ROADMAP TOWARDS MAXIMIZING NEWBORN AND CHILD SURVIVAL AND WELLBEING BY 2030

MINISTRY OF HEALTH, ETHIOPIA

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ACRONYMS

ANC	Antenatal Care
ART	Antiretroviral Treatment
BEmONC	Basic Emergency Obstetric and Newborn Care
CBNC	Community Based Newborn Care
CEmONC	Comprehensive Emergency Obstetric and Newborn Care
CHIS	Community Health Information System
CPAP	Continuous Positive Air Pressure
DHIS	District Health Information System
ECD	Early Childhood Development
ECCE	Early Childhood Care and Education
EDHS	Ethiopian Demographic Health survey
EFY	Ethiopian Fiscal Year
EmONC	Emergency Obstetric and Newborn Care
ESDP	Education Sector Development Program
FMOH	Federal Ministry of Health
GHE	Global Health Estimates
GPI	Gender Parity Index
HC	Health Center
HEP	Health Extension Program
HEW	Health Extension Worker
HIV	Human Immunodeficiency Virus
HMIS	Health Management Information System
HRH	Human Resource for Health
HSTP	Health Sector Transformation Plan
iCCM	Integrated Community Case Management
IDSR	Integrated Disease Surveillance and Response
IMNCI	Integrated Management of Newborn and Child Illnesses
KMC	Kangaroo Mother Care
MCSP	Maternal and Child Survival Program
MDR	Multi-Drug Resistant
MDSR	Maternal Death Surveillance and Response
MNCH	Maternal Newborn and Child Health
MTCT	Mother to Child Transmission
NCD	Non Communicable Diseases
NICU	Neonatal Intensive Care Unit

PHCU	Primary Health Care Unit
PMTCT	Prevention of Mother to Child Transmission
PNC	Postnatal Care
PSBI	Possible Serious Bacterial Infection
RED	Reaching Every District
SARA	Service Availability and Readiness Assessment
SNL	Saving Newborn Lives
SDG	Sustainable Development Goals
TB	Tuberculosis
TFR	Total Fertility Rate
TWG	Technical Working Group
UHC	Universal Health Coverage
USAID	United States Agency for International Development
WASH	Water Sanitation and Hygiene

OPERATIONAL DEFINITION OF TERMS

Child: In keeping with the global definition, in this Roadmap, all human beings under the age of 18 years are considered "children". For the purposes of this Roadmap, important other operational terms under this larger designation of "child" include:

- Newborn: Infant under 1 month (or 28 days)
- Children under five: Children from 1 to 59 months
- Adolescent: Children 10 – 18 years

Life course approach: A life course is defined as "a sequence of socially and biologically defined events and roles that the individual enacts over time"[1] This approach, considers health as a developmental process occurring throughout the lifespan (longitudinal connections) and life stage (developmental periods), affected by complex interplay of biological, behavioral, psychological, social, and environmental factors across the course of a person's life[2,3,4.]

Wellbeing: Refers to the state of being comfortable, healthy, and happy. It is a much broader concept than moment-to-moment happiness. It encompasses physical, social, mental, and emotional status; how satisfied people are with their life as a whole, their sense of purpose and how in control they feel.

Survive: Ending preventable neonatal, child and adolescent deaths, and stillbirths[5].

Thrive: Ensuring healthy growth and well-being of children and adolescents. The global targets include: Ensure that all girls and boys have access to good quality early childhood development. It included ending all forms of malnutrition and addresses the nutritional needs of children, adolescent girls, and pregnant and lactating women, ensure universal access to sexual and reproductive healthcare services and rights, including family planning when applicable as detained in the strategic documents which are released periodically.

Transform: Expanding enabling environments. The global targets include: Eliminate all harmful practices, discrimination and violence against women and girls, ensure all girls and boys complete primary and secondary education, and achieve universal access to safe and affordable drinking water, sanitation, and hygiene, as well as elimination of inequities to access to high-quality health care.

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[1]Janet Z. Giele and Glen H. Elder Jr., (eds) Methods of Life Course Research: Qualitative and Quantitative Approaches, Sage Publications, 1998 ISBN 0-7619-1437-4

[2] Halfon N, Larson K, Lu M, Tullis E, Russ S. Life course health development: past, present and future. Matern Child Health J. 2014 Feb;18(2):344–65.

[3] Halfon N, Hochstein M. Life Course Health Development: An Integrated Framework for Developing Health, Policy, and Research. Milbank Quarterly. 2002 Sep;80(3):433–79.

[4] Halfon N, Inkelas M, Hochstein M. The Health Development Organization: An Organizational Approach to Achieving Child Health Development. The Milbank Quarterly. 2000 Sep;78(3):447–97.

[5] Definitions for survive, thrive and transform are adapted from the '*The Global Strategy for Women's, Children's and Adolescent's Health 2016-2030'* Strategy. Every Women Every Child 2015.

FORWORD

FOREWORD

Ethiopia has made significant gains in reducing under-five mortality rate and is working hard to achieve the global SDG targets set for 2030.s. The National Child Survival Strategies and the Child Survival Partnership were instrumental in guiding the design, implementation, coordination, monitoring and evaluation of high impact newborn and child health interventions in the country. Despite the significant achievements, a lot remains to accomplish and the progress must accelerate in order to achieve the goals laid out for 2030 SDGs that requires significantly improving the newborn & child health outcomes in the next ten years. The MoH is cognizant to the contribution of newborn death to the under-five mortality remains significantly high accounting for 54% of under-five mortality and the existing sub national inequity with regard to achievements made. Despite robust implementation of multiple child survival initiatives, the expanding access to primary health care with health posts built in every village and the presence of community structures such as the health development women's networks for demand creation; improvements in utilization of child health care services have not been as expected.

The MoH recognizes that to achieve the SDG targets for newborn & child health, there is a need to develop a road map that envisages with a scope of 10 years & serves as a platform for development of a comprehensive plan that is well harmonized with HSTP II. Hence, the road map guides the ten years plan to implement child and newborn program management and implementation levels throughout Ethiopia. This road map will serve as an implementation framework, resource mobilization and guide subsequent development of necessary implementation tools including newborn and child survival strategies, and guidelines considering local resource settings.

To sustain and accelerate gains in newborn and child health the road map has key guiding principles which include: Resilience, Equity, Quality, Adaptability, Evidence-driven, and Universal Health Coverage (UHC).

The overall purpose of the National Newborn and Child health road map (2020-2030) is to provide strategic direction for newborn and child health programming in Ethiopia for the next 10 years within the framework of UHC and that every newborn survives and thrives in a transformed health system and enabling environment. The Roadmap also intends to define the framework for strategic action as well as guide future five-year strategies and plans for newborn and child health programming in Ethiopia. Besides guiding the newborn and child health and survival, the road map also aims to contribute to the national goal of improving maternal health and reduction of mortality.

The MoH urges all stake holders including development partners to emphasize and refer this road map during resource mobilization and implementation efforts.

H.E. Dr Dereje Duguma (MD, MIH)
State Minister of Health
Ministry of Health, Ethiopia

EXECUTIVE SUMMARY

Between 2000 and now, improvements in coverage of health services along with improvements in other sectors have brought remarkable reduction in child mortality. Ethiopia has achieved considerable reduction in child mortality over the past two decades. Under-five mortality and child mortality reduced from 166/1000 live births and 97/1000 live births, respectively, in 2000 to 55/1000 live births and 43/1000 live births, respectively, in 2019. Neonatal mortality reduced from 49/1000 live births in 2000 to 33/1000 live births in 2019. Currently, neonatal mortality contributes to 54% of under-five deaths. Malnutrition in children under the age of five remain critical challenges in Ethiopia. In 2019, 37% of children were stunted and 21% underweight for age; and 22% of women 15-49 with Body Mass Index less than 18.5. Malnutrition is an underlying cause in up to 50% of under-five mortality. Maternal and child health remains one of the major priorities of the Ethiopian health sector. Expansion and decentralization of primary healthcare services as part of the health extension program, accelerated training of mid-level healthcare professionals, expansion of maternity waiting homes, and training and deployment of emergency surgical officers were among the major health sector investments for maternal and child health services.

The substantial progress registered in reducing newborn and child morbidity over the past decades is a result of strong leadership of the Ministry of Health (MoH), coordination of efforts and intensive investment in the health system by government, development partners, and the community at large. The strong national policies and plans coupled with the broader global commitment lay the foundation to continue the implementation of newborn and child health interventions at scale. The current strategies and plans, however, have been 'incremental' five-year rolling strategies off existing platforms without a comprehensive review of the larger national and global environment, determinants of newborn and child health and anticipated epidemiologic transitions. The focus has largely been on child survival and children below the age of five years.

With the vision to ensure that every child in Ethiopia survives, achieves highest potential, and enjoys full rights living in an enabling environment, the ***Newborn and Child Health Roadmap*** 2021-2030 is developed to address these gaps. The period and targets are aligned with the Sustainable Development Goals and the Health Sector Transformation Plan. The overall purpose of the Roadmap is to provide strategic direction for newborn and child health programming in Ethiopia for the next 10 years within the framework of Universal Health Coverage and that every newborn survives and thrives in a transformed health system and enabling political environment. The Roadmap also intends to define the framework for strategic action as well as a guide future short and medium term strategies and plans for newborn and child health programming in Ethiopia.

The development of the Newborn and Child Health Roadmap is informed by (i) a critical review of lessons learned from implementing newborn and child health programming in Ethiopia; (ii) analyses of expected demographic and epidemiologic shifts; (iii) analysis of expected changes in the global environment relevant for newborn and child health outcomes; (iv) and experiences of other middle income countries to help understand what the future may look like for Ethiopia. Guided by the Maternal, Child Health and Nutrition Directorate of the FMOH, a core group of technical experts with inputs from global newborn and child health experts and various stakeholder consultations led the development of the Roadmap.

A conceptual framework was used to guide the analysis of child health situation and trends, and the health sector's response and anticipated changes over the Roadmap period. The framework considers life course approach (preconception through the age of 18); the concepts of survive, thrive and transform taken from the global commitment to ending preventable deaths; the WHO health system building blocks; non-health determinants; as well as the central role of family and community in the health of newborns and children.

The Roadmap is organized into four major sections: past and current mortality and morbidity situation analysis, past and current response analysis, expected changes (economic, social, and epidemiologic) through 2030 and strategic recommendations. In order to be able to systematically address the differing health problems of children in the different age groups, the analysis and recommendations are further organized by age groups - neonates, children under the age of five, children 6 to 14 years and adolescents 14 to 18 years. The strategic recommendations encompass different strategies and interventions starting from preconception period along the life course. In addition to strengthening the high-impact maternal and child health interventions already introduced (improving the coverage, quality and content), the Roadmap has put forth a number of 'new' high impact strategies /interventions to gradually integrate into the health care delivery system over the next five to ten years. Strengthening the health system delivery platform, intra and inter-sectoral collaboration, strategic use of evidence and community empowerment are critical foundations for successful implementation of any 'new' strategy /intervention.

Operationalizing this Roadmap will start with prioritizing the recommendations further to identify what can start immediately as part of the existing annual plans. Recommendations related to strengthening effective coverage of maternal, newborn and child health interventions by 2025 will start immediately. In parallel, the Maternal, Child and Nutrition Directorate will work to integrate the 'new' strategic recommendations into the next iterations of the newborn and child survival and development related strategies guidelines, training materials and relevant documents. The next iterations of the newborn and child survival strategy should also consider strategies to reduce geographic disparities, particularly in pastoralist /semi-pastoralist areas and other marginalized population groups, including accelerated/catch-up health plans as needed.

Acknowledgement

This road map is developed through the coordination of the Maternal Child health and Nutrition Directorate of the Ministry of Health. The development process of this national roadmap for newborn & child health has undergone multiple consultations and continuous involvement of experts & stakeholders on Newborn and Child Health. Several national and international documents were reviewed and consulted, consultative meetings conducted and international & local expert advices taken into consideration in the development process. The Ministry wishes to cordially acknowledge and send special regards to the distinguished individuals and their institutions & organizations who contributed substantially to the development of this roadmap, the list of which is annexed.

We would like to acknowledge experts working at the National Newborn & Child Health program for their outstanding contributions and coordination efforts for the realization of this road map.

The Ministry of Health sincerely acknowledges Save the Children International (SCI) for its close technical & financial assistance throughout the development of this road map which includes the printing cost.

Finally, the Ministry of Health of Ethiopia greatly appreciates and is thankful to the below mentioned organizations for their unlimited technical support and huge contribution in the development and review of this roadmap through their global and local experts: United states agency for international development (USAID), Save the children international (SCI), Bill and Melinda Gates foundation (BMGF), United nations children's fund (Unicef), world health Organization (WHO), Harvard T.H. Chan/Fenot project, John Snow Inc. (JSI/L10K), Transform HDR/Project Hope, Transform PHC, Ethiopian Pediatrics Society (EPS), Clinton health access initiative (CHAI) and London school of hygiene and tropical medicine (LSHTM/iDEAS), and HaSET MNCH research program.

Meseret Zelalem Tadesse, MD, Pediatrician

Maternal, Child health And Nutrition Directorate Director

Ministry of health

BACKGROUND

Ethiopia has registered substantial progress in reducing newborn and child morbidity over the past decades as a result of strong leadership of the Federal Ministry of Health (FMOH), coordination of efforts and intensive investment in the health system by government, development partners, and the community at large.

Ethiopia has strong policies and plans to continue implementation at scale of newborn and child health interventions as part of a five-year health sector plan and broader global commitment. The five-year Health Sector Transformation Plan (HSTP) from 2015-2020[6] prioritizes maternal, newborn and child health. Global commitments made to the Call to Action on Child Survival and Development, the Universal Health Coverage (UHC) and Sustainable Development Goals (SDGs) required that the HSTP set ambitious yet achievable targets of reducing under-five, infant, neonatal mortality and stunting in children under the age of five to 30/1000 live births, 20/1000 live births, 10/1000 live births and 26% respectively by 2020. To support achieve these targets, Ethiopia's FMOH developed the *National Strategy for Newborn and Child Survival in Ethiopia (2016-2020)* in 2015[7].

Although these strong policies and plans will allow Ethiopia to continue implementation at scale of newborn and child health interventions, so far there have been 'incremental' five-year rolling strategies off existing platforms. This approach does not allow for long-term, transformative and out of the box thinking. In addition, these strategies were developed without a comprehensive review of the larger national and global environment, determinants of newborn and child health and anticipated health /epidemiologic transitions.

For the development of its latest national strategy for newborn and child survival, the FMOH took stock of past achievements and successes, integrated key lessons learned from the previous strategy and included new global innovations and developments critical for newborn and child survival. Lessons from implementation of the previous strategy, *the National Child Survival Strategy (2005-2015)* [8]and the "Child Survival Partnership" that brought decision makers and implementers to work together were instrumental in guiding the design, implementation, coordination, monitoring and evaluation of high-impact newborn and child health interventions in the country. A key finding from the review was that coverage of high impact newborn and child health interventions increased over this period; however, utilization of newborn health services was not uniform across geographic areas nor among the different sections of the population.

With a vision to inform five-year strategies, including the mid-year course adjustment of the current HSTP, as well as look beyond to 2030, the Maternal, Child Health and Nutrition (MCHN) Directorate of FMOH with support from USAID's flagship Maternal and Child Survival Program (MCSP) and the Saving Newborns Lives (SNL) project decided to develop a long term ***Newborn and Child Health Roadmap*** (Roadmap) 2020-2030. The initial thinking was to use lessons from the Community Based Newborn Care (CBNC) Program[9]to develop a long-term newborn health vision for Ethiopia. The nature of the CBNC Program, which was designed along the 4-C framework [10], provided an excellent opportunity for synthesizing lessons across the pregnancy to postpartum period and along the community to hospital

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[6]FDRE MOH, *Health Sector Transformation Plan for Ethiopia. Federal Ministry of Health, 2015-2020,* FMOH, 2015.

[7]FDRE MOH, *National Strategy for Newborn and Child Survival in Ethiopia, 2016-2020. MNCH Directorate,* FMOH, 2015.

[8]FDRE MOH, *National Child Survival Strategy in Ethiopia. Family Health Department,* FMOH, 2005.

[9] Community Based Newborn Care Implementation Plan, FMOH. February 2013

[10]The four C's are the four essential steps required for identification of sick newborns as early in their sickness as possible and their appropriate management. They are: (i) **C**ontact – mothers and newborns have early contact with the health system through early pregnancy identification, antenatal care (including home visits), delivery notification and PNC home visits; (ii) **C**apture –sick newborns are identified early during ENC immediately after delivery, through routine assessment at PNC visits and by families seeking care after identifying danger signs; (iii) **C**are –sick newborns are provided care, including antibiotic treatment if appropriate or referral to higher level care, as soon as possible; (iv) **C**ompletion -sick newborns requiring antibiotic treatment complete the full course of treatment.

continuum of care. With inputs from partners and technical experts, the initial idea was then expanded to include children beyond the neonatal period. However, as the FMOH is currently developing an adolescent and youth Roadmap, agreement was reached that the medium and long term health needs of adolescents will be integrated there.

THE ROADMAP

VISION

Our vision is to ensure that every child in Ethiopia survives, achieves highest potential, and enjoys full rights living in an enabling environment.

GUIDING PRINCIPLES

The key guiding principles of the Roadmap are:

Resilience: all child health, growth and development interventions should mainstream enhancing the capability of the environment to withstand difficulty and to recover from those when they emerge.

Equity: all differences that result in diminished opportunities for children, whether rooted socially, economically, demographically, or geographically, should be addressed to the extent possible.

Quality: the programs, interventions and plans targeting children's health, growth and development should be safe, effective, equitable, people-centered, efficient and timely.

Adaptability: the programs, interventions and plans targeting children's health, growth and development should integrate flexibility to respond to the changing environment and circumstances including cultural values or beliefs with the awareness and ability to adapt approaches to maximize the likelihood of children to survive and thrive in an enabling environment.

Evidence-driven: explicit and judicious use of the best-available evidence to comprehensively inform interventions, directions, and approaches.

Universal Health Coverage (UHC): interventions should be designed in keeping with Ethiopia's commitment to attaining UHC – ensuring equity in access to health services, quality of health services and protection against financial risk – by 2030.

Continuum of care: a care that connects essential maternal, newborn, and child health packages, throughout adolescent, pregnancy, childbirth, postnatal and newborn periods and into childhood, building upon their natural interaction throughout the life course.

PURPOSE

The ***overall purpose*** of the Roadmap is to have a medium- to long-term newborn and child health vision that draws from the country's development vision, in general, and the draft health sector-visioning document,[11] in particular. It will provide strategic direction for newborn and child health programming in Ethiopia for the next 10 years within the framework of UHC and that every newborn survives and thrives in a transformed health system and enabling political environment. The Roadmap also intends to define the framework for strategic action as well as guide future five-year strategies and plans for newborn and child health programming in Ethiopia. In alignment with the sustainable development goals, the impact indicators to be achieved by 2030 include:

[11] This refers to the draft national health sector visioning document developed by the FMOH in 2015: 'Envisioning Ethiopia's path towards universal health coverage through strengthening primary health care'; draft, March 2015.

SURVIVE - End preventable deaths

• Reduce newborn mortality to at least as low as 12 per 1,000 live births.
• Reduce under-five mortality to at least as low as 25 per 1,000 live births.

THRIVE - Ensure health and well-being

• End all forms of malnutrition and address the nutritional needs of children, adolescent girls, and pregnant and lactating women.
• Ensure universal access to sexual and reproductive health-care services (including for family planning) and rights.
• Ensure that all girls and boys have access to good-quality early childhood development.
• Achieve universal health coverage, including financial risk protection and access to quality essential services, medicines and vaccines.

TRANSFORM - Expand enabling environments

- Eliminate all harmful practices and all discrimination and violence against women and girls.
- Enhance scientific research, upgrade technological capabilities and encourage innovation.
- Provide legal identity including for birth registration.

ASSUMPTIONS

- Ethiopia will become a lower middle-income country by 2025 and middle-income country by 2035.
- An epidemiologic transition is expected in the coming decades – from high burden of communicable diseases and under nutrition to non-communicable diseases, obesity and injuries. Along with improving socio-economic status, urbanization, industrialization, globalization, climate change and other factors are expected to prompt this transition.
- Demographic trends indicate that there will be a large cohort of children as well as an increased population of child bearing age that will need to access basic health services.
- With an average annual growth of 4.6% prompting further population shifts, Ethiopia is expected to have more than 35% of its population living in urban areas by 2030. With increasing urbanization, Ethiopia will face increasing levels of non-communicable diseases and injuries.
- Global climate change is likely to continue to affect Ethiopia in the medium term. Cyclic droughts and associated health and nutrition problems will continue to challenge vulnerable regions and poorly-resourced populations. The early warning and preparedness system, and multi-sectoral collaboration to manage humanitarian crises, is expected to increasingly improve such that impact of such shocks in the health system (and the gains achieved) becomes negligible.
- The FMOH will finalize and initiate the implementation of the strategic recommendations in the draft 'Envisioning Ethiopia's path Towards Universal Health Coverage through Strengthening Primary Health Care by 2035'.
- Health services will be more equitably distributed to reach all population, including marginalized and pastoralist populations.
- Key HSTP reproductive, maternal, neonatal, child, adolescent and youth health Strategic Initiatives[12] will gain the required scale within the HSTP period.

[12] The Strategic Initiatives include: universal access to family planning information and services, scale-up postpartum family planning services to all woredas, strengthen adolescent and youth focused reproductive health services, universal access to essential high impact

- Strong inter-sectoral collaboration is very critical to be able to address the health and wellbeing of children and meet ambitious national goals; and building on the current woreda transformation model, this will continue to be gradually achieved.
- The national political and governance transformation will lead to a better stability, inclusive economic growth and domestic resource mobilization to support transition to independence from external financing.

SCOPE

This document is expected to set priorities and be the guiding document for programming for newborn and child health and wellbeing until the year 2030. It focuses on newborns and children, noting the inextricable link between mother and baby. Hence it includes those maternal and newborn interventions critical to newborn survival and development. This roadmap considers that other broader maternal and adolescent health issues are being dealt with in similar documents focusing on these areas.

This roadmap is a country-wide, multi-sectoral document which must be consulted in programming for the survival and well-being of Ethiopian Children and creation of the necessary enabling environment.

AUDIENCE

The Roadmap is for health and non-health sectors that design and implement interventions directly and indirectly contributing to the health and wellbeing of Ethiopia's children. These include government ministries and agencies: health, agriculture, education, youth and children, human rights, environmental protection, science and technology, municipalities, and others; bilateral and multilateral development partners; non-governmental organizations, civil society organizations, and the media. The document will be owned by the FMOH, who will coordinate with other relevant stakeholders to ensure recommendations are included in the relevant sectoral strategies and plans.

CONCEPTUAL FRAMEWORK

The guiding conceptual framework takes the child at the center and examines the interactions of the various health determinants affecting the survival and wellbeing of children. The main components of the guiding conceptual framework are:

1. Life course approach – it follows the child starting from the preconception period through the age of 18. It looks at the child as the individual child within the family and as part of the whole community.
2. The three pillars: borrowing from the "Every Woman Every Child" global initiative; the survive, thrive and transform concepts are taken as key pillars.
3. WHO building blocks – for the sake of structured thinking, the health system is examined using the six WHO building blocks. Given its critical importance, the roadmap also considers '*community systems*' as an additional pillar.
4. Non-Health determinants – key proximal and distal determinants of health that are outside of the health sector are considered. As such, participation of non-health sectors is critical for the success of this roadmap.
5. Family as a functional unit in the life course approach – within the three pillars, the role of a family as a functional unit is considered.

maternal, neonatal and child health services, scale up respectful maternity care in all health facilities, eliminate obstetric fistula, enhance implementation of routine immunization improvement initiative.

6. Community ownership – given the fact that this is at the core of our ability to respond to the needs of the child, community ownership is considered as the cornerstone in this framework.

This conceptual framework is used to guide the analysis of child health situation and trends, analysis of the health sector's response and anticipated changes over the coming years in the health situation and wellbeing of children. The conceptual framework helps frame the analysis and thinking process to come up with strategic recommendations to shaping the health system to cater for the current and emerging health care needs of children.

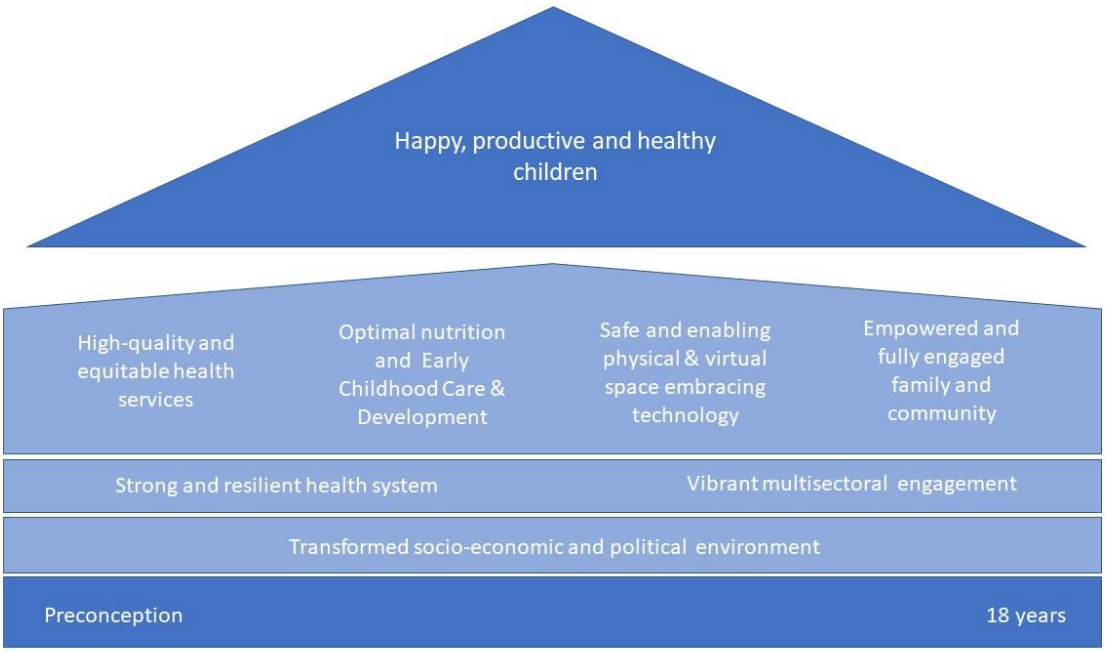


Figure 1: The main conceptual framework

ROADMAP DEVELOPMENT PROCESS

The Roadmap is informed by: 1) a critical review of lessons learned from implementing newborn and child health programming in Ethiopia; 2) analyses of expected demographic and epidemiologic shifts; 3) analysis of expected changes in the global environment relevant for newborn and child health outcomes; and 4) experiences of other middle income countries to help understand what the future may look like for Ethiopia.

Table 1 shows the activities that took place to support the development of the Roadmap.

Table 1: Process for developing the Roadmap

Phase 1: Initiating the process through the leadership of the MCHN Directorate of the MoH.

Establishment of a Technical Working Group (TWG) that included participants from the MoH relevant directorates and other sectors such as Education, women & children affairs, labor and social affairs, sports, and Transport under three sub-groups of the 'survive', 'thrive', and 'transform' domains with agreement on timeline and key milestones. Mobilization of resources and support staff including consultants to support the process.

A preliminary desk review of key documents to synthesize past and present trends in newborn and child health and wellbeing.

Phase 2: Undertaking the desk review and synthesis of information

Extensive desk review on health trends, lessons learned from newborn and child health programming, gaps in service delivery, expected epidemiologic shifts in the medium to long term, and recommendations. The lead consultant conducted desk review of issues identified as 'cross-cutting' (issues related to urbanization, private sector, policy, legal systems, political economy) as well as synthesis of lessons from selected middle-income countries identified for benchmarking.

The TWG participated in a three-day retreat to review the findings and work further on the sections of the Roadmap.

The lead consultant developed a draft Roadmap.

Phase 3: Consultation and finalization of Roadmap

A stakeholder meeting took place in November and December 2018 to review the draft Roadmap and prioritize strategic recommendations. Extensive review and revision of the draft Roadmap by national and global newborn and child health experts in 2019.

Phase 4: Presentation to the senior management

Presented to MoH senior management in December 2021 to get their views and inputs, and

Incorporation of recommendations from the MoH senior management by an ad-hoc team.

SITUATION ANALYSIS

CHILD MORTALITY TREND

Ethiopia is a country with 47% of the population under the age of 15 and about 70% under the age of 30[13]. With the current growth rate of 2.9%, the country's population is expected to increase to 125 million by 2035[14]; half of which will be children under the age of 18. Maternal and child health remains one of the major priorities of the Ethiopian health sector[15,16]. Expansion and decentralization of primary healthcare services as part of the health extension program, accelerated training of mid-level healthcare professionals, and training and deployment of emergency surgical officers were among the major health sector investments for maternal and child health services.[17]

As a result of these health sector investments and overall development endeavors, noticeable changes have been observed in maternal and child health indicators. Between 2000 and 2019, improvements in coverage of health services along with improvements in other sectors have brought remarkable reduction in child mortality (figure 2)[18].

The reduction in child mortality was primarily among older children after the first year of life[19]. According to the Ethiopian Demographic and Health Survey (EDHS), between 2000 and 2019, under-five mortality decreased by 67% and neonatal mortality by only 39%. Currently, neonatal mortality contributes to 54% of under-five deaths. Malnutrition in children under the age of five remain critical challenges in Ethiopia. In 2019, 37% of children were stunted and 21% underweight for age; and 22% of women 15-49 with Body Mass Index (BMI) less than 18.5. Malnutrition is an underlying cause in up to 50% of under-five mortality.

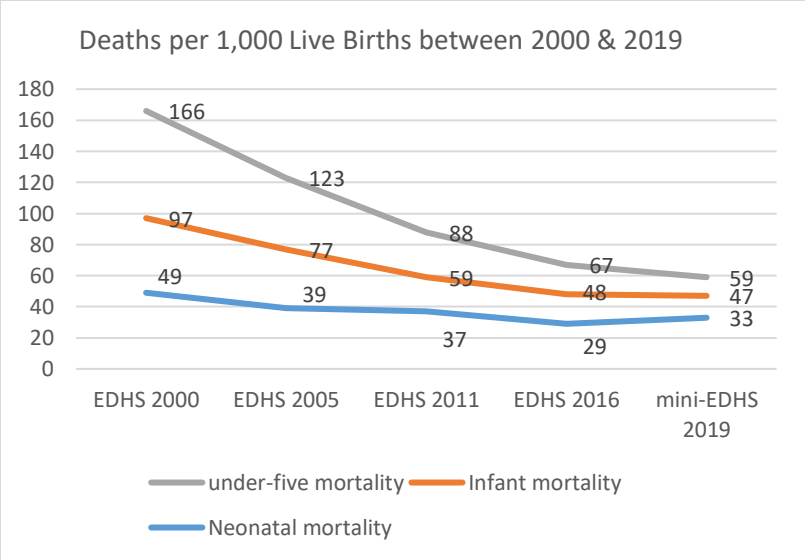


Figure 2: Child mortality between 2000 and 2019

Regional data from the 2016 EDHS shows significant regional variation in mortality reduction[20]. The under-five mortality remains very high in the pastoralist and semi-pastoralist areas of the country ranging

[13] Harnessing the demographic dividend in Ethiopia. Population Reference Bureau (PRB). www.prb.org

[14] Population projections (1950-2050) Ethiopia portal data. www.ethiopia.opendataforafrica.org

[15] FDRE MOH, *Health Sector Development Plan (HSDP) for Ethiopia I-IV. 1997-2005*, FMOH.

[16] Ibid HSTP 2015

[17] Countdown study for MDGs

[18] Ethiopian Public Health Institute (EPHI) [Ethiopia] and ICF. 2019. *Ethiopia Mini Demographic and Health Survey 2019: Key Indicators*. Rockville, Maryland, USA: EPHI and ICF.

[19] Ibid EDHS 2019

[20] CSA Ethiopia and ICF, *Ethiopia Demographic and Health Survey 2016. Addis Ababa, Ethiopia, and Rockville, Maryland, USA: CSA and ICF,* 2017.

between 88/1000 live births in Gambella to 125/1000 live births in Afar. Under-five mortality is also higher in rural areas compared with urban (83 versus 66 per 1000 live births), with Addis Ababa having the lowest mortality rate at 39 deaths per 1000 live births.

PAST AND CURRENT HEALTH SITUATION

Health status of neonates:

Of the estimated 3 million babies born annually in Ethiopia, about 95,000 die in their first month of life. Three causes account for over 80% of newborn deaths: intra partum related complications (29%); preterm birth complications (26%); and severe infections (28%) (Figure 3)[21, 22]. Ethiopia is among the top 15 countries that contribute to two-thirds of the world's preterm babies with an estimated preterm rate of 12%, with extremely preterm (<28 weeks) of 5%[23, 24]. Major causes of preterm mortality include sepsis, respiratory distress syndrome and intra ventricular hemorrhage. Iatrogenic causes further compound preventable loss of life and potential life-long disability— e.g., inadequate/inappropriate feeding and nutrition in the first few weeks of life is a common contributor to deaths among preterm and small-for-gestational age newborns; and retinopathy of prematurity is a key complication of unsafe oxygen use potentially leading to life-long visual impairment. An estimated 186,000 neonates develop Possible Serious Bacterial Infection (PSBI) annually in Ethiopia with 26,226 annual deaths – about 60 neonatal deaths per day due to infection/sepsis alone[25]. Congenital malformations contribute to about 5% of the neonatal mortality[26].

With an estimated stillbirth rate of 30/1000 births, Ethiopia is among the 10 top countries that contribute to 70% of stillbirths in the world[27]. A number of preventable and/or treatable conditions are among the causes of stillbirths: maternal hypertensive disorders and diabetes, maternal infections in pregnancy, fetal growth restriction, and congenital abnormalities. Intrapartum complications (including birth asphyxia) – both preventable and treatable – are the leading cause of intrapartum fetal loss.

Health status of children under the age of five:

Preventable common childhood illnesses with underlying malnutrition are the major causes of mortality in children under the age of five years in Ethiopia. Pneumonia accounted for 17% of deaths in children in 2016 (figure 3)[28]. In the same year, diarrhea accounted for about 8% of the deaths. While significant decline has been seen over the past decade, respiratory infections, diarrhea and fever in children under the age of five are still common in Ethiopia with care seeking from health facilities being very low[29]. Other vaccine preventable diseases including measles and meningitis accounted for 5% and 2% of the deaths in 2016. Tuberculosis (TB) is also a major problem in children in Ethiopia, with 13% of all TB cases in children under the age of 15 in 2014, and mortality of about 56 under five children per 100,000 (mortality

[21] Severe infections including sepsis, pneumonia, tetanus and diarrhea.

[22]WHO and MCEE., "Estimates generated by WHO and Maternal and Child Epidemiology Estimation Group, 2017

[23]Chawanpaiboon et al. 2018, "Global, regional and national estimates of levels of preterm birth in 2014: a systematic review and modelling analysis. Lancet Global Health. Published online October 29, 2018. Available at https://www.thelancet.com/journals/lan

[24] Every Preemie Scale: Ethiopia Profile of Low Birth Weight and Preterm Prevention and care. May 2019. www.EveryPreemie.org.

[25]Anna C Seale et al, "Estimates of possible severe bacterial infection in neonates in sub-Saharan Africa, south Asia, and Latin America for 2012: a systematic review and meta

[26]UNICEF 2017, "Levels and Trends in Child Mortality. Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation (IGME)

[27]Joy Lawn et al, " for The Lancet Ending Preventable Stillbirths Series study group. Stillbirths: rates, risk factors, and acceleration towards 2030. " *The Lancet.,* vol. 387, no. Published Online January 18, 2016 http://dx.doi.org/10.1016/S0140-6736 (15)00837, pp. 587-603, 2016.

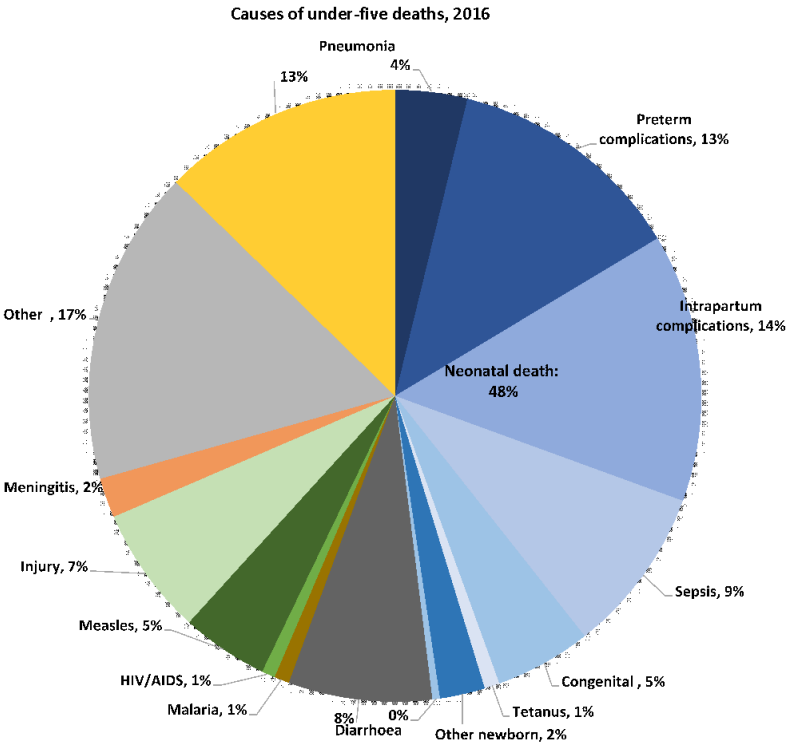
[28] Ibid WHO and MCEE 2017

[29] Ibid EDHS 2016

for children under two years of age is three times higher than those older)[30]. Multi- Drug Resistant (MDR) TB remains to be a risk which will affect the treatment outcomes of TB in this age group.

More than 90% of the 100,000 children currently living with Human Immunodeficiency Virus (HIV) in Ethiopia acquired the infections through Mother to Child Transmission (MTCT). Currently only 21,470 children are on Antiretroviral Treatment (ART).

Injuries contributed to 7% of under-five deaths in 2016. According to the WHO Global Health Estimates (GHE), the most common causes of fatal child unintentional injuries were road-traffic accidents followed by fire, heat and drowning[31]. The share of injury as a cause of under-five mortality has slightly increased from the 2012 estimate of 6%; however, there is serious lack of age disaggregated data for injuries in Ethiopia to determine the exact causes.



Source: Estimates generated by the WHO and Maternal and Child Epidemiology Estimation Group (MCEE) 2017 available at data.unicef.org

Figure 3: Major causes of death in under five children, 2016

Early Childhood Development (ECD): While data is scant in the current status of early stimulation and nurturing care for infants and young children in Ethiopia, experts express significant lack of nurturing care. Some studies have shown that only 10-41% of parents provide cognitively stimulating materials to their child and only 11-33% of parents actively involve their children in cognitively stimulating activities prevalence of stunting is also 38 %. Moreover, exposure to toxic stress occurs when infants and young children experience violence, abuse, neglect, enduring hunger, chronic and often multiple adversities. While the magnitude of these stresses is not well known, it is believed to be high considering the high magnitude of child deprivation trend analysis based on the three consecutive EDHS surveys.

Health status of children 6-14 years

With decreasing mortality in children under the age of five years, more children will survive resulting in a large cohort of children over five years of age with unique health care needs. Nationally representative data on major causes of morbidity and mortality for this age group are not available. Based on experts' opinion, however, major communicable diseases and malnutrition seen in the younger age group are believed to continue affecting children in this age group as well. While nationally representative surveys on risk factors and burden of non-communicable diseases (NCDs) and injuries are lacking, available service statistics show them as major health problems for children in this age group. WHO 2014 report indicates, NCDs (diabetes, cardiac diseases, chronic respiratory diseases and cancer) are estimated to account for 30% of all deaths in

[30]FDRE FMOH, "National TB Report of Ethiopia. FMOH, 2014

[31]World Health Organization (WHO) Global Health Estimates (GHE) 2012

Ethiopia[32]. Globally, many children with NCDs die prematurely because of late diagnosis and/or lack of access to appropriate treatment; those fortunate to survive often experience significant hardship and disability as a result of living with a chronic health condition that is not optimally managed.

Unintentional injuries caused about 25,000 deaths among 0-14-year olds in Ethiopia in 2015, the leading cause being road-traffic injuries, followed by fire, heat/ hot substances and drowning. In 2012, WHO reported that about 32% of all 68,948 injury deaths in Ethiopia occurred among children less than 14 years.

Health status of adolescents

The major health conditions which affect the age group 6-14 affect this group as well. Reproductive and mental health issues are the two prominent causes of mortality unique for this age group. Reproductive health makes a significant portion of the health and wellbeing of adolescents. Various reproductive health problems including unwanted pregnancy, sexually transmitted infections including HIV, female genital mutilation and early marriage influence children's opportunity to thrive, significantly limiting their capability to achieve their full potential. According to the 2016 EDHS, there is high unmet need for family planning among girls age 15-19 (20.5% for unmarried and 4.7% for married); 63% of boys and 76% of girls lack comprehensive knowledge about HIV; 47% of girls 15-19 have been circumcised; median age at first marriage is 17.1 for women and 23.8 for men; and 6% of girls got married before the age of 15[33].

Reproductive health problems related to unplanned or unwanted pregnancy has detrimental effects on girls' health and their ability to use their full potential. Early and forced marriage is a culprit responsible for denial of women from growing to their full potential, mentally (including increased suicidal ideation), physically and socially. Based on estimate by UNICEF the proportions of girls in Ethiopia married by 15 and 18 years, respectively, were 14% and 40%. The consequences cross generations. The consequences of a girl's pregnancy/having a child includes poor maternal and neonatal outcomes because of the immature physiological and psychological development. The girl will have multiple obstetric complications and the neonate (if she gives birth) will have limited care as a result of the limitations in maturity of the mother.

Mental health is poorly understood aspect of health in Ethiopia. The prevalence of childhood mental illness is estimated at 12-25%[34]. Global data shows suicide to be a major cause of death for children, adolescents and young adults. Data from the US Centers for Disease Control and Prevention shows that the suicide rate among adolescents ages 12-17 in Ethiopia is about 52 per million[35]. Suicide is the second leading cause of death for older children and adolescents in many parts of the world[36]. In Ethiopia, there is paucity of data on the causes of mortality among adolescents. However, according to WHO 2012 Global Mortality Data, suicide is among the three leading causes of mortality in adolescents along with injury and HIV[37].

[32]World Health Organization-NCD country profile of 2014

[33] Ibid EDHS 2016

[34] FMOH. National Adolescent and Youth Health Strategy, 2016-2020. October 2016.

[35] US CDC adolescent suicide data

[36]American academy of child and adolescent psychiatry……

[37]WHO 2012 global mortality data

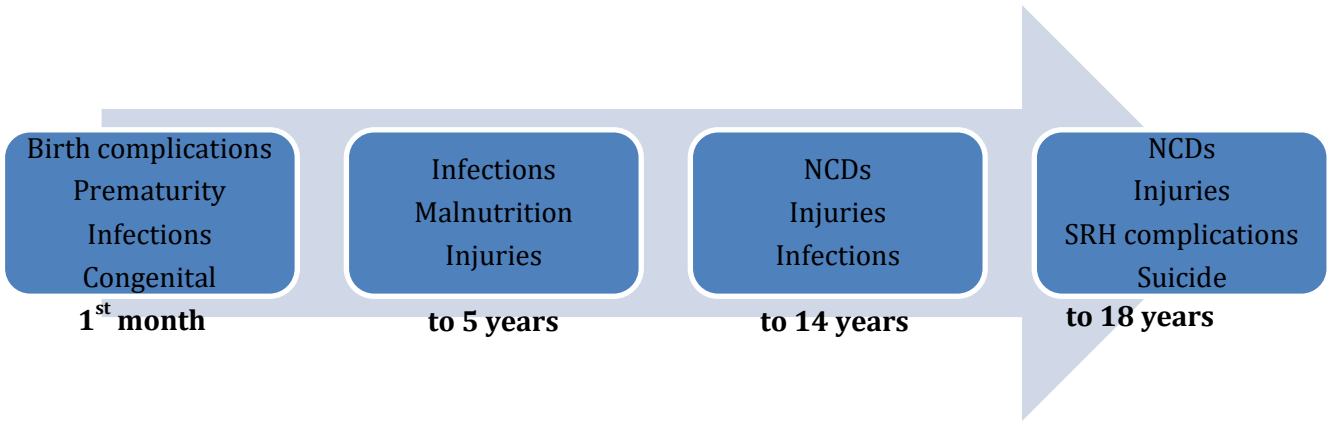


Figure 2: Major causes of mortality across the different age groups

HEALTH DETERMINANTS AND CROSS CUTTING ISSUES

***Nutrition*:** Many sick and small newborns become malnourished in the NICU because of lack of appropriate nutrition; early initiation of breastfeeding could be noted for all newborns

Malnutrition in children under the age of five remains to be a critical challenge in Ethiopia. Although an average decline in child undernutrition of about 1% was observed between 2000 and 2016, the prevalence of undernutrition is still high: in 2016, 38% of children were stunted, 24% underweight for age and 22% of women 15-49 had BMI less than 18.5. More emphasis is needed for neonatal nutritional conditions, eg, small-for-gestational age newborns especially resulting from nutritional causes; and also, especially, lack of immediate and exclusive breastfeeding resulting in many preventable newborn and infant deaths. There may not be data from Ethiopia, but there is global evidence from situation analyses that poor nutrition of hospitalized small and sick newborns is a not uncommon situation in low and middle income countries contributing to poor newborn outcomes. Many sick and small newborns become malnourished in the NICU because of lack of appropriate nutrition; early initiation of breastfeeding could be noted for all newborns. Preterm infants and neonates are more vulnerable to times of nutrition deficits than at any other time in the life cycle. The risk of malnutrition is related to reduced nutrient stores at birth, immature nutrient absorption and use, organ immaturity, delayed advancement of parenteral and enteral feeds due to cautious advancement, and dependence on health care providers to accurately identify and effectively provide needed nutrients during a period of rapid growth and development.[38]

Although an improving trend is seen from the previous EDHS period, infant and young child feeding practices are sub-optimal; exclusive breastfeeding rate for children under the age of 6 months is 58% and 60% of children 6-8 months are started with solid and semi-solid foods. On the other hand, the percentage of children 6-23 months fed according to the minimum acceptable diet standards (breastfeeding status, number of food groups, times they were fed during the day and night before the survey) showed only a small increase from 4% in 2011 to 7% in 2016. Micronutrient deficiency is also high with 57% of children 6-59 months having some degree of anemia in 2016.

Malnutrition in children is the consequence of a range of factors that are often related to poor food quality or insufficient intake, and severe and repeated infectious diseases. Undernutrition predisposes children to

[38] Dena L. Goldberg. Identifying Malnutrition in Preterm and Neonatal Populations: Recommended Indicators. Journal of the Academy of Nutrition and Dietetics Sept 208 accessed on Jan 31, 2020

repeated infections, increases the severity and delays recovery from illness. In addition, repeated infections deplete children of valuable micronutrients required for functioning of their immunity. Undernutrition therefore creates a potentially lethal vicious cycle of prolonged illness and deteriorating nutritional status which predisposes to further infection[39]. Undernutrition contributes to about half of all under five deaths.

A multitude of complex factors including biology, economy, culture, environment and disease contribute to undernutrition.

Extreme poverty: Ethiopia is one of the poorest countries in the world with a GNI per capita of 660 US$[40] in 2016. [41]. The multidimensional child poverty analysis done using the 2011 and 2016 EDHS surveys revealed that 13 million children live in poor households (measured in monetary terms) in Ethiopia, 2 million of them in extreme poverty. It also revealed that significantly more children (88% or 36.2 million) are multidimensionally poor (defined as a headcount of children deprived in at least three or more dimensions in the fulfillment of their rights or needs for basic food or services), and that little change has been observed over the five-year period between 2011 and 2016.

Closely related with poverty is chronic food insecurity that still remains a formidable challenge in Ethiopia. The food insecurity is affected by the low productivity as well as cyclic and recurrent drought which severely affect the predominantly rain dependent food production practices of the country.

Poverty has a far-reaching consequence on physical, mental and social wellbeing of children that constitute the future of a nation. Children who are poor are particularly vulnerable to the effects of poverty because of the environment in which they live. Economic, social, health, and other factors converge in these settings to produce more severe, persistent poverty and deprivation that has a detrimental impact on the intellectual, emotional, and physical development of children.

Environment:

Various environmental issues influence children's opportunity to thrive, significantly limiting their capability to achieve their full potential. Key among these includes climate change, pollution, and physical and virtual space.

Pollution: Air pollution is one of the leading cause of disease and premature death in the world[42]. The massive use of fuel woods, liquid fuels and solid biomass in Ethiopia is a major contributor to indoor air pollution[43]. This, combined with the poor housing and crowded living condition, significantly increases the burden of diseases attributed to indoor air pollution (including acute lower respiratory infection and chronic obstructive pulmonary diseases). Moreover, heavy metal pollution is increasingly becoming an issue in Ethiopia. Lead, for example, is among such pollutants believed to be widely available in decorative paints[44],

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[39] WHO. Global Database on Child Growth and Malnutrition. https://www.who.int/nutgrowthdb/about/introduction/en/. Accessed Feb 2, 2020

[40] https://www.indexmundi.com/facts/ethiopia/gni-per-capita accessed Feb 2019.

[41] CSA and UNICEF Ethiopia, 2018. Multidimensional child deprivation in Ethiopia, first national estimates.

[42] https://www.who.int/airpollution/ambient/health-impacts/en/

[43] EDHS 2016

[44] Pesticide Action Nexus Association (PAN-Ethiopia). Report on lead in solvent-based paints for home use in Ethiopia, June 2017. https://ipen.org/sites/default/files/documents/ipen-ethiopia-lead-report-v1_0-en.pdf

release from demolition of constructions, gasoline available the market, roadside soil[45] and even drinking water[46].

Climate change: climate change remains one of the key environmental problems facing Ethiopia. Its impact spans from respiratory allergies and airway diseases to food, water and vector-borne diseases; nutritional problems and human developmental effects. Ethiopia is vulnerable to drought, a major problem that in the past has caused massive loss of life and continues to be a cause of chronic food insecurity to up to 10%-15% of the country's population[47].

Physical exercise and activity: Based on a body of evidence on relation between physical inactivity and poor health outcome (both mental and physical), WHO recommends that children and adolescents should have at least 60 minutes of moderate to vigorous intensity physical activity daily[48]. While lack of physical activity may not be a major problem in Ethiopia now, the increasing urbanization with poor planning and limited space for outdoor activities combined with increasing use of infotainment over the digital space, are expected to contribute to rising mental health problems and obesity in children.

Digital/virtual space: The virtual space (the non-physical space primarily the internet) is expanding in Ethiopia; and rapid expansion is expected to continue in the near future. This virtual /digital space will have huge potential to optimize education, enhance reach and strengthen exchange of ideas. Although it is a great asset if used wisely, the internet also poses a threat to the safety of children. Sexual exploitation, child trafficking, reduced social interaction and reduced sleep time leading to mental health issues, and reduced activity leading to obesity are among the major impacts.

DISPARITIES IN CHILD HEALTH /CHILD HEALTH INEQUALITIES

The EDHS and other nationally representative data indicate observable differences – inequalities – in health outcomes between population sub-groups, largely a reflection of the underlying social inequalities. Health disparities can be reduced, but will require public awareness and understanding of which groups are most vulnerable, which disparities are most correctable through available interventions, and which disparities require more resources and long term strategies. Addressing health disparities requires strategies related to both health and social programs, and overall socio-economic development opportunities. Hence, understanding health inequalities is an important step to developing tailored strategies to narrow the child-vulnerability gaps. The section below highlights child health disparities across geographic, demographic and socio-economic status based on the findings from the EDHS surveys on selected child health indicators.

Urban-rural divide: In Ethiopia, major causes of morbidity and mortality in children are largely similar in urban and rural areas. However, the burden in child mortality and morbidity, and healthy behaviors and practices hugely favor urban settings. According to the EDHS 2016, under-five mortality is higher in rural areas (83 per 1000 live births) compared with urban areas (66 per 1000 live births). Addis Ababa, the urban capital of the country, has the lowest under-five mortality rate at 39 per 1000 live births. Undernutrition is higher among children in rural areas compared to those in urban (15% stunting in Addis Ababa compared with 38% national average; anaemia prevalence is 49% in urban areas compared to 58% in rural areas). Nineteen percent of children in urban areas are fed according to the minimum acceptable dietary standards

[45] Endale Teju, Negussie Megersa, Chandravanshi et al. Determination of the levels of lead in the roadside soils of Addis Ababa, Ethiopia. Ethiop. J. Sci., 35(2):81–94, 2012

[46] Yohannes H, Elias E (2017) Contamination of Rivers and Water Reservoirs in and Around Addis Ababa City and Actions to Combat It. Environ Pollut Climate Change 1:116.

[47] Birara Endalew, Mequanent Muche and Samuel Tadesse, 2015. Assessment of Food Security Situation in Ethiopia: A Review. *Asian Journal of Agricultural Research, 9: 55- 68.* **DOI:** 10.3923/ajar.2015.55.68;

https://scialert.net/abstract/?doi=ajar.2015.55.68

[48] https://www.who.int/dietphysicalactivity/factsheet_young_people/en/

compared with 6% in rural areas. Similar patterns are seen for many of the key child health indicators. Perinatal mortality was also found to be higher in urban areas compared with rural (42 vs 32 /1000 pregnancies, respectively).

Regional differences: In addition to the urban-rural difference, there is significant variation in mortality and morbidity among the regions in Ethiopia. The regions that house majority of the pastoralist and semi-pastoralist population are the most disadvantaged. The EDHS 2016 revealed the highest under-five mortality in the pastoralist and semi-pastoralist areas of the country - Afar, Benshangul Gumuz, Somali and Gambella (ranging from 125 to 88 per 1000 live births, compared with 67 per 1000 live births national average). Significant variations are seen in the level of stunting (Amhara 46%, Benshangul Gumuz 43%, Afar 41%); prevalence of childhood anemia (Somali 83%, afar 75%, Amhara 42%); and children receiving minimum acceptable diet (27% Addis Ababa, 2-3% Afar, Somali and Amhara) across the different regions in the country. Such significant regional differences are observed across different child health indicators reaffirming the need for tailored interventions in order to bring lasting solutions.

Socio-demographic differences: The EDHS surveys have demonstrated various maternal socio demographic and bio demographic factors to affect child mortality and morbidity. Higher mortality was documented for children born from mothers with no education compared with children born from mothers with secondary education (infant mortality of 64/1000 live births vs 35/1000 live births).

Shorter intervals between births are associated with higher mortality: under-5 mortality rate for children born in less than 2 years' interval was twice as high as that of children born 4 or more years after their preceding sibling (114/1,00 live births vs 55/1000 live births). Children reported to be small or very small at birth was more likely to die than children reported to be average or larger at birth: mortality for children who were reported to be small or very small at birth is 56/1000 live births compared with 43/ 1000 live births for children who were reported to be average or larger at birth. Perinatal mortality was found to increase with mother's age at birth (from 28/1000 pregnancies for women age 20-29 to 63/1000 pregnancies for women age 40-49); higher for first pregnancies (33/1000 pregnancies); higher among women with a pregnancy interval of less than 15 months (45/1000pregnancies).

PAST AND CURRENT RESPONSE

This section summarizes the main interventions and strategies Ethiopia has used to respond to child survival and wellbeing. The response by the health and relevant non-health sectors are explored and presented along the major age categories.

Newborn health response

Several high impact neonatal health interventions along the continuum of care from pre-pregnancy care for women through delivery and the postnatal period for both newborn and the mother have been and are being implemented in Ethiopia. However, data from various national surveys and routine reports indicate that coverage of the interventions as well as quality of these services is very low[49, 50, 51, 52].Table 2 provides status of key maternal and child health indicators. While coverage showed noticeable improvement over the past 15 years, available data demonstrates that contact between a client and provider doesn't necessarily translate into provision of needed services. For instance, only a portion of the pregnant women who attended Antenatal Care (ANC) services had the necessary tests done, received tetanus toxoid vaccination or iron tablets. Similarly, less than half of the women (42%) and newborns (34%) delivered in health institutions

[49] Ibid EDHS 2016

[50]FDRE FMOH, "Service Availability and Readiness Assessment (SARA) report. FMOH, 2016."

[51]FDRE FMOH, "Emergency Obstetric and Newborn Care (EmONC) Assessment report. FMOH, 2016.

[52]FDRE FMOH, "HSTP I Annual health report. FMOH, 2017

received Postnatal Care (PNC) within 2 days; less than half of the newborns received vitamin K and a third had tetracycline ointment applied to their eyes[53].

As part of the integrated Community Case Management (iCCM) and CBNC programs, over 97% of the agrarian health posts have the capacity to identify and manage (including referral) common childhood illnesses in children under the age of five, including PSBI in young infants. The interventions are yet to be rolled out in the developing regions of the country. However, even in the agrarian areas, service utilization is very low and attaining high coverage continues to be a serious challenge[54]. Various traditional beliefs and practices, perceived poor quality and lack of trust in modern health care, distance to health facilities, lack of transportation and cost (including opportunity cost) are among the factors affecting service utilization[55,56,57].

The close to 200 hospitals that provide Neonatal Intensive Care Unit (NICU) level I and II care, including care of preterm babies, in the country have capacity limitations; the mean availability of neonatal signal functions[58] in primary, general, and referral hospitals is around 70%[59]. Moreover, care for premature babies is inadequate, with very limited space increasing risk of infection, separation of mother and baby, as well as sub-optimal nutrition for babies whose mothers cannot produce adequate milk[6061]. Power and water supply are also major challenges. Few health facilities provide couplet care (keeping mother and baby together especially when advanced care is required). The national Emergency Obstetric and Newborn Care (EmONC) assessment done in 2016 reported that only one in two health facilities that provide delivery service (hospitals, health centers and MCH Specialty Centers) performed KMC[62].

Although the national strategy for elimination of MTCT has integration of ART on MNCH platform as a key step in reducing mother to child transmission[63], integration of the two services is still very weak. Early infant diagnosis of HIV is offered to less than half of infants who have passed through Prevention of Mother to Child Transmission (PMTCT). Peri-natal transmission of hepatitis B virus, which is largely preventable through a birth dose of HBV vaccine, is a risk for developing chronic infection. Hence, the country is in preparing to introduce routine birth dose of HBV vaccine in to the national immunization program.

The response to health needs of children under the age of five years

Several high-impact health interventions are implemented in Ethiopia that focus on the major causes of under-five mortality. According to the EDHS 2016, 22% of children in Ethiopia were vaccinated by appropriate age and 39% were fully vaccinated by 23 months. Availability of child immunization services at national level is said to be high (80%), with about 94% of public facilities offering child immunization

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[53] Ibid EDHS 2016

[54]Nathan P Miller et al., "Coverage and equitability of interventions to prevent child mortality in rural Jimma and West Hararge Zones, Oromia Region, Ethiopia," *Ethiop Med J,* vol. 52 , no. supp 3, 2014.

[55] Ibid EDHS 2016

[56]Tedbabe Degefie et al, "Local understandings of care during delivery and postnatal period to inform home based package of newborn care interventions in rural Ethiopia: a qualitative study. http://www.biomedcentral.com/1472-698X/14/17," *BMC International Health and Human Rights,* 2014

[57]Save the Children, "A report of study on 'Barriers and facilitators to early pregnancy identification, birth notification, early ANC and PNC home visits in Amhara, SNNPR, Oromia', Save the Children, 2016 and 2017.

[58] Neonatal resuscitation, antibiotics for PROM, IV fluids, safe administration of oxygen, KMC for preterm and very low birth weight babies, antibiotics for sepsis, and corticosteroids for preterm birth

[59] Ibid EmONC assessment 2016

[60] Ethiopian Emergency Obstetric and Newborn Care (EmONC) Assessment 2016

[61] Opinion of expert neonatologists in Ethiopia.

[62] Ibid EmONC assessment 2016

[63]FDRE FMOH, "The National Strategic plan for Elimination of Mother to child transmission of HIV and Syphilis in Ethiopia 2017-2020.," FMOH, 2016.

services[64]. However, the low availability of antigens (about a third of facilities having any one of the six antigens), low availability of equipment to maintain the cold chain, and less than a fifth of the facilities providing immunization service on a daily basis indicate serious challenges with the program (Table 3). Perinatal HBV infection, which is largely preventable through a birth dose of HBV vaccine, is a risk for developing chronic infection.

Access to HIV testing among orphaned children is still low in the face of increased prevalence of HIV among these populations of children. While there are guidance and recommendations to integrate childhood TB screening and diagnosis at all possible service outlets, implementation has so far been poor. TB case detection rate and adherence to treatment are also poor.

With high level of poverty and food insecurity, as well as sociocultural factors affecting child nutrition even when resources are available, appropriate and adequate nutrition is key in ensuring age-appropriate growth and wellbeing of children. Although nutrition is integrated at point of service delivery (as part of Integrated Management of Newborn and Childhood Illnesses -IMNCI, Integrated Community Case Management - iCCM and the Health Extension Program - HEP), the focus it gets in both well-baby and sick-baby clinics is poor. Various factors including fragmentation of funding and program management structures; the fact that it requires intensive counseling (individual and group) and ongoing follow up which requires skills, commitment and time, which may be lacking in a busy outpatient clinic; and lack of resources and access to appropriate food supplies. Signs of child obesity are beginning to be visible in urban areas of Ethiopia. Changes in dietary practice and sedentary life that comes with urbanization are among factors contributing to obesity.

Table 2: Status of selected maternal, newborn and child health indicators (Source: EDHS)

Status of key maternal, newborn and child health indicators	EDHS Year			
	2005	2011	2016	2019***
Total Fertility Rate (TFR)	5.4 children	4.8 children	4.6 children	4.6
Median age at first marriage	16.1 years	16.5 years	17.1 years	
Median age at first birth	19.2 years	19.6 years	19.2 years	18.7 years
Contraceptive prevalence rate	15%	29%	36%	41%
Unmet need for family planning	34%	25%	22%	22%
Pregnant women attended ANC 1	28%	34%	62%	74%
Pregnant women attended ANC 4+	12%	19%	32%	43%
ANC 1 in first trimester	6%	11%	20%	
BP measured during ANC	62%	72%	75%	
Urine sample taken during ANC	26%	41%	66%	
Blood sample taken during ANC	26%	54%	73%	
Screened for syphilis*			45%	
Took iron tablets during their last pregnancy	10%	17%	42%	60%
Prevalence of anemia in women 15-49	27%	17%	24%	24%
Birth was protected against neonatal tetanus	32%	48%	49%	

[64] Ibid SARA

Institutional delivery	6%	10%	26%	48%
PNC in the first two days (mother)	5%	7%	17%	34%
PNC in the first two days (newborn)	5%		13%	
Women informed of newborn danger signs			34%	
Two newborn signal functions performed within 2 days of birth			27%	
Breastfeeding within one hour of birth	69%	52%	73%	
Newborns delivered in facility who received Vit K			41%	
Newborns delivered in facility for whom TTC was applied			34%	
Babies with LBW(<2.5 kgs)	14%		13%	
Children 12-23 months fully vaccinated any time	20%	24%	39%	44%
Children 12-23 months fully vaccinated 1st year	17%	20%	22%	
Children under six months exclusively breastfed	32%	52%	58%	59%
Children 6-23 months receiving MAD		4%**	7%	
Children 6-59 months with anemia (Hgb <11g/dl)	54%	44%	57%	57%
Children 6-59 months who received Vit A		53%	45%	47%
Children 6-59 months who received deworming tablets		21%	13%	
Children U5 with ARI symptoms for whom treatment was sought	19%	27%	30%	
Children U5 with fever for whom treatment was sought	18%	24%	35%	
Children U5 with diarrhea for whom treatment or advice was sought	22%	32%	44%	

* FMOH annual performance report 2017 ** IYCF as per the recommendation

*** mini-Ethiopian Demographic and Health Survey

The response to health needs of children aged 6-14 years

In Ethiopia, while the health needs of children over the age of 12 years have been partially addressed through different programs focusing on sexual and reproductive health, health strategies were generally lacking for children in the age range 6 to 9. Services targeting children in this age group are largely embedded within the adult services and as such are not child-friendly. As such, systematic data on the health sector's response to address health needs of this age group is lacking.

To improve the health and learning of school children, the ministry is implementing (in collaboration with the Ministry of Education) a School Health and Nutrition Program The purpose of the national school health and nutrition strategy that was launched in 2018 was to address some of the critical gaps in access to health care for children in this age group. A strategic School Health and Nutrition Framework, Training & implementation guides have been prepared to direct the overall implementation of the program. Ten core packages of school related health services have been identified for implementation at all school levels. Advocacy of and sensitization on the program is going on at sub-national level including capacity building activities. In order to properly monitor and track the accomplishments, a weekly tracking tool has been

prepared and the program has also been incorporated into the HMIS (DHIS2). Hence, the success and impact of this initiative remains to be seen.

The response to health needs of adolescents (14 to age 18)

Most of the health response to adolescents so far has been focused on the Sexual and Reproductive Health (SRH) needs. The available SRH services are provided in setting which are not youth friendly. Coverage of adolescent and youth friendly services is at 45% nationally[65]. While SRH is the area that has gotten more attention as witnessed by the fact that there is a revised policy document, integration of sexual education and access to and quality of SRH services remains to be a significant gap.

Informed by comprehensive situation analysis and lessons, the adolescent and youth health strategy (2016-2020) has gone beyond SRH to integrate interventions on adolescent nutrition, substance use, mental health, NCDs, injury, harmful traditional practices, gender based violence as well as strategies to address vulnerable /special needs groups. As such, the health needs of adolescents will not be specifically discussed in this Road Map. Meaningful linkages will be created with the relevant teams to ensure critical evidence based and high impact interventions for the medium and long term are integrated.

HEALTH SYSTEMS RELATED AND OTHER CROSS-CUTTING RESPONSES

Human Resources for Health (HRH): Shortage and/or misdistribution of Health Extension Workers (HEWs), midwives, pediatricians and neonatologists continues to be a major gap in Ethiopia[66, 67, 68]. There is lack of a robust monitoring and evaluation system for forecasting and projection of workforce demand and supply. The HRH strategy 2016-2025 primarily focuses on addressing existing human resource gaps based on facility staffing standards developed some years ago. As such, it is not readily responsive to the disease epidemiology and burden shift as a result of the expected rapid economic growth during the strategic period: a rise in non-communicable diseases, injury and trauma, and communicable diseases[69].Pre-service and in-service trainings are poorly responsive to the growing demand for improved neonatal care, management of common childhood illnesses and non-communicable diseases (including injuries). To improve the quality of nursing services in hospitals and to strengthen motivation and retention of the diploma-level nursing workforce, nursing specialty training programs at a bachelors' degree level were started in 2014/2015 (these include neonatal, surgical, pediatrics, emergency and critical, and operation room nursing).

Strategic information: The routine Health Management Information system (HMIS) and national surveys (DHS) are the primary source for child health related information. However, current HMIS indicators on child health are not adequate to measure effective coverage of key interventions and the culture of data use for program management of existing indicators is generally very poor at all levels. Both the HMIS and Community Health Information System (CHIS) are largely paper-based, which affects general data quality and timeliness. The ability of facilities and the health system to generate evidence that can guide practice is very limited. The FMOH is currently transitioning HMIS into District Health Information System (DHIS 2) platform and digitalizing all community and facility based health information through the DHIS2/CHIS platform. When completed (expected in a couple of years' time) and fully functional, it is expected to significantly contribute to programming[70]. The number and quality of research evidence and innovation are generally low and, even when there are, use of evidence for program design and decision making is very

[65] Ibid national adolescent and youth strategy 2016

[66] Ibid EmONC assessment

[67] Ibid HSTP APR 2017

[68]FDRE FMOH, "National Human Resource for Health Strategic Plan for Ethiopia, 2016-2025. 2016.

[69] Ibid HRH strategy

[70]FDRE FMOH, "HSTP I Annual health report. FMOH, 2018

limited. Birth registration is in its infancy stage in Ethiopia and it is not yet clear whether and how the data is used to inform policy decisions related to newborn and child health.

Medical products, technologies: Despite improvements over the past decade, shortage of essential health commodities and equipment at service delivery points remain to be a key challenge[71, 72, 73]. This is associated with shortage of resources, poor commodity quantification; the culture of 'push' system of distribution as opposed to need based; lack of skills to operate and /or maintain equipment; inefficient logistics management and distribution systems; and poor accountability mechanisms.

Quality of Care/Services: Due to the focus given to improving access and effective coverage of high impact interventions the quality of the care that is being provided lack the needed rigor and consistency. Improving quality of maternal and child health care (with emphasis on reducing maternal and neonatal mortality) is a key focus area of the Ethiopian National Health Care Strategy 2015-2020. Led by the Health Service Quality Directorate, the core elements include quality planning, quality improvement and quality control[74].Initiatives to improve quality of care have started but focus primarily on hospital level care. Innovative strategies, contextualizing QI models at Primary Healthcare Unit (PHCU) level, where the bulk of the maternal and child health services are provided, are currently being tested in the country[75]. Moreover, various initiatives focusing on health care quality are currently under way showing varying degrees of changes[76]. Ethiopia is a member of the WHO Quality of Care network (focusing on Quality, Equity and Dignity - QED) and among the first wave countries spearheading the efforts to improve quality of health services[77].

Health Care Financing: Although most child health services are free of charge, expenses for services which are not available at the public health facilities are immense. Additionally, the indirect costs (related to transportation and other logistics) could be huge burden for households, often detrimental to health care seeking. To minimize the financial risk protection to prevent massive out-of-pocket payments, Ethiopia has established "Essential Health Services Package in 2005 that was revised in 2019 to ensure that public facilities will deliver a minimum standard of care "that fosters an integrated service delivery approach essential for advancing the health of the population".

The round-six National Health Account (NHA) reports revealed that per capita spending on health is steadily growing. As stated, in EFY 1995/96, per capita spending on health was only US$4.09, but increased steadily to US$5.6, US$7.14, US$16.1 and US$28.65 in 1999/2000, 2004/05, 2007/08 and 2013/14, respectively[78]. However, even at the relatively high level of current spending, spending on health is still far from adequate to buy good health care. A number of health care reform activities are implemented under the Health Financial Reform that led to positive changes in health service access and quality. Legislation enabling free maternal and newborn services in public health facilities has improved access to care. The community-based and social health insurance schemes are being scaled-up with the aim of augmenting financial risk protection[79].

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[71] Ibid SARA 2016

[72] Ibid EmONC Assessment 2016

[73] Ibid HSTP APR 2017

[74] Ethiopian National Health Care Quality Strategy: Transforming the quality of health care in Ethiopia, 2015-2020. FMOH, 2014

[75] Communications between WHO and the national QI TWG

[76] Ibid HSTP APR 2018.

[77] Quality Equity Dignity: A network for improving quality of care for maternal, newborn and child health. Brief prepared for the Network launch meeting, 14–16 February 2017, Lilongwe, Malawi. www.qualityofcarenetwork.org

[78]FDRE FMOH, "Ethiopia 6th National Health Account 2013/2014, FMOH," 2017.

[79]Health Systems 2020. Health Care Financing Reform in Ethiopia: Improving Quality and Equity. www.HealthSystems2020.0rg.

Equity: The right to health is a constitutional right clearly stated in the Ethiopian Constitution. Affirming this, health care equity is one of the guiding principles of Ethiopia's HSTP. The HSTP has identified 'quality and equity in health care' as one of the four transformational agendas for the 2015-2020 period, indicating the health sector's commitment to bring about equal opportunities for health care and bringing down health differentials to the lowest level possible. Researchers, program managers and policy makers agree on the need to tailor programs to the context in order to respond to some of the equity challenges (related to peoples' way of life, gender, geography, wealth, and educational level) the country is facing[80]. To this end, to address geography related equity challenges, the FMOH has been implementing various strategies including the equity plan, budget subsidies, deployment of additional human resources and establishment of special support directorate to provide focused comprehensive support to pastoral and underserved regions. Moreover, a 'strategy for optimizing HEP in pastoralist areas' is developed and approved in 2018 to strengthen the ongoing initiatives to address geographic inequalities in health service utilization[81]. To address the challenges of providing primary health care in urban setting, the urban PHC reform that adopts the family health team approach was piloted in Addis Ababa; and introduced to all the regions for rollout in 2010. The HSTP's vision extends to the possibility of establishing a center or institute for health equity to help continuously generate evidence and program packages that narrows the gap in health service utilization. The heavy focus on primary health care and predominantly free MCH services makes access to health services easier for children. Other aspects including access to education, safety, hygiene, nutrition are highly affected by the widening gap in wealth between the poor and the rich. Unless, systematic and policy interventions are put in place, this is expected to continue. Ethiopia is one of the countries that showed the highest level of within-country economic-related relative inequality as well as one of the largest disparity between urban and rural areas with coverage in urban areas double that of rural areas.

Overall, there is large variation in access to and utilization of various MNCH services across different geographies (urban –rural and regional differences), and maternal characteristics (age, education, socio-economic status. Currently, equity analysis is not used for program design and decision-making. At 33%, out of pocket health expenditure is very high in Ethiopia[78]. Although most child health services are free of charge, indirect costs are immense and thus affect service use. For all the coverage indicators for high impact interventions, the EDHS 2016 (as well as earlier EDHS) showed significant variation by residence (high coverage for women and children living in urban areas compared with rural; high coverage in agrarian areas compared with pastoralist and semi-pastoralist areas); education (as education level of women improve, coverage gets better; or prevalence goes lower compared with those not educated), wealth (as wealth improves, coverage gets better or prevalence gets lower compared with the poorest). Furthermore, studies showed that a variety of complex socio-cultural factors, belief systems and perceptions, as well as gender norms and power relations contributed to low health care seeking behaviors and practices[82, 83].

[80] Araya Abrha, Mussie Alemayehu, Afework Mulugeta. Triad limiting the provision and uptake of reproductive, maternal and neonatal health services in the pastoralist communities of Afar, Ethiopia. The *Ethiop. J. Health Dev.* 2018;32(3)

[81] FMOH. Strategy for optimizing the health extension program in pastoralist areas. Federal Ministry of Health; Addis Ababa; January 2018.

[82] Ibid Tedbabe D. et.al

[83] Ibid Save the Children study report

Infrastructure expansion:

Table 3: Selected service availability and readiness indicators (Source: SARA 2016)

Service availability and readiness indicators	Coverage
Health centers that have water source	53%
Health centers that have power source	44%
Health centers with HIV testing capacity	33%
Health centers with syphilis testing capacity	29%
Facilities (hospital, Health Center (HC), clinics*) ready to provide ANC service based on readiness criteria	41%
Facilities that have emergency transport	86%
Facilities that use partograph to monitor and manage labor	48%
Facilities with BEmONC signal functions	47%
Facilities (including HPs) that have child weighing scale	38%
Facilities that have neonatal resuscitation services	54%
Facilities (hospital, HC, clinics*) that have KMC for premature or very small babies	46%
Facilities (hospital, HC, clinics*) that have antibiotics for PROM	39%
Facilities (hospital, HC, clinics*) that have antibiotics for neonatal sepsis	31%
Facilities (hospital, HC, clinics*) that have corticosteroids for preterm labor	9%
Facilities that have cold boxes /refrigerators for vaccination	31%/71%
Facilities that have the antigens (range for six antigens)	29%-36%

**the clinics are higher and medium private clinics*

Community engagement: Community engagement and empowerment is the center piece of Ethiopia's health service delivery system. Community mobilization is a key component of Ethiopia's health policy[84]. Ethiopia's health extension program (HEP) is designed with the philosophy of 'communities producing their own health'. As such, in the initial several years of the Program, HEWs spent majority of their time in disease prevention and health promotion activities through improving community health literacy and creating 'model families. As the role of the HEWs expanded to include management of sick children and sick young infants in 2010 and 2013, respectively, they needed to spend some time at the health post level. The large volunteer network of the Women Development Groups (H/WDG) supported the HEWs in their community mobilization tasks and provided the single large platform for large scale community mobilization in health. Implementing partners that supported the rollout of key national maternal, newborn and child health programs implemented different community empowerment strategies at varying scales

[84]Health Policy of the transitional government of Ethiopia, FMOH, 1994

with promising results[85],[86],[87]. Sustaining the gains of the strategies and interventions, however, was not possible due to serious challenges related to the weak health system (including poor support to HEWs and WDGs, poor linkage of the primary health care unit), poor program ownership and accountability across the levels of health care.

Emergencies and resilience: Given Ethiopia is susceptible to various natural and man-made emergencies, a dedicated public health emergency management directorate has been established. While the directorate has developed a comprehensive manual, which takes a multi-hazard approach and risk assessment & mitigation as guiding principles, its operationalization and integration with the MNCH directorate is not clearly understood[88]. Frequent drought of varying coverage and intensity has been the mainstay for Ethiopia in the last many decades. With a rain-dependent farming, Ethiopia's resilience to drought and ensuring food security is low as it stands. Although the Sekota Declaration[89] is expected to serve as a spring-board to eliminate child stunting by 2030, the multi-sectoral nature of the declaration may at the same time be a hurdle. It is a fact that in addition to the IDPs, there are drought affected population elsewhere including vulnerable groups such as pregnant and lactating women, adolescent girls, newborn and children. Malnutrition amongst pregnant women and lack of access to BEmONC services in IDPs setting has increased the risk of pregnancy related complications namely bleeding, infection, abortion and fetal death, contributing to increased maternal and neonatal morbidity and mortality. Communities residing in emergency environments are in need of lifesaving interventions on emergency sexual and reproductive health including essential newborn care. The precarious situation of these vulnerable groups requires emergency health assistance focusing on implementation of the minimal initial service package (MISP) for reproductive health which remains overlooked and underfunded. Hence, the ministry of health is working with EPHI/PHEM on integration of Sexual Reproductive and Child Health response strategies and activities initiated to ensure access to integrated Primary Health Care (PHC including reproductive, newborn and child health) for drought and conflict affected population (including IDPs), promoting complementarity relationship with the nutrition, WASH, food and protection sectors to save lives and reduce morbidity.

Women empowerment and education: The positive association between women's empowerment, women's education and positive child health outcomes is very well documented in the literature. Although there are positive changes on women decision making power over the past decades, the progress is slow as indicated in the 2016 EDHS. For instance, 48% of married women were employed at any time during the 12 months before the survey compared with 99% men; and of these 15% of married women had bank accounts compared with 25% men. Twenty-seven percent of women had mobile phone compared with 55% men. With regards to education, while the Gender Parity Index (GPI) in both primary and secondary education has improved over the past years, it still 1 (0.91 for primary cycle and 0.85 for grade 11 and 12) indicating a gender disparity in education[90]. Moreover, majority of women who attend school are likely to stop when they get married[91]. Less than 50% of undergraduate university students are female; and female

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[85] Save the Children International, Ethiopia. https://www.healthynewbornnetwork.org/resource/demand-creation-mnch-cbnc-ethiopia/; https://www.healthynewbornnetwork.org/hnn-content/uploads/Implementing-a-Demand-Creation-Strategy-for-Improved-Maternal-and-Child-Health-Outcomes.pdf

[86] Ali Mehryar Karim, Nebreed Fesseha Zemichael, Tesfaye Shigute et al. Effects of a community-based data for decision-making intervention on maternal and newborn health care practices in Ethiopia: a dose-response study. BMC Pregnancy Childbirth 2018 (Suppl 1): 359. Published online 2018 Sep 24. doi: 10.1186/s12884-018-1976-x.

[87] UNICEF Ethiopia. Brief Documentation Report on UNICEF Ethiopia's OHEP Project in SNNPR and Tigray Regions, September 2016 – December 2018. Unpublished report.

[88]EPHI, "Public Health Emergency Management, Guidelines for Ethiopia 2012, retrieved from http://www.ephi.gov.et/images/guidelines/phem-guideline-final.pdf".

[89] FMOH. Sekota Declaration Implementation Plan (2016 – 2030). Summary Program Approach Document, March 2016.

[90] Education Sector Development Plan (ESDP) V: 2015/16-2019/20. Ministry of Education. 2015.

[91]Ibid EDHS 2016

led instruction in the universities is very low at 11%. The government of Ethiopia is implementing various initiatives meant to empower women that may not be scaled up quickly enough to bring about the required change. The ESDP-V has also included strategies to eliminate the gender parity gap by 2020.

Water, Sanitation and Hygiene (WASH): Poor water and sanitation conditions are currently major problems in Ethiopia, leading to frequent waterborne epidemics that are detrimental to children. Lack of safe and adequate water coupled with poor sanitation practices are the main causes. The 2016 EDHS report shows that 63% and 6% of households have improved water and toilet facility coverage, respectively. Hand washing practice is also very low predisposing children to diarrhoea, helminthiasis, scabies and other waterborne diseases. Diarrhoea contributes to 8% of mortality in children under the age of five. Given the massive morbidity it poses; poor WASH is a major hurdle that negatively affects children's ability to thrive.

Similar WASH challenges are also reflected in the health facilities. The 2016 Emergency Obstetric and Neonatal Care (EmONC) assessment and Service Availability and Readiness Assessment (SARA) reported that 53-60% of health centers have water source on site or in the compound (20% rural health centers compared 76% urban health centers). Even when there is a source of water within or close by the facility, labor rooms do not have easily accessible water source for appropriate hand washing important to infection prevention. The assessment also reported poor sanitation conditions (lack and /or poor quality toilets and overall garbage collection and disposal system) with 60% of health posts and 92 % of health centers have access to any type of latrine facilities, significant majority with unacceptable cleanliness because of shortages of water as well as widespread poor personal hygiene behavior and practices.

In 2016, only 38 % of primary and 62 % of secondary schools had access to a water supply; 87 % of the secondary schools had access to latrine facilities, 38% of which were traditional pit latrines that fail to meet the national standard[92]. However, overall, only 3.2 per cent of schools in the country have the full package WASH facilities. Lack of WASH in schools is a significant cause of missed school days for adolescent girls due to challenges of menstrual hygiene management.

Nutrition: The Government of Ethiopia demonstrated policy commitment to nutrition by developing a stand-alone National Nutrition Strategy (NNS) along with rolling National Nutrition Program (current NNP covering 2016-2020).The Government a multi-sectoral implementation platform through which nutrition interventions were mainstreamed into the various national development sectors. Various sector-based strategies such as the Nutrition-Sensitive Agriculture Strategy, National Food Security Strategy, National Health Sector Transformation Plan, National Food Fortification, and the National School Health and Nutrition Strategy are in place. Good results have been obtained in improving the nutritional status of children and women and increasing community involvement in managing nutrition interventions. Community Management of Acute Malnutrition (CMAM) has been scaled-up nationally, Zinc supplementation for diarrhea has been included in the iCCM, salt iodization is being enforced nationally, and the national food fortification program is being strengthened. Nutrition screening, vitamin A provision and deworming for children under the age of five is being integrated with the EPI program in agrarian areas and Community Health Day activities are being initiated in the pastoralist/semi-pastoralist areas of the country.

Changes in the coverage of key child nutrition service and practice indicators over the last 15 years have been mixed (Table 2). Exclusive breastfeeding has increased from 38% in 2005 to 58% in 2016; 45% (59% urban, 43% rural) of children 6-59 months were given Vitamin A supplement within the six months prior

[92] One WASH National Program: A multisectoral SWAP. A report on Review of Phase I. March 2018. https://www.unicef.org/ethiopia/media/1041/file/ONE%20WASH%20NATIONAL%20PROGRAM%20(OWNP)%20.pdf. Accessed on Feb 04, 2020.

to the survey in 2016 compared to 53% in 2011; and 13% of children 6-59 months received deworming tablets during the 6 months prior to the survey in 2016 compared to 21% in 2011.

To sustain the gains, in 2019 a national food and nutrition policy has been developed with the mission of ensuring food and nutrition security through coordinated implementation of nutrition specific and nutrition sensitive interventions. The Policy is formulated with a broader scope to provide a policy foundation for multi-sectoral collaboration, community oriented nutrition service provision, encourage high impact nutrition interventions and developing related operational and management strategies. Major directions of the policy include; ensuring availability, accessibility and utilization of diversified, safe, and nutritious foods in a sustainable way, ensuring the safety and quality of foods from farm to plate, improving post-harvest management of agricultural food products, ensuring optimum nutrition at all stages of life, provision of timely and appropriate food and nutrition emergency response for natural and manmade disasters, strengthening food and nutrition communication, and establish and strengthening food and nutrition governance.

Early Childhood Care and Development (ECD): Interventions focused on early childhood development are generally very limited in Ethiopia. In 2010, with leadership of Ministry of Education and close involvement of the key stakeholders including the FMOH and Ministry of Women, Children and Youth Affairs, Ethiopia has developed a national policy framework and guidelines for early childhood care and education (ECCE) referring to a holistic and comprehensive programming approach to children (prenatal to 7 years) and their caregivers. However, it was not operationalized. The multi-sectoral collaboration across the ministries was revitalized in 2018 with the aim of operationalizing the policy.

The FMOH has conducted a situational analysis in April 2019 to assess the extent of integration of nurturing care interventions for ECD in the existing RMNCH-N policies, strategies and service delivery packages. Findings revealed that the health and nutrition component of nurturing care for ECD has been integrated and implemented through MCH programs to mitigate child mortality, morbidity and physical growth restriction. The safety and security component has also been integrated and implemented, although to a lesser extent. However intervention components like responsive care, stimulation and facilitating opportunity for early learning and education are almost totally missed out as the main focus of the MCH program were towards ensuring child survival.

EXPECTED CHANGES THROUGH 2030

Taking into consideration the assumptions outlined in this document, drawing lessons from program implementation in Ethiopia and learning from the changes observed in the countries[93]that transitioned from low-income to middle-income in the past decade, this section forecasts what Ethiopia may expect to be key changes in child health and its determinants in the coming 10 years. The changes are envisioned to happen over two implementation periods i.e. from 2020-2025 and 2026-2030.

[93]Brazil, Peru and Mexico from South America; and Bangladesh, Thailand and Malaysia from South Asia were benchmarked for this Roadmap and desk review was conducted.

Box 1: Features of the transition from desk-review of benchmarking countries

Desk review of selected middle-income countries from South America and Asia was done focusing on their socio-economic, demographic, environmental and epidemiologic transitions as they headed towards becoming middle-income. The desk review also looked at how the health system of these countries responded to cater for the impact of these changes and continue to register significant reduction in newborn and child mortality.

While these countries differ in terms of the speed of transition and how child health was impacted, there were similarities in the major features of the transitions which included:

Socio-economic and demographic:

- Gradual reduction in income inequalities between the poorest and wealthiest; yet continuing disparities among social classes and geographies.
- Improved education of women
- Improved access to potable water & sanitation facilities
- Reduction in fertility rates
- Urbanization

Epidemiologic and health care

- Significant reduction in undernutrition (stunting as well as micronutrient deficiencies)
- Gradual reduction in mortality due to infectious /communicable diseases and nutritional problems
- Emerging health challenges: preterm birth, congenital anomalies, pulmonary and nervous system disorders, injuries (including road traffic accidents in adolescents), over-medicalization of childbirth (high caesarean section rate), growing burden of NCDs (cancer, diabetes, cardiovascular diseases, mental health problems), rise of childhood obesity; a shift in dietary consumption characterized by increasing consumption of processed foods and sedentary lifestyle in children
- Expansion of primary care and actions directed at the health promotion and preventative health measures
- Continued inequities in health among social classes and geographical regions, with communicable and nutrition related issues continuing to remain key health problems in various sections of the society
- Significant burden of obesity in urban areas as they are the most affected by rapid changes in nutritional pattern and sedentary life style

NEWBORN HEALTH

While there is a strong push to increase institutional delivery (with HSTP target of 90% [94]from the current 30%[95]), health facilities are not yet ready to provide the minimum standard care[96]. The sub-standard facility readiness means birth complications, infection, and complications of pre-term birth will continue to be major causes of neonatal mortality over the medium term (to ~2025). Stillbirth will also continue to be a key cause of perinatal mortality in the medium term. With increasing access to quality maternal health services and institutional delivery, there will be a significant decline in mortality due to severe infection, and asphyxia in the medium term. But the risk factors for increasing prematurity, including increasing rates of multiple births, greater use of assisted reproduction techniques and changes in clinical practices, such as greater use of elective Caesarean Section are expected to increase the burden of premature birth. It is also expected that there will be a gradual decline in stillbirths and increase in surviving babies with congenital anomalies, including neural tube defect and cerebral deficits in the medium to long term (to ~2030 to 2035).

CHILDREN UNDER THE AGE OF FIVE YEARS

With increasing availability of vaccines, vaccine-preventable diseases will continue to decline; but with increasing complexity of immunization schedules, there may be a reduction in vaccine completion rate and adherence. The role of infectious causes and undernutrition as a major cause of child morbidity and mortality will gradually reduce with changes in lifestyle and improvement in socioeconomic status. Malnutrition as a result of micronutrient deficiency and over nutrition are expected to rise leading to increasing obesity and associated health problems. Injury already contributes to nearly one in eight under-five deaths, and its role in under-five mortality is likely to increase in the future. The burden of children with HIV is also expected to decline with effective implementation of the MTCT strategy. TB case detection and treatment success is expected to improve; but the program will be challenged by the emergence of MDR TB.

With increasing urbanization and improving literacy, a more stimulating environment with less toxic exposure is expected to emerge in the long term; but since majority Ethiopians will remain in rural areas, rural children will remain to have a less stimulating environment.

CHILDREN AGED 6-14 YEARS

As infectious conditions are increasingly brought under control, it is predicted that childhood NCDs (including cancer, cardiovascular diseases, chronic respiratory diseases and diabetes) will continue to emerge in the long term. Incidence of NCDs in this age group will be higher. With increasing urbanization and decline in mobility, it is expected that obesity will be on the rise in urban settings. This age group will also remain highly vulnerable to road traffic injuries.

CHILDREN OVER 14 YEARS OF AGE

Unintended pregnancies and sexually transmitted infections (STIs) will remain a challenge. While the median age at first birth will gradually increase from the current level, it is anticipated to be slow. With the large cohort of adolescents in Ethiopia and the long-standing tradition of early marriage in parts of the country, complications of adolescent pregnancy continue to affect this age group (and their newborns) in the medium to long term.

[94] Ibid HSTP 2015

[95] Ibid EDHS 2016

[96] Ibid EmONC Assessment 2016 and SARA 2016

With a decline in social interactions and urbanization, depression and its consequences may increase. Female genital cutting and underage marriage will show gradual decline. Lessons from other countries show that gender equality and women empowerment play pivotal role, in improving the health of adolescents.

DETERMINANTS OF CHILD HEALTH AND CHANGES IN THE HEALTH SYSTEM

Population increase and urbanization: Even with gradual reduction of Total Fertility Rate (TFR) from the current 4.6 to 3 by 2030, the Ethiopian population is expected to reach over 125 million by 2030. A large proportion of the population will be children and youth. Ethiopia will have more than 35% of its population living in urban settings by 2030, assuming urbanization rate of 4.6 and more per year coming several years. Although, urbanization comes with its own advantages in terms of making services accessible, it also comes with its own challenges including waste management, risk of easy spread of diseases and increased risk of non-communicable diseases. The potential for large urban slums and associated health care challenges are also there.

Private sector: Although increasing, the private sector plays very minimal role in health service delivery in Ethiopia currently, particularly in the rural areas where the large majority of the population resides. With improving socioeconomic condition, urbanization and more conducive business environment over the next decade, private health service delivery is expected to increase.

Women empowerment and education: As indicated in the constitution, the national policy on women and other important policy documents, the Government of Ethiopia is strongly committed to promoting gender equality and women's empowerment,[97],[98],[99],. The various initiatives being implemented in the country by government and development partners are showing incremental results. However, large scale focused interventions to address the deep rooted cultural beliefs and practices fueling gender inequality are generally lacking. These include factors that prevent young women to transition to secondary and tertiary school, including early marriage, personal security and economic challenges, as well as the need for girls to be engaged in essential income generating activities. The Education Sector Development Program's (ESDP) goal of eliminating the gender disparity gap in education at the secondary level and beyond needs to be supported with strong community empowerment strategies to address the deeply entrenched barriers.

Climate change and nutrition: Recurrent drought and limited resilience are expected to negatively affect food security in rural settings making undernutrition a continuing challenge undermining child wellbeing in the medium term. The early warning and preparedness system is expected to gradually improve over the medium term to enable effective management of shocks.

Urbanization and development: Access to cell phone and internet is expected to quickly increase. The poorly planned housing development paired with rapid urbanization is expected to make the environment less conducive for sport and leisure. Physical space in urban settings will be more and more limited restricting the ability of children to exercise, and resulting in a more sedentary life style. Increasing levels of obesity is expected in urban settings.

WASH: WASH is a key component of the HEP and the HSTP that has set out ambitious targets of 100% of households having improved hand washing facility and 60% of health facilities having gender and disability sensitive WASH package by 2020. The FMOH is collaborating with development partners and other sectors in implementing the One WASH National Program to realize the ambitious targets.

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[97]The Transitional Government of Ethiopia. National policy on Ethiopian women, Office of the Prime Minister. 1993.

[98]Federal Negarit Gazetta of the Federal Democratic Republic of Ethiopia. The Revised Family Code. Proclamation No 213/2000. July 2000.

[99]Federal Democratic Republic of Ethiopia, Growth and Transformation Plan (GTP) II 2015/16-2019/20. National Planning Commission, May 2016.

Health care delivery and HRH: As outlined in the HSTP, the number of facilities will increase and access to primary health care is expected to further improve. Access to secondary and tertiary care is also expected to gradually improve in the coming decades as a result of improved availability of higher level service delivery. The nature of services provided at the primary health care unit level will evolve to cater for the needs of the population, which will be more health literate and exercise greater demand for higher level health care. With improving pharmaceutical logistics management system, availability of supplies will improve and cost of drugs will decline, however with potential emergence of resistant infectious agents, the need for innovations and improved treatment protocols will be higher. With the changing disease epidemiology, there will be a need for more specialized care provision capabilities. Cost of care will increase, because more and more complex cases will start surviving and with the potential increase in prematurity and congenital anomalies, children will start to seek more complex care that requires more expensive equipment and a highly trained health work force.

Strategic information and innovation: With increasing internet penetration and mobile coverage, access to internet is expected to gradually increase and health information system is expected to be fully digitalized in the next 10-15 years. Health commodity management and disease surveillance system is expected to also be digitalized and gradually improve. The number and quality of research and scientific inquiries around child health, growth and development will show significant improvement. It is also anticipated that the increasing number of local universities will serve as platforms for innovation. Birth registration and use of data for policy decision is also expected to gradually improve over the long term.

Equity*:* With increasing urbanization, improving socioeconomic status and education of the population, disparities in health service coverage and utilization is expected to slowly improve over the long term. Geographic disparities in health care and health seeking behavior between rural and urban, as well as agrarian and pastoralist/semi-pastoralist areas continue to be a challenge in the medium to long-term. With increasing urbanization, urban slums are likely to proliferate with associated diverse health challenges. Out-of-pocket health expenditure will continue to decline along with improving coverage of health insurance.

STRATEGIC RECOMMENDATIONS

Table 4 presents the strategic recommendations to improve child survival and wellbeing in the medium to long term. Recommendations are organized along the life-course of a child and new interventions are indicated in ***bold.*** The strategic recommendations are: (i) to be implemented at scale, but with strategies tailored to specific context; (ii) new strategies /interventions to be implemented in an incremental/phased manner for better learning.

Table 4: Strategic interventions to improve child survival and wellbeing by 2030

ategic recommendations	**2025**	**2030**
1. Adolescent and maternal health (to delay sexual debut, delay marriage, delay first pregnancy, and eliminate unintended/untimed pregnancy; care during pregnancy, delivery and postnatal period).		
1.1 Improve effective coverage[100] of existing high impact adolescent and maternal health interventions for better newborn and child health outcomes ● Improve access to quality adolescent friendly sexual and reproductive health care and services, including nutrition, substance use, mental health, NCDs, harmful traditional practices, gender based violence and special need groups. ● Strengthening school WASH programs to improve health of adolescents including menstrual hygiene management. ● Improve effective coverage of existing family planning services (to eliminate unmet need, and prevent too early, too frequent and too many children). ● Improve effective coverage of antenatal care services (add content to contact; including early detection). ● Improve effective coverage of maternal health services on the day-of-birth (effective implementation of Basic Emergency Obstetric and Newborn Care (BEmONC) and Comprehensive Emergency Obstetric and Newborn Care (CEmONC) packages; focusing on both the mother and newborn); ***introduce mentoring interventions to improve quality of BEmONC services (linking hospitals with HCs and other strategies).*** ● Improve effective coverage of postnatal care services (both contact and quality).	All under 1.1 by 2025	

[100] Effective coverage: Is a composite index of utilization and quality of care used to measure potential health gains from using health services.

Bakhuti Shengeliaa Ajay Tandonb Orvill B.Adamsc Christopher J.L.Murray Access, utilization, quality, and effective coverage: An integrated conceptual framework and measurement strategy, Soc Scci Med 2005

1.2 Introduce high-impact adolescent and maternal health interventions at scale a) ***Introduce folic acid supplementation for pregnant women (as part of ANC /or through food fortification).*** b) ***Introduce preconception (pre-pregnancy) care using the available RH and nutrition services as an opportunity for counseling, risk identification, and correction, or treatment before pregnancy.*** c) ***Integrate gestational diabetes testing and Human Papilloma Virus vaccine into the MNCH program.*** d) ***Design and implement tailored adolescent specific packages within the HEP (could be based on the school health and nutrition package).*** e) ***In collaboration with the Ministry of Education, design and implement age-specific comprehensive sexuality education in schools and for out of school children.*** f) ***Integrate strategies /interventions for prevention and cessation of smoking, alcohol and substance use.*** g) ***Design and implement strategies supporting maternal/parental mental health to ensure good parenting.***	a-c by 2025; d-f to be initiated by 2025	d-f to be completed by 2030
2 Newborn health		
2.1 Improve effective coverage of existing high impact newborn health services a) Strengthen quality and content /effective coverage of day-of-birth care (institutional delivery, essential newborn care, identification and management of asphyxia, care for preterm/low birth weight babies, pre-discharge care). b) Strengthen care for low birth weight and preterm babies (including scaling up KMC, nutrition; strengthen IMNCI content). c) Strengthen care for sick babies (PSBI).	under 2.1 to be completed by 2025	

2.2 Introduce high impact newborn health interventions at scale ***a) Avail advanced neonatal care services safely: including oxygen use (oxygen blender and oximetry), bubble Continuous Positive Airway Pressure (CPAP), assisted ventilation, surfactant therapy for respiratory distress syndrome; cooling therapy for asphyxia management; breast milk banks for proper nutrition of premature babies; early detection and management of retinopathy of prematurity to prevent blindness.*** ***b) Design and implement strategies for donor milk bank in hospitals to improve nutrition for low birth weight and preterm babies.*** ***c) Develop and implement options for improved blending of oxygen for treatment of premature babies with pulse oximetry.*** ***d) Introduce in-utero interventions to identify and manage congenital malformations.*** ***e) Train and deploy new cadre of health professionals to fill the shortage in the medium term and/or deliver new child health interventions (neonatal nurses at health centers, primary, general and specialized hospitals, general practitioners with advanced pediatrics and neonatology training at primary hospitals, psychiatry nurses at health centers to support mental health of mothers, respiratory therapists at general and specialized hospitals).*** ***f) Introduce /strengthen birth registration to ensure every newborn is registered and counted; and information used for policy decisions.*** ***g) Introduce a congenital malformation registry and surveillance system in all health facilities to address the lack of data on the true burden of these groups of conditions.***	c, f and g to be completed by 2015; the rest to be initiated by 2025	a, b, d and e to be scaled up by 2030 -2035
3 Child health		

3.1 Improve effective coverage of existing child health services ● Strengthen routine immunization services (all components of Reaching Every Community (REC) strategy; integrate immunization in IMNCI platform; strengthen Integrated Disease Surveillance and Response (IDSR) for vaccine preventable diseases). ● Strengthen prevention and management of common childhood illnesses through the existing platforms (IMNCI, iCCM/CBNC; TB screening/diagnosis and treatment; HIV screening and management in line with the three 95s of the national HIV Prevention strategic plan. ● Strengthen the horizontal linkage between the PMTCT program and MNCH platform at all levels (program management as well as service delivery). ● Strengthen /introduce growth monitoring interventions at all levels ***to facilitate early detection of developmental issues.***	All under 3.1 to be completed by 2025	
3.2 Introduce new high impact child health interventions at scale ***a) Implement at scale (rollout) Ethiopian Primary Health Care clinical guidelines - care for children 5-14 years in health centers*** ***b) Expand IMNCI and iCCM strategies to accommodate disease patterns with changes in the epidemiology (including injuries, NCDs, epilepsy, other neurological conditions).*** ***c) Develop capacity for local vaccine production.*** ***d) Integrate paediatric basic emergency, injury and critical care into the existing emergency and critical care system***	under 3.2 to be completed by 2025; b to be initiated by 2025	under 3.2 to be completed by 2030; c, d to be completed by 2035
3.3 Introduce at scale early childhood care and development interventions ***a) Introduce strategies and interactive activities supporting early stimulation and responsive parenting /nurturing care (refer to the nurturing care framework). Develop packages for implementation at various levels of care, integrating in the existing IMNCI and iCCM/CBNC platforms.*** ***b) Introduce parenting education. This can be integrated into existing mother to mother/parent support groups such as the monthly Pregnant Women Conferences.*** ***c) Introduce strategies in support of mental health for mothers after birth.*** ***d) Establish meaningful collaboration with the MOE for effective implementation of the ECCE guidelines as well as the school health and nutrition strategy of the MoH. Jointly develop packages that can be integrated in the HEP and PHCU platforms.*** e) ***Develop strategies for screening developmental delays early and linkage to psychosocial support & clinical services.***	a, b, d under 3.3 to be completed by 2025	c and e under 3.3 to be completed by 2030

4. Introduce High Impact Adolescent Health Interventions other than SRH ***- Improve equitable access to adolescent health services,*** ***- Enhance health literacy among adolescents,*** ***- Improve quality of adolescent health services,*** ***- establish a monitoring and follow-up mechanism to better understand the evolving needs of this age group,*** ***- Strengthen health sector leadership and accountability for adolescent health,***		
1 Strategies focused on health determinants and cross-cutting issues		
1.1 Strategic information and research a) Strengthen and digitalize health information and commodity management (quantification, distribution, monitoring) systems. Introduce tracking of childhood NCDs in the HMIS disaggregated by age. Introduce innovative strategies to improve culture of data use for program management and decision making at all levels. b) Strengthen Perinatal Death Audit /Surveillance and Response (PDSR) at all levels; and use the data to improve service delivery. ***c) Introduce mortality surveillance system /monitoring of child mortality through conducting pediatric death audits and response. Generate evidence on burden of disease in children, disaggregated by age, for decision making.*** ***d) Introduce use of equity analysis for decision making and tailored interventions*** ***e) Introduce surveillance system for monitoring congenital malformation.*** ***f) Expand EDHS to include 'comprehensive' newborn package and NCDs in children (or other NCD focused national surveys that may already been validated globally).*** g) ***Introduce a system to monitor and evaluate the ECD integrated interventions. Introduce a system/mechanism to measure child development outcomes.***	a-e by 2025	f-g by 2030

1.2 Community engagement/empowerment /improving health literacy a) Scale up existing community empowerment approaches for MNCH in areas where they can work (family centered empowerment approaches). ***b) Implement evidence informed and tailored community engagement /empowerment approaches to support individuals, families, opinion leaders like community elders and communities at large take responsibility for (and demand for) MNCH action harmonized with the national community engagement implementation guide.*** ***c) Ensure meaningful engagement /participation of children and adolescent in community groups such that they have a say in decisions focused on their survival and wellbeing.*** ***d) Develop innovative strategies including mobile phones, social media, etc… to empower different segments of the population with health information, demand quality health care and hold health care providers and managers accountable.*** e) ***Use community engagement platforms to create enabling environment for the adoption of early stimulation activities and responsive care giving practices in the community, including male participation in ECD.***	All under 4.2 by 2025	

4.3. Strengthen health service delivery a) ***Introduce at scale strategies for catchment mentorship across the level of health care (from health posts to tertiary hospitals) in support of quality and child centered service delivery at all levels.*** b) Strengthen referrals between facilities, including back referral and follow up; ***including innovative mobile phone based strategies.*** c) Strengthen governance of child health programs at all levels (program management, service delivery, community engagement). d) Relook at the HRH strategy to enable forecasting based on demand; relook at the HRH training strategy to ensure training is tailored and responsive to epidemiologic transitions, accommodate health system demands as it evolves and the available levels of care (service provision as well as management). e) Develop and implement strategies to ensure clean water and power supply availability in all health facilities in the country. f) ***Improve the design of health facilities that will be constructed in the future to include standard water and sanitation infrastructures.*** g) ***Support the local production of essential drugs (including ARV) and vaccines.*** h) ***Initiate and scale up new and advanced diagnostics for early detection of childhood diseases (NCDs).*** i) ***Ensure functional integration of lifesaving child health commodities including oxygen into the pharmaceutical logistics system.***	a-d, and i by 2025	e-h by 2030

4.4. Collaboration /partnership ● Map partners /stakeholders (including civil societies, faith based organizations, professional associations and academics; community groups; private sector) by geographic and thematic areas (who are working on child health, where, what and why?) to enable meaningful contribution of each partner. ● Maximize the utilization of public private partnership to advance and achieve the newborn and child health, wellbeing agenda and targets. ● Strengthen collaboration – among sector ministries, between partners and government, between civil society and government. Prioritize ministries where there is more stakes – education, water, youth, and technology/IT. ● Strengthen multi-sectoral coordination to provide holistic and integrated services according to the national early childhood care and education (ECCE) frame work[101]. ● Ensure the strategic recommendations in the child health roadmap are linked/aligned with the (i) family planning, maternal and adolescent health roadmap; (ii) ECD guideline.	All under 4.4 by 2025	
4.5. Financing a) Strengthen and rollout community and social health insurance. ***b) Diversify funding sources (levies / taxes on alcohol and tobacco; taxes on sugar, sweeteners; public private partnership).***	a by 2025	b by 2030
4.6. Addressing geographic inequalities a) Introduce equity analysis in planning and monitoring systems; and use for course adjustment of interventions b) Implement multi-sectoral accelerated /catch up strategies /plans in pastoralist /semi-pastoralist areas	By 2030	

[101] Ibid ESDP V

4.7. Emergency and Resilience a) Improve access to lifesaving MNCH interventions including BEmONC through provision of emergency health assistance (MISP) beyond SRH services. b) Strengthen the integration of MNCH into the public health emergency management system. b) Strengthen multisectoral interventions for drought and conflict affected populations, IDPs and other vulnerable groups. c) Strengthen and promote complementarity programmatic relationship of MNCH with nutrition, WASH, food and protection sectors to save lives and reduce morbidity & mortality. d) Strengthening regular implementation of integrated health and environment surveillance activities.		

OPERATIONALIZING THE STRATEGIC RECOMMENDATIONS

The FMOH will start focusing on strengthening implementation of existing interventions that directly and indirectly contribute to child health and wellbeing as of now using the opportunity of the HSTP course adjustment following the mid-term review recommendations. Recommendations related to strengthening effective coverage of MNCH interventions by 2025 will start immediately. In parallel, the FMOH will start the preparations to introduce strategic recommendations focusing on new high impact interventions such that they can be integrated in to the next iteration of the HSTP beginning 2020. Moreover, in order to ensure the geographic disparities, particularly in pastoralist /semi-pastoralist areas and other marginalized population groups are narrowed, the FMOH will start the preparation to develop accelerated/catch-up health plan for these areas as of now to start its roll out as part of the next HSTP.