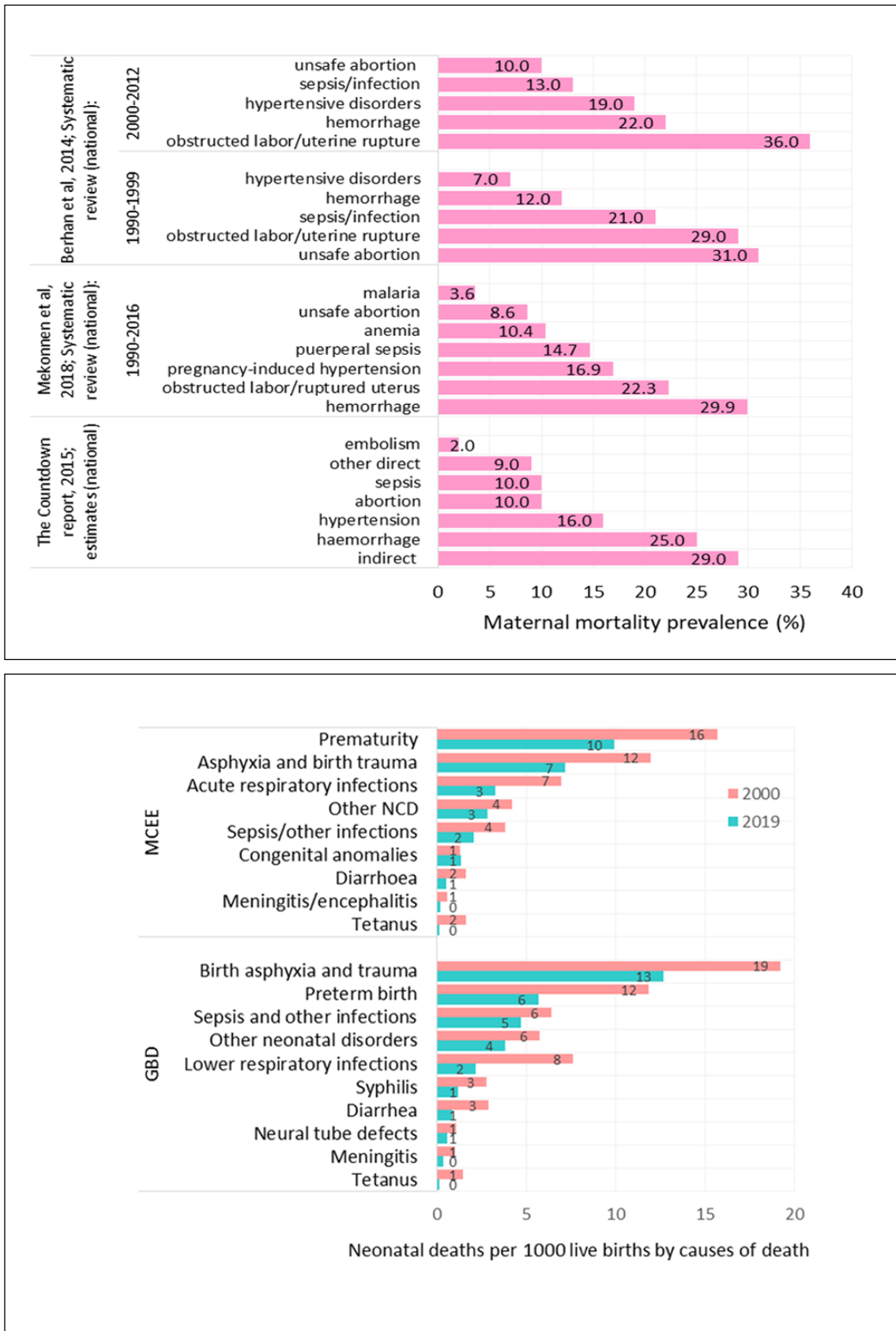
Figure 21: Leading causes of maternal and neonatal deaths in 2000 and 2019.

Summary on the key drivers for the reduction of maternal and neonatal deaths

Good governance

- Commitments and action to reach disadvantaged rural populations through health extension programs
- Well planned and tested expansion of services in low access settings
- Rapid adoption and adaptation of international policies as well as their translation into general and specific national plans
- Leadership and coordination of development partner inputs including the channeling of funds behind a single country-led plan
- Prioritization and increased domestic investment in MNH, facilitated by economic growth

Evidence-driven programmatic approach

- Creation of demand and basic services through community components (e.g., community health extension workers, women groups), supported by increasing levels of education
- Expansion of services through construction of health posts and health centers, combined with major increases in the workforce, including midwives
- Increased facility access through maternity waiting homes and free health services (for most)
- Extensive pilot testing of new programs prior to introduction (e.g., Community-based Health Insurance)

Recommendations: What should policymakers do?

1. Increase access to maternal and neonatal health services for all: There are still many pregnant women who do not use health interventions. Special attention should continue to be paid to women from rural areas with low levels of education and the poorest households. Existing strategies of the health extension program, including demand creation in the community and increasing access through health posts and health centers, as well as maternity waiting home facilities in all health facilities, and ambulance transport, need to be scaled up further to reach all.

2. Ethiopia should focus on reducing healthcare service inequalities: Universal coverage of maternal and neonatal healthcare can only be achieved by reaching all women and newborns everywhere as well as by ensuring the poorest have access to and use the services. Further expansion of health infrastructure and the workforce, combined with innovative approaches, especially in the pastoralist regions like Somali and Afar regions, are necessary. Also, the relatively low coverage in maternal and emergency obstetric and newborn care in the most populous regions of Ethiopia, such as Amhara and Oromia, needs special attention.

3. Greater attention to improve the availability and readiness of services provided in health facilities: Increasing the availability of antenatal, delivery and postnatal care as well as ensuring universal access to Basic emergency obstetric and newborn care (EmONC) will require increasingly greater investments in health facilities. Promoting quality improvements within health facilities would help increase service uptake, including mothers' willingness to deliver in health facilities.

4. Health system strengthening: Ethiopia needs to maintain the momentum seen in the remarkable progress made over the past three decades as many system indicators, such as health inputs, health facility and health workforce density, are still low by international standards. This will need to be supported by raised domestic funding to increase the number of midwives, physicians, maternity waiting homes, expand referral networks and other investments to ensure that every woman and baby has access to life saving interventions. Furthermore, greater focus should be given to strengthening health system resilience to meet the challenges that lie ahead (such as to prevent shocks to the health system during emergency situations). Considerable expansion of the health workforce is needed to achieve effective levels of universal health coverage (UHC).

5. Data use for scaling up interventions: Ethiopia has commendable experience in using data for adaptation and prioritization, as well as in monitoring of program implementations. Such practices and strategic approaches are known to have positive impacts on improving MNH outcomes, suggesting that the use of evidence for adaptation, prioritization and scaling up of MNH programs needs to be appreciated and strengthened further.

6. Women's education and empowerment: Major advances are required in the education sector, particularly in terms of female enrolment into primary schools which should be further advanced to reach universal secondary education levels. Better education combined with decision-making powers on the use of key reproductive and maternal health services, will contribute to further declines in maternal as well as newborn mortality.

Call to action:

Ethiopia has already made significant progress in the reduction of maternal and neonatal mortality. However, there is still a long way to go to achieve the SDG targets by 2030 in line with the call to action to 'leave no-one behind'. Building on its existing successes, Ethiopia needs to take decisive action to accelerate progress towards achieving its short and long term, national and international targets for maternal and neonatal mortality by scaling up evidence-based, high-impact interventions that save the lives of mothers and newborn children.

Abbreviations and acronyms

AARC	Average Annual Rate of Change
AARR	Average Annual Rate of Reduction
ARRI	Average Annual Rate of Increment
ANC	Antenatal Care
BCG	Bacille Calmette-Guerin (vaccine)
BEmONC	Basic Emergency Obstetric and Newborn Care
CCI	Composite Coverage Index
CemONC	Comprehensive Emergency Obstetric and Newborn Care
CHBI	Community-based Health Insurance
CHEW	Community Health Extension Worker
CS	Caesarean section
DPT	Diphtheria, Pertussis, Tetanus vaccine
EDHS	Ethiopian Demographic Health Survey
FP	Family Planning
GDP	Gross Domestic Product
HEP	Health Extension Program
HSDP	Health Sector Development Programme
HSTP	Health Sector Transformation Plan
MMR	Maternal Mortality Ratio
NMR	Neonatal Mortality Rate
PNC	Postnatal Care
Penta3	Pentavalent-3
RMNCAH-N	Reproductive, Maternal, Neonatal, Child, Adolescent Health and Nutrition
SARA	Service Availabilities and Readiness Assessment
SBD	Skilled Birth Delivery
SPA	Service Provision Assessment
SDG	Sustainable Development Goal
UN-IGME	UN Inter-agency Group for Child Mortality Estimation

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About the Countdown 2030 Initiative

The Countdown 2030 Initiative for Women's, Children's and Youth Health is a global strategy, led by several institutions. It aims to improve the measurement and monitoring of coverage and to strengthen regional and national capacities in the production and use of scientific data. In collaboration with the African Population and Health Research Center (APHRC) and the West African Health Organization (WAHO), the Initiative supported the establishment of a regional network of research and public health institutions and government agencies from 22 West and Central African countries to help them better monitor and analyze data as well as communicate research results on maternal, newborn, child and youth health and nutrition. The Initiative calls for the accountability of governments and development partners, identifies knowledge gaps and proposes new actions for universal coverage of women's, children's and adolescents' health. It is expected that government authorities will use the research results to improve planning and increase resources for achieving national and global goals to eliminate maternal, newborn and child deaths. For more information, visit http://countdown2030.org/.

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