

2019

# An Endline Evaluation of “Reduction of maternal and new born mortality through enhanced availability of trained human resource for the provision of quality basic emergency obstetric and new born care” Project

Submitted to: Ethiopian Midwives Association

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## Acknowledgement

The evaluation team would like to thank the management of EMwA for providing the opportunity to carry out this evaluation. Our special thanks go to Mr Yeshitila Tesfaye, EMwA Executive Director; Demisse Abebe, HR manager; Tamirat Shieraw, BEmONC project Coordinator; Belete Belgu, MERL Department manager, for their comments on the inception report, the overall guidance and coordination of the evaluation study process.

The evaluation team would like to extend its gratitude to Amhara, SNNPR, Afar, Benishanguel Gumuz, Somali regions health bureaus who wrote letters of support for woreda health offices and their corresponding health centers.

The team is extremely grateful to all of the respondents who generously gave of their time to participate in the interviews. We would also like to thank the officials from the Federal and Regional Governments for their cooperation during the field research.

The team is also indebted to all the field data collectors and interpreters who faced all the challenges to the successful completion of field data collection.

## Acronyms and Abbreviations

AMDD	Averting Maternal Death and Disability
ANC	Antenatal Care
BEmONC	Basic Emergency Obstetric and Newborn Care
CEMONC	Comprehensive Emergency Obstetric and Newborn Care
CEO	Chief Executive Officer
D&C	Dilatation and Curettage
EMONC	Emergency Obstetric and Newborn care
EMwA	Ethiopian Midwives Association
FMoH	Federal Ministry of Health
HBB	Helping Babies Breathe
HC	Health Center
HCW	Healthcare Workers
HEW	Health Extension Worker
HO	Health officer
HMS	Helping Mothers Survive
HR	Human Resource
HSDP	Health Sector Development Plan
HSTP	Health Sector Transformation Plan
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MERL	Monitoring, Evaluation Research and Learning
MMR	Maternal Mortality Ratio
MNCH	Maternal Neonatal and Child Health
MNH	Maternal and Newborn Health
MOH	Ministry of Health
MVA	Manual Vacuum Aspiration
MWH	Maternity Waiting Home
NGO	Non-governmental Organization
NMR	Neonatal Mortality rate
PAC	Post Abortion Care
PMTCT	Prevention of Mother To Child Transmission
PNC	Postnatal Care

PPH	Postpartum Hemorrhage
RHB	Regional health Bureau
SBA	Skilled Birth Attendant
SNNPR	Southern Nationals Nationalities peoples Region
STIs	Sexually Transmitted Infections
UNFPA	United Nations Population Fund
UNICEF	United Nations Children’s Fund
UNODC	United Nations Office on Drug and Crimes
WHO	World health Organization
PE/E	Preeclampsia/Eclampsia

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***Executive Summary***

Basic emergency obstetric and newborn care (BEmONC) is a primary health care level initiative promoted in low- and middle-income countries to reduce maternal and newborn mortality. Tailored support, including BEmONC training to providers,

mentoring and monitoring through supportive supervision, provision of equipment and supplies, strengthening referral linkages, and improving infection-prevention practice, was provided in a package of interventions to 454 midwives and other health workers engaged in MNH, covering Amhara, SNNPR, Afar, Somali, Beneshangul Gumuz and Gambella regions of Ethiopia to ensure timely BEmONC care.

EMwA has been implementing the training program in collaboration with Ministry of Health (MOH) and Regional Health Bureaus (RHBs). The project is mainly funded by UNICEF. The objective of the training program is to help health workers acquire life-saving BEmONC competencies and improve the quality of care provided to mothers and newborns, especially at the lower levels of the health system and in remote and hard-to-reach areas. Through this program, EMwA has been providing training to midwives, clinical nurses and health officers in all zones and woredas of National region. Selected health workers received a three-week (further revised to be twelve days) competency-based training which is further accompanied by post-training telephone follow up to all trainees. On-site supportive supervision was also provided to the selected HCs and to the trainees who have displayed a considerable gap in their BEmONC practice.

The main objective of this end line evaluation was to measure the success of the project against its outcome indicators with regards to access and availability of BEmONC services. It was also intended to identify the success and the challenges in delivering its outputs and the strengths and weaknesses of the approaches used, review the lessons learned and use evidences to make recommendations in future project designs. It further tried to assess relevance, effectiveness, efficiency and sustainability of the program from the perspective of strengthening BEmONC and reduction of maternal and newborn mortality.

The evaluation employed a cross-sectional a before-and-after intervention design to conduct this end-of-project evaluation. Both qualitative and quantitative approaches were employed. A survey of trainees, document review and in-depth interviews with key informants constituted the main data collection techniques. Standard facility and health workers BEmONC competency assessment tools that were developed by AMDD were adapted to local context and used for the quantitative assessment of the health facilities and trainees. In total, quantitative data was collected from 180 randomly selected health centers and BEmONC trained staff working in the respective facilities. Forty six in-depth interviews were held with trainees and key informants from relevant stakeholders. Quantitative data was analyzed using SPSS version 23. Qualitative data was analyzed using Colaziz Procedural Steps approach.

The results of the evaluation was, thus, presented in terms of the five DAC criteria (Relevance, effectiveness, efficiency, impact and sustainability).

In terms of relevance, the project was found to be quite relevant as it was successful as it made consistent training of the staff followed by on-phone follow up and supportive supervision, and provision of the necessary supplies and equipment when required. This technical and material support greatly helped to the decreasing of the MMR and improved facility delivery rate. Standardising the BEmONC training is a commendable initiative, yet reaching to the great majority of providers with the training could be a daunting costly endeavour particularly for local stakeholders (such as health bureaus and health facilities) as they often have meagre resources. It was also designed and implemented in line with The Ethiopian Government's Health Sector Transformation Plan 2015/16 - 2019/20 outlines the government's priorities in health including reproductive, maternal, and newborn, child, adolescent health and nutrition and the Sustainable Development Goals (SDGs) 3 and 5 in year 3 and 4.

In terms of effectiveness of the project, the findings from both quantitative data and the review of documents indicated that the project was exceedingly effective. Facility structure indicators, including the availability of competent providers, availability of essential drugs and equipment index score, and infrastructure index score, increased statistically significantly after training. Availability of trained staff to manage complications, ambulance for emergency transport, pharmacy services, and laboratory services 24 hours a day, and seven days a week showed significant changes over survey periods. More than three-quarters of health centers had all necessary equipment, drugs, and trained provider to provide all BEmONC signal functions on the day of the visit.

Though significantly changed from the before project intervention, there still exist problems in the availability of functional water lines in the maternity units and the number of available maternity beds. Essential equipment for newborn care, including suction machines, radiant heaters, and oxygen concentrators, remained the least available items. Regional variations were observed in terms of facility readiness. There was no significant improvement in the availability of equipment index score in Amhara, infrastructure index score in Gambella and Afar, and availability of trained provider and round the clock service availability in Somali and Beneshangul Gumuz region.

Statistically significant improvements were seen in the performance of BEmONC signal functions compared to the before training, particularly in terms of administration of parenteral antibiotics, parenteral uterotonics, parenteral MgSO<sub>4</sub>/diazepam, removal of retained conception, and assisted vaginal birth. However, neonatal resuscitation and manual removal of placenta were not changed statistically significantly from the before training.

Provision of quality care was measured by woman-centered care, cordial reception and treatment, partograph use, and stillbirth. The data indicated that provision of quality care was improved following the implementation of BEmONC program.

Most health workers prepared almost all basic items to attend the birth on the day of the visit or at the last birth they attended except vacuum extractor and soap. Active management of the third stage of labor was practiced during attending birth on the day of the visit or at the last birth they attended in the most of the health centers in Amhara, SNNPR, and Beneshanguel Gumuuz regions; however, it was low in Afar, Somai and Gambella regions. Likewise, administration of oxytocin was practiced routinely at almost all health centers.

As evidence based technical and clinical guidelines can be an important tool and source of information for service provider and health managers to support high quality service delivery, the assessment observed that the relevant guidelines and protocols on MNH and SRH care were available in most of these facilities. These BEmONC providing HCs have updated guidance material and technical tools at least on Pregnancy, Childbirth, Postpartum and Newborn Care (PCPNC), Managing Complications of Pregnancy and Childbirth (MCPC), Managing Newborn Problems (MNP), immediate newborn care, Focused ANC, Family Planning and infection protection for HIV/AIDS etc.

The main challenges to the implementation of the project includes poor infrastructure at the health centers, shortage of supplies and equipment, high staff turnover and poor planning and coordination of on-site supervision at some regions.

Despite some delay in budget utilization, the project successfully liquidated 90% of its earmarked budget during the project tenure. Although it requires an extensive cost-benefit analysis to measure quantitatively, available qualitative data indicated that the project efficiency was highly satisfactory. A broad analysis of the budget indicates the efficient use of the budget resources with reference to the achievement of the project activities. The cost per individual training was less than other implementers' average. It was well managed and the resources were utilized efficiently. It used adaptive management extensively to secure project outcomes while maintaining adherence to the overall project design. The log-frame is one of the main management tools used to guide the implementation of the project. A highly committed and successful project team implemented the project.

Although there have been delays in the inception phase of the project due to conflicts and political instability in some regions, the project provided inputs and resources on time when needed. The activities were implemented according to the planned budget. The partners including UNICEF, FMOH, health bureaus and zonal offices at different level monitored the inputs, activities and outputs regularly. EMwA through its collaborative partners particularly the health bureaus and implementing health facilities was able to provide essential medical supplies to both BEmONC facilities.

The BEmONC training offered by EMwA was generally characterized by its cost-effectiveness, efficacy and efficiency. The expansion of knowledge, improvement of crucial competencies and the increase in the number of skilled birth attendants are all

important building blocks in corresponding regions quest to achieve improved maternal and infant care, decreased mortality rates and an enhancement of the nation's overall well-being.

The evaluation generally concluded that the project had been well implemented with dedication from project staff and partners and which was a viable program which deserved to be strengthened and continued in another round given the extremely delicate nature of maternal and newborn health in the target hard-to-reach areas particularly in the emerging regions such as Gambella, Afar, Beneshangul gumuz, Somali regions wherein the BEmONC service still is at a developing stage in many of the health facilities.

While specific recommendation is forwarded for MoH, National health Bureaus, UNICEF Ethiopia and EmWA in section 5 of this evaluation, the continuation of the project in other unreached health facilities given the recurrent and complex maternal and neonatal health problems of the regions and the vulnerable nature of the target health workers in the region was strongly recommended.

# 1. Introduction

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## 1.1. Background

Despite several international commitments including the Sustainable Development Goals and national efforts the maternal and neonatal mortality in low- income countries is still high. Still 329,000 women and more than 6 million neonates die every year. Access to antenatal care, skilled attendance at birth and access to emergency obstetric care are important determinants to reduce the numbers of deaths. In this statistic Ethiopia is one of the countries that are suffering most. The commitment to end all preventable maternal and child deaths was most recently expressed during the launch of a financing facility by global partners, who committed more than US\$4 billion to scale up and sustain essential services for women and children (WBG, 2015)<sup>1</sup>. In spite of these efforts, recent data indicate that progress toward reducing maternal and neonatal mortality is likely to fall short of the targets set by Millennium Development Goals (MDGs) 4 and 5, particularly in sub-Saharan Africa, where two-thirds of the world's maternal deaths and half of the world's child deaths are estimated to occur.

Postpartum hemorrhage (PPH), hypertension, infections, obstructed labor, and complications of abortion are the leading causes of maternal death, representing more than two-thirds of the estimated 289,000 global annual mortalities related to pregnancy and childbirth. Up to three-quarters of neonatal deaths are attributable to infections, pre-term birth, and intrapartum complications<sup>2</sup>. These top causes of maternal and newborn mortality are all largely preventable through the effective use of highly cost-effective interventions that should be available at the primary care level. Providers skilled in emergency obstetric and newborn care (EmONC) services are essential, particularly in countries with a high burden of maternal and newborn mortality (WHO, UNICEF, UNFPA, & World Bank, 2014). Improving provision of emergency obstetric care remains the cornerstone of Kenya's maternal health strategy as well as global safe motherhood strategies. Although most obstetric complications (defined as acute conditions such as Postpartum Hemorrhage, Sepsis, Eclampsia, and Obstructed Labor that can cause maternal death cannot be predicted, the majority can be treated with timely provision of a package of evidence-based interventions known as emergency obstetric care (EmONC). The availability of EmOC is considered to be an indicator of how well a health system is prepared to manage conditions leading to acute maternal/Neonatal morbidity and mortality.

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<sup>1</sup> World Health Organization. *Achieving the health-related MDGs: It takes a workforce!* [http://www.who.int/hrh/workforce\\_mdgs/en/](http://www.who.int/hrh/workforce_mdgs/en/).

Globally, about 45% of maternal deaths and 36% of neonatal deaths occur during the first 24 h after birth<sup>3</sup>. Maternal and newborn deaths related to the perinatal period are largely preventable, and most life-threatening conditions are treatable if skilled health care is provided during the intrapartum and early postnatal periods at the primary health care level. However, in low- and middle-income countries (LMIC), where maternal and neonatal mortality is high, the availability, accessibility, and use of proven life-saving interventions for the treatment of obstetric complications are low.

Emergency obstetric and newborn care, developed by the World Health Organization, United Nations Population Fund, and United Nations Children’s Fund, is an integrated strategy that aims to equip facilities to effectively attend to the major causes of pregnancy- or childbirth-related maternal and neonatal deaths.<sup>4</sup> Two levels of care are recognized under this approach: basic (administration of parenteral antibiotics, uterotonic drugs, and anticonvulsants and performing manual removal of placenta, removal of retained products of conception, assisted vaginal delivery, and newborn resuscitation) and comprehensive (all seven basic functions plus Caesarean section and safe blood transfusion). Primary-level facilities are required to provide all seven basic EmONC (BEmONC) signal functions; hospitals must provide comprehensive EmONC (CEmONC) signal functions (see Table 1). Declining trends in maternal and newborn mortality in countries that are on track to achieve the SDGs have been attributed to successful implementation of EmONC.

**Table 1: The Signal Functions for Emergency Obstetric and Newborn Care Services**

Basic services	Comprehensive services
(1) Administer parenteral antibiotics	Perform all seven components of BEmONC, plus
(2) Administer uterotonic drugs (i.e. parenteral oxytocin)	
(3) Administer parenteral anticonvulsants for preeclampsia and eclampsia (i.e., magnesium sulfate)	(8) Perform Caesarean section
(4) Manually remove the placenta	(9) Perform blood transfusion
(5) Remove retained products of conception (e.g., manual vacuum Aspiration)	
(6) Perform assisted vaginal delivery (e.g., vacuum extraction, Breech delivery)	
(7) Perform basic neonatal resuscitation (e.g., with bag and mask)	

Ethiopia made progress in improving maternal and child health during the Millennium Development Goal era from 1990 to 2015. The maternal mortality rate (MMR) dropped by 72% from 1250 to 353 per 100,000 live births, while child mortality decreased by two-thirds

<sup>3</sup>Nour NM. An introduction to maternal mortality. Rev Obstet Gynecol. 2008.

<sup>4</sup>WHO, UNFPA, UNICEF and AMDD. Monitoring emergency obstetric care: a handbook. WHO. 2009.

from 205 to 59 per 1000 live births<sup>5</sup>The reduction in the neonatal mortality rate (NMR) has been slow during that period and is currently 28 deaths per 1000 live births, accounting for 47% of all under-5 years mortality. Despite this decline, Ethiopia's MMR is still regarded as among the highest in the world. Moreover, the coverage of skilled attendance at birth and the met need for obstetric and newborn care are low. Committed to contribute toward achieving the maternal and newborn survival-related Sustainable Development Goals (i.e., to reduce global MMR to less than 70 per 100,000 live births and NMR to at least as low as 12 per 1000 live births by 2030, the Health Sector Transformation Plan (HSTP) of Ethiopia targets to reduce MMR to 199 per 100,000 live births and NMR to 10 per 1000 live births by 2020<sup>6</sup>.

Increasing the availability and quality of EONC services is one of the evidence-based global strategies for reducing maternal and neonatal mortality. The term EONC encompasses the evidence-based care that all pregnant women should receive, regardless of where they deliver. BEONC also includes emergency obstetric and newborn care (EmONC). For every 500,000 population, it is recommended there be a minimum of four Basic EmONC (BEmONC) facilities and one Comprehensive EmONC (CEmONC) facility.<sup>7</sup>

Basic Emergency Obstetric and Neonatal Care (BEmONC) is a cost effective priority intervention to reduce maternal and neonatal morbidity and mortality in poor resource settings. Basic BEmONC (BEmONC) alone can avert 40% of intrapartum related neonatal deaths and a significant proportion of maternal mortality. Although BEmONC initiatives have been implemented in Ethiopia since 1998, the services were not widely available and were inaccessible to the women who needed the services according to a national BEmONC survey of Ethiopia conducted in 2016<sup>8</sup>.

To curb the problem, Ethiopian midwives Association has been intervening for the last six years through providing competency based training and supportive supervision and strengthening service provision at primary health care units. Specifically with health human resource development through competency based BEmONC trainings to junior midwives and nurses across the country. The three-week competency-based training and subsequent supportive supervision aims at equipping providers with the essential knowledge, attitude and competencies to enable them provide emergency lifesaving care to mothers and newborns and timely referral for those who need higher level care.

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5 Worku AG, Yalew AW, Afework MF. Maternal complications and women's behavior in seeking care from skilled providers in North Gondar, Ethiopia, 2015.

6Ronsmans C, Graham WJ. Maternal mortality: who, when, where, and why. Lancet (London, England), 2006.

7ProgramImplementation guidanceEssential obstetric and newborn care (eonc),2011.

<sup>8</sup>MOH, National EmONC Survey, 2017

According to reviewed documents from EMwA, such intervention has contributed to strengthening BEmONC service provision at primary health care units across the country with over 3836 providers from 2457 health centers across the country receiving competency based training and supportive supervision since 2011.9 This substantial intervention has contributed to the substantial reduction in maternal and newborn mortality documented nationally during the same period.

The UNICEF National project is designed to build on the past achievements and enhance the coverage of these important competencies update for as many MNH service providers as possible thereby increasing the capacity of the health system in providing essential, quality life-saving services to mothers and their babies in the region. The Ethiopian Midwives Association has extensive experience in managing MNCH projects, specifically BEmONC strengthening projects, and anticipates a successful outcome as stated below in this project document. In addition, it has the necessary expertise to undertake the BEmONC project, including strong national and regional chapters presence; extensive membership of the majority of midwives in Ethiopia; strong national MNCH partnership and large scale project implementation; skilled master trainers pool (midwife advisors/tutors), training manuals, adequate other human resources, and good partnership with and support from the government, partners and midwifery/nursing teaching institutions.

## **1.2. Objectives of the Evaluation**

The main objective of this end line evaluation is to measure the success of the project against its outcome indicators, identify the success and the challenges in delivering its outputs and the strengths and weaknesses of the approaches used, review the lessons learned and use evidences to make recommendations in future project designs. More specifically it tries:

- ❏ To evaluate the entire project in terms of the UNICEF evaluation criteria: relevance, effectiveness, efficiency, impact and sustainability;
- ❏ To access availability and accessibility of BEmONC services in selected health care facilities ;
- ❏ To assess competencies, competencies and knowledge of BEmONC trained health professionals from selected health facilities;
- ❏ To assesses the impact of the BEmONC strengthening project on the knowledge and competencies of BEmONC trained health workers in the project implementation areas

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- ▣ To identify major challenges and factors that affected the Project's implementations
- ▣ Generate lesson learned and best practices;
- ▣ To recommend ideas that helps the design of future projecting.

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## **2. Evaluation Criteria and Evaluation Questions**

## 2.1. Evaluation Criteria

Evaluation dimensions assessed during this Evaluation were:

- ✦ **Relevance:** to assess the significance of the project to the national, regional, and local policies, strategies and plans. This dimension is assessed in relation to the design and the implementation of the intervention to help determine if the has benefited the health workers who received it and the mothers and newborns served by them. Appropriateness of the project to the needs and interests of all stakeholders is also examined.
- ✦ **Effectiveness:** The effectiveness criterion focuses on the extent to which the objectives of project were achieved, or are expected to be achieved, taking into account their relative importance.
- ✦ **Efficiency:** is a relation between resources allocated to the project and the results achieved. The results are measured at output level, as outputs can easily be observed and quantified. It is a measure of how economically resources/inputs of the project (funds, expertise, time, etc.) are converted to results.
- ✦ **Impact of the project:** Investigates the positive and negative, direct or indirect, intended or unintended changes produced by the project intervention. This involves the impact resulting from the project activities on the local social, economic, environmental and other development indicators.
- ✦ **Sustainability:** evaluates the long-term effects of the project. Also assesses the extent to which the positive effects of the project will continue after the project has been completed. In this end line evaluation, the prospect for sustainability of the program as well as its benefits will be analyzed.

## 2.2. Evaluation Questions

A large number of questions could be asked to address the above evaluation criteria. However, a set of key questions which were most pertinent to the purpose of this evaluation provided in in the table 2 below.

**Table 2. Evaluation criteria and guiding questions**

Evaluation Dimension	Key Evaluation questions
Relevance	<ul style="list-style-type: none"> <li>• To what extent is the program for training and mentoring health care workers on BEmONC aligned to national maternal and neonatal mortality reduction strategies?</li> <li>• To what extent did the training and supervision comply with national competency based BEmONC training standards and guidelines?</li> <li>• To what extent were stakeholders involved in project design, implementation &amp; monitoring?</li> <li>• Were the original objectives of the project valid in terms of increasing knowledge and skill of health care workers ultimately improving quality of maternal and neonatal care? If not, have the objectives been adapted in an appropriate way over the course of the project?</li> <li>• To what extent did the project address the needs and care of mothers and neonates who needed BEmONC services?</li> <li>• To what extent is the project responsive to the EMA and FMOH priorities of improving quality of care and reduction of mortality and morbidity?</li> </ul>
Effectiveness	<ul style="list-style-type: none"> <li>• Did EMwA's competency based BEmONC training and supervision project deliver the planned results?</li> <li>• How did the knowledge, behavior and skill of HCWs who received BEmONC training change?</li> <li>• Did competency based BEmONC training and supervision project achieve its specific objectives?</li> <li>• Where did the project perform particularly well and where was its performance weakest?</li> <li>• What are the major factors influencing the achievement of project objectives?</li> <li>• How well has project management adapted plans to ensure results are achieved?</li> <li>• Were there unintended results? If so, how did they affect the benefits of the project? Could these have been foreseen and managed?</li> <li>• How effective was the relationship, coordination and communication between the various stakeholders of the project including EMwA, regional health bureaus, health centers, UNICEF and other partners who are currently implementing similar or complementary projects</li> </ul>
Efficiency	<ul style="list-style-type: none"> <li>• Are project outputs achieved within expected cost and time?</li> <li>• Were financial management and procurement systems adequate and appropriate throughout the project period?</li> <li>• Are there appropriate BEmONC training and supervision project monitoring systems?</li> <li>• How much cost was incurred per BEmONC trainee for delivering training, telephone follow up and supportive supervision? How does this compare with costs from similar programs, if any?</li> </ul>

Evaluation Dimension	Key Evaluation questions
Impact	<ul style="list-style-type: none"> <li>• Do the BEMONC trained health workers successfully perform the seven signal functions</li> <li>• Has infant and maternal mortality reduced in health centers as a result of BEMONC practice</li> </ul>
Sustainability	<ul style="list-style-type: none"> <li>• Is there a sustainability strategy for the project?</li> <li>• What social, financial, political and institutional mechanisms are in place to ensure sustainability of the project?</li> <li>• Is the project appropriately owned by government (FMOH &amp; RHBs), facilities and other relevant local bodies?</li> <li>• To what extent will activities and results be expected to continue after the project ends?</li> <li>• Is the project likely to continue if donor support ceases?</li> <li>• What are the major challenges to sustainability of the project (financial, institutional, social, cultural, security, environmental, technical)?</li> </ul>

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### 3. Evaluation Evaluation Methodology

The study consisted of a variety of methods. Both quantitative and qualitative methods were employed in the data collection. The two approaches tend to complement each other; hence, it is the intention of this study to triangulate qualitative and quantitative methods of gathering data. Qualitative methods to be used include exit questionnaire, semi-structured interviews, observations and focus group discussions. Quantitative methods included retrospective review of patient medical records to extract baseline data.

Preliminary desk review undertaken by the consulting team indicated that the UNICEF National BEmONC project has not made any baseline survey. Thus comparative analysis between baseline and endline finding would not be possible. However, this evaluation would make the outcome of the project intervention using key indicators and comparing the midwives Knowledge, skill and attitude after received BEmONC training.

Moreover, the evaluation is intended to help stakeholders credibly claim progress and success of the project or how to improve on their efforts. Generally, the purpose of this evaluation is to extract relevant information on project implementation and outcomes that can be shared among all stakeholders and funding agreements and subsequently be used as the basis for corrective measures and planning to make it more effective and efficient. With a view to depict the relationships between the success of the project and the implementation process including key activities and strategies, we employed logic model for the evaluation because of its relevance to the portrayal of cause and effect linkages. Participatory and learning-oriented methodologies are employed for the Evaluation. We use standard Evaluation criteria (relevance, effectiveness, efficiency; potential impact and sustainability).

### **3.1. Study Design**

The endline evaluation survey was cross sectional as well as analytically design. Its focus is mainly to measure the competencies, knowledge and confidence of BEmONC trained health workers after the project intervention and to compare the impact of BEmONC service provision on strengthening basic emergency obstetric and newborn care and reduction of maternal and newborn.

The study adopted the Averting Maternal Death and Disability Program (AMDD) model of Columbia University and from the UNICEF, WHO, UNFPA “Guidelines for Monitoring the Availability and Use of Obstetric Services”. This summarized AMDD tool was customized to fit the low resource environment and developed according to order of modules i.e. this module evaluates cesarean deliveries, which is not one of the signal functions in Basic Emergency Obstetrics and Neonatal Care but in Comprehensive Emergency Obstetrics and Neonatal Care (CEmONC). Stressing on the Provider Knowledge and Competency for Maternal and Newborn Care.

### **3.2. Scopes and Coverage**

This project evaluation covered all the target midwives and health professionals, BEmONC workers, health facilities, BEmONC and MNH decision makers, health workers and health officials in the target regions where the project has been undertaken.

### **3.3. Study Population**

The target 454 midwives, health professionals recruited from health centers and received trainings and Post training follow up ( Telephone based follow up and onsite supportive supervisions) by the project is the primary target population of the project in these areas. Whereas, the total population of the evaluation is the projects direct and indirect beneficiaries, health professionals, health centers, project staff and government and nongovernment stakeholders, project implementers, donor where the project operates.

### **3.4. Sample Size and Sampling techniques**

In this evaluation single population proportion formula is employed to calculate the sample size required for the quantitative survey. The main outcome of interest used for the calculation was the proportion of health centers whose staff were trained and supported by the project through supportive supervision and on-phone follow up and currently providing BEMONC services.

From data generated by the training database, only facilities with complete identification and staff trained before Six months are included in the sampling frame. Hospitals are excluded from sampling list as the program primarily targets training of HCWs at health centers. The six-month period is taken as a cutoff point as changes in results, such as service outputs and mortality and morbidity indicators after a competency program are not expected to happen immediately. Based on these, the total population which forms the sampling frame for the evaluation is the 454 health centers in Amhara, SNNPR, Somali, Beneshangul Gumuz, Afar, and Gambella regions which had their staff trained on BEmONC through this program.

Taking the diverse nature of the health facilities in terms of accessibility and availability of the required services to the community, proximity to nearby towns, infrastructure and livelihood, a fairly large (40%) sample size was considered for the study. The total number of study participants selected was **180**.

Since the list of facilities was big and stratification was challenging, probability sampling which ensures each facility has an equal chance of being selected was implemented. To this end, facilities are arranged in a list frame. The list is sorted in alphabetic order of both facility names and region to ensure fair regional distribution of the facilities. The 180

facilities were then selected using systematic random sampling. Table 3 below summarizes Proportional distribution of health facilities by region.

In each of the selected health centers, 1-2 BEmONC trained health workers were expected to be present. Based on the report from the database most facilities had only one staff trained through this project. We included one BEmONC trained health worker from each of the selected health centers in the knowledge and competencies assessment survey and assessed availability, accessibility, utilization and aspects of quality of BEmONC services in all the selected health centers.

**Table 3. Proportion of sampled health facilities by region**

	Afar	Gambella	Somali	B/Gums	SNNPR	Amhara	Total
HF with BEMOC	30	30	49	49	126	170	454
sample size(40%)	12	12	20	20	51	67	180

**Inclusion Criteria:** The health care providers who benefited from EMwA implemented between June 2016 and May 2018 BEmONC training program and working at health centers in their corresponding regions. Staff who had been moved within the last two years but working in any of the selected facilities and had benefited from EMwA implemented BEmONC training were included in the study.

**Exclusion Criteria:** Other health care facilities and its staff that did not benefit from EMwA implemented between June 2016 and May 2018 BEmONC training program. New Health care facilities and new staff in respective health centers that did not benefit from EMwA implemented between June 2016 and May 2018 BEmONC training program. Other health care facilities outside the target health centers. The healthcare providers who may have undergone other trainings but not BEmONC training or by other trainers were not included in the study because the evaluation was specific on the BEmONC training program to the healthcare staff offered by EMwA implemented between June 2016 and May 2018 BEmONC training program.

Purposive and availability sampling based on information saturation were used for qualitative data collection.

### 3.5. Pre-test of Survey Instruments (Questionnaires)

It is a common practice to undertake a pre-test of the survey instruments (Questionnaires) for the purpose of identifying and correcting errors and shortcomings before the implementation of the actual survey. It also helps to evaluate the general receptivity and

feasibility of the questionnaire, consistency of the questions and appropriateness of the wording used and to identify specific problems of communication between the interviewer and the respondent. The pilot testing was made in three health centers in Akaki Kaliti and Kolfe keranio Subcities in Addis Ababa.

Senior technical staffs of the firm were closely involved in the pre-test to observe all stages of the work while it is being done in the field. Questionnaires were finalized after reviewing results and incorporating comments on the pre-test. Training and instruction manuals were prepared ahead of time so that the necessary corrections made during the pre-test.

### **3.6. Recruitment, Training and Field Organization**

#### **3.6.1. Recruitment of Field Staffs**

The firm has already recruited qualified enumerators and supervisors for this survey from both Addis Ababa and the study areas. Accordingly, those who have at least college diploma/preferably in health sciences and with experience in mapping, institutional assessments studies (interviewing, inventory of facilities ...etc.) especially in midwives contexts as well as participated in large-scale health facility/institutional surveys are recruited as interviewers. Individuals with a MPH and MD in health sciences and have experiences in national or large-scale health facility surveys are recruited as supervisors and coordinators. Other criteria such as language, age and physical fitness were set for recruiting these field staff utmost concern and efforts were made to include independent, ethical, integrated, and responsible individuals as coordinators in the study areas.

#### **3.6.2. Training Approach**

Once the recruitment is completed, two days (2) intensive training including field practice were given on interview procedures, content of the questionnaire, field organization, listing and mapping of target sites and Health centers. The training were given for enumerators, supervisors, coordinators, editors and data entry clerks in selected training centers.

#### **3.6.3. Field Organization**

Six teams each comprising one consultant, one supervisor, three data collectors and one driver were deployed to field data collection for the six target regions. The technical consultants will remain in Addis Ababa and coordinate the Addis Ababa data collection and the entire field work.

#### **3.6.4. Data Collection and Data Quality Assurance Plan**

The Supervisor actively took part in the overall coordination and conduct of mapping and observe the work of the enumerators; review a sample of filled in questionnaires and monitors the progress of the fieldwork. Moreover, Supervisors were responsible to conduct, review and check all the filled in questionnaires, conduct random in person follow up interviews and closely work with the interviewers. Supervisors checked that if interviewers are performing their daily work and control that the fieldwork is going on as scheduled.

Interviewers are expected to play a key role in collecting quality data. They had to strictly follow the guidelines presented in the instruction manual to perform their duty and to have smooth relations with respondents.

### **3.6.5.Data Quality Assurance Plan (before and during fieldwork)**

Care was taken to exercise quality control during fieldwork, so that two main sources of error that interfere with the ability to collect valid data were avoided. It is commonly said that people do not tell the truth about some issues/ behaviors being studied, and that they exaggerate or withhold information. Experience has shown that there are techniques that can be used to increase the likelihood of honest sharing of information. Hence, efforts were to make interviewers well trained to discuss sensitive questions with respondents and make them feel at ease. The interview and supervisor guidelines to be prepared a head of the study will provide a necessary tool for ensuring quality of fieldwork.

A concern for the confidentiality of the information to be collected must be maintained at all times. Winning the trust of the respondents/owners or employed health professional is part of the whole package of obtaining valid results. In summary, reliable and valid data regarding the knowledge, attitudes, practices and behaviors will /can best be guaranteed by ensuring that:

- Questionnaires are sufficiently pre-tested;
- Interviewers are well trained;
- Questionnaire administration includes rapport building and is consistently applied;
- A confidential atmosphere is provided.

### **3.7. Qualitative Methods**

As indicated in the evaluation design matrix, qualitative methodological approach were employed to fulfill the data requirements of the evaluation and hence to meet the study objectives. The methods to be employed in this approach will take the form of desk review and key informant interviews with target beneficiaries and relevant stakeholders and

Participant Observation. Table 4 below provides a summary of the qualitative methods used.

**Table 4: Data Collection Methods, Composition and Number of Participants**

Data Collection Methods	Composition (Subjects)	Number of KIIs	Remark
<b>Key Informant Interview</b>			
	FMOH concerned directorate	2	
	UNICEF Ethiopia	1	
	Regional EMwA Chapter office representatives	5	One per region except Afar
	Regional Health Bureau MNH experts	8	One per region and two woreda health officers from Gambella and Somali regions
	BEmONC Training Sites focal persons	6	
	BEmONC trained health workers	18	In purposively selected health facilities 3 per team
	EMwA- UNICEF National BEmONC project coordinator	1	
	EMwA Executive Director	1	Head Office
	MERL Manager	1	Addis Ababa
	Finance manager	1	Addis Ababa
	<b>Total</b>	<b>46</b>	
<b>Desk Research (document review)</b>	Overviews of secondary documents to be covered including evaluations and annual reviews, guidelines and protocols		

### 3.8. Ethical Considerations

All potential respondents were informed at the start that their participation was voluntary and did not affect their decision and belief. Additionally, participants were informed orally the purpose and nature of the study, as well as its expected risks and benefit. Verbal consent was requested of participants.

### 3.9. Data Analyses

In the quantitative data analysis, each variable was coded, sorted out according to its specific measure and was entered into the computer for analysis. The statistical analysis was then made using the SPSS software Version 23 for data analysis in percentage, mean, standard deviation, and t-tests. Percentage, mean, and standard deviation were used to describe the socio-demographic characteristics and perceived changes in the life of the beneficiaries.

On the other hand, qualitative data (collected through in-depth interviews and field observations) were analyzed using Colaizzi's procedural steps (1978) cited in (Merriam, 1988). All interviews translated to English from local language (Amharic) was transcribed verbatim. They were also read several times to gain clear understanding of the data. Discussion among the data collectors were also made to clarify information and cultural implications. Significant statements, ideas, and phrases were then highlighted on the transcript and notes were made. An initial list of key themes was created and codes were given to them. A word processing project was then used to cut and paste the significant statements, ideas and phrases in to themes. The key themes were then summarized, staying as closely to the participants' words as possible.

## **4. Major Findings**

### **4.1. Overall Achievement of the Project**

Review of the project proposal showed that EMwA has been able to provide competency-based BEmONC training to 564 health workers in over 548 health facilities in 12 selected hospitals which served as training sites within 26 months. Survey findings further indicated that during the same period, 53.4% of HCs had functional telephone lines. Although all BEmONC trained health workers that gave in-depth interviews stated they had received a telephone follow up after training, from 77 participants who are still working and have responded to the survey question on this, only 82(46.9%) health workers reported receiving telephone follow-up from EMwA. The remaining 93(53.1%) health workers stated they did not receive any telephone follow up. For those who did not receive telephone follow-up, the main reason included network and connection problems and wrong telephone numbers. Project staff reported that attempts were made to reach all trainees but connections could not be made due to network problems and wrong numbers.

In so far as the overall achievement of the projects against the proposal is concerned, the available documents and feedbacks from health workers and stakeholders participated in the assessment indicated that the project was able to achieve an aggregated rate of exceedingly higher than 100% of its plan consistent to the log frame.

*“Despite some delays due to a number of extraneous EMwA was successful in accumulating the planned BEmONC training provision”*(Health Specialist and Project Focal, UNICEF Ethiopia)

*“We feel satisfied that we have successfully accomplished all the requirements of this project and all components of the project fully completed as per the plan with no cost extension.”*(EMwA BEmONC project coordinator).

## 4.2. BEmONC Training centres, facilities and trainer

The competency-based BEmONC in-service training aims to update midwives and MNH health workers with updated competencies and technologies reinforce initial training, and ensure they are practicing competencies learned.

*“In my training, I learned a lot from the fellow midwives... One of these things is their sensitivity, their respect and love towards the women; the trust developed between the woman and the fellow midwife... From this trust emerges the confidence that the labor will go well. If [a woman is] scared, stressed or frightened [she] will not have a normal birth because it inhibits labor.”* (Midwife, Boricha HC, SNNPR)"

The FMOH selected 12 BEmONC training centers across the 5 regions on the selected hospitals. Based on EMwA conducted training centers readiness assessment before conducting BEmONC trainings. These centres are responsible for midwives and other MNH health workers supervision and also provide in-service training as part of their regular meetings with midwives and MNH health workers.

Although in-service training is believed to be crucial in updating their knowledge and competencies, a number of participants in our study compared it unfavourably with pre-service training. They complained about its quality and timing, the infrequency of courses, inadequately qualified trainers who are unfamiliar with the midwives and other MNH health workers working environment, the lack of practical sessions and of physical space and training facilities. A typical comment was:

*“In-service courses are usually run by doctors or other health professionals from rural and district health centres. The quality is not comparable with what we had in the DBTC. We had closer relationship with our trainers and they knew our strengths and weak points.”*(BEmONC trained Midwife at Assosa Hospital)

*We have BEmONC training important but usually they talk about several items in one session which is training duration (21 days) very tiring.* (BEmONC trained male nurse, Weket HC)

The inclusion of different training approaches, particularly the practical demonstration of the seven signal functions with sufficient devices and equipments allowed trainees to gain first-hand experience in the work environment was frequently reported by the participants to have a positive impact on their clinical and communication competencies and confidence.

*The best part of our training was the time that I spent in Hosana hospital under the supervision of an experienced midwives and MNH health workers. I've learnt a lot from her which increased my competencies and confidence (BEmONC trained Midwife, Dilla HC, SNNPR)*

*The theory and practical classes were useful in increasing our knowledge but I worked for a few months in the health house in my own village as a student. This was the unforgettable part of our training course. (BEmONC trained Midwife, Gode HC, Somali Region)*

Review of the training approaches and materials demonstrated that training content has been updated regularly through a series of national and regional meetings and workshops to ensure that it covers an appropriate range of BEmONC topics and addresses the changing needs of the target health workers.

### ***Quality and outcome of training***

The BEmONC training was mainly evaluated by an assessment of trainees' satisfaction during the interviews at site visits, and competency in delivering the tasks that are allocated to them. Midwives and other MNH health workers expressed that their knowledge and competencies were assessed through theory and practical exams during and at the conclusion of the in-service training as pre-requisites to their certification. Similarly, pre- and post-tests are used in the in-service courses to assess knowledge improvement and gaps. However, the review of training materials and training environment found little documentation of mechanisms to evaluate the quality and impact of training courses

This evaluation tried to identify, as a point of departure, the quality of the training from the viewpoint of midwives and other MNH health workers and how the training courses have impacted on their daily performance. The majority of participants believed that the BEMONC training was comprehensive and included relevant topics that had a huge impact on their capacity to provide healthcare services, and to build their confidence in their practice of basic obstetric and neonatal care services.

The interview with trainees generally indicated that the friendly environment of the training centres, the nature of trainer-trainee relationships, and highly qualified trainers were particularly noted by most participants as features that made the training courses an exciting period of their life and career and had positive impact on the learning process and motivation.

*The training centre was the most appropriate place for our training; we were as a whole family working together. It was not just about teaching and learning a few topics, it was more about learning professional competencies, so motivating...*  
(BEmONC trained Midwife at Derra HC)

From the viewpoint of some participants, training courses broadened their understanding of BEMONC and MNH roles in particular the midwives and MNH health workers roles and functions in general.

*When I started the training, I thought we are supposed to work like a nurse but after that [training courses] I realised that health education, disease prevention and promotion is our main job.* (BEmONC trained Midwife, Debresina HC)

Given the socioeconomic, geographic and climate diversity in Ethiopia that creates differences in health needs, a number of participants stressed on the lack of formal mechanism to adapt training materials to local conditions.

Our review showed that EMwA used the national BEmONC training manual for the three-weeks training. The training was also provided by well-qualified and experienced master trainers who are actively working in the area. Twelve well-equipped BEmONC training facilities situated in hospitals are being used to ensure both knowledge transfer and acquisition of essential competencies are optimal.

Almost all the interviewed trainers also mentioned that the BEMONC training materials were standardized and equally useful, comprehensive and supportive for both the trainers and the trainees.

*"The materials I got from the BEMONC Training helped me a lot. The updates have spiced my lectures. Some of the content that I was able to add includes healthy timing and spacing of pregnancy, medical eligibility criteria, Standard Days Method/ cycle beads and postpartum family planning. I am also going to take the trainees through BEMONC services in the context of their health facilities."*  
(BEMONC Trainer, Gambella Hospital)

### 4.3. Overall Changes in BEmONC Services and health Facility Context

#### 4.3.1. Respondents Working Characteristics

Quantitative data was collected from 180 health centers (100% response rate) in six regions (Table 5). Out of the 180 health centers, MNH focal persons from 174 health centers (95.6%) reported that they had staff that is trained on BEmONC. Staff from fourteen health centers mentioned they had no any BEmONC trained staff during the visit due to leaving for further education and transfer to other facilities. Of the 180 health centers, 163 (89.6%) had at least one staff trained by EMwA program during the project life. However, the secondary data analysis and verification of EMwA training database revealed that EMwA has trained at least one staff from all the sampled 180 health facilities. This variation could be explained by various factors: the MNH focal person could be new or might not be aware of the trained persons or which organization provided the trainings.

**Table 5. Distribution of surveyed health facilities by region**

		Frequency	Percent	Cumulative Percent
Valid	SNNPR	51	28.3	28.3
	Afar	12	6.7	35.0
	Gambela	10	5.6	40.6
	Amhara	67	37.2	77.8
	Benshangul-Gumuz	20	11.1	88.9
	Somali	20	11.1	100.0
	Total	180	100.0	

The majority of the health workers (57.2%) were found to be female and their mean age was 27 years old. The mean age of their service year was found to be 4.1. The mean number of skilled birth attendants (SBA) (i.e., midwives, nurses and health officers) currently working at health centers increased after training. The availability of midwives and health officers had showed significant improvement in the region while numbers of nurses, pharmacy, and laboratory professionals did not show statistically significant change despite a considerable growth (Table 6).

**Table 6: Percentage of health workers currently available in selected health centers**

		Frequency	Percent
Valid	JUnior Nurse	44	24.6

	Diploma in nursing	30	16.8
	Diploma midwife	60	33.5
	BSC Nurse	7	3.9
	BSC midwife	26	14.5
	Health officer	11	6.1
	Other	1	.6
	Total	179	100.0
Missing	System	1	
Total		180	

Almost all the participating HCs (100%) reported that at least one of the staffs trained through EMwA. Comparison of the number of staff trained with those currently working shows that 47% of the health centers retained 100% of the trainees while 41% of the health centers had attrition with at least one trainee leaving the institutions. Among the left ones, the main reasons for leaving were obtained transfer to other health facilities in the same region which accounted for 57% cases. Transfer to health facilities in another region was mentioned for 8.6% of the trainees, and 14.9% are reported to have left for further education and 5.6% of the trainees left for reason to work for Non-governmental organizations (NGOs).

**Table 7: Reasons for Leaving the Health Centers**

		Frequency	Cumulative Percent
Valid	Transfer to other center	53	57.0
	Transfer For further education	26	14.9
	Left for NGOs	9	5.6
	Others	5	100.0
	Total	93	
Missing	System	10	
Total		103	

From those BEmONC trained health professionals, the mean number of staff trained by Ethiopian Midwives Association in the last 2years per health centers was 1.7.

**Table 8: Mean No of staff trained, moved and remained.**

	N	Minimum	Maximum	Mean
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Number of staff of staff do you have who received competency-based BEmONC training By Ethiopian Midwives Association in the last 2years	129	0	5	1.71
Number of staff of staff do you have who received competency-based BEmONC training Before two years	60	0	6	1.65
Number of staff of staff do you have who received competency-based BEmONC training Trained elsewhere and moved here	53	0	5	1.53

#### 4.3.2. Health Facility Infrastructure

The availability of running water and access to a continuous and reliable supply of electricity is a crucial prerequisite for quality Maternal and Neonatal Health services delivery. It is extremely difficult for service provider to maintain standard infection prevention. Availability of water, electricity, handwashing facilities and waste disposal mechanism at the time of the visit is summarized in table 9.

The main current source of water in the health facilities was pipes 105(66.5%) followed by handpump 18(11.44%) and river 16(10.1%) as seen from table 9 below. However, the continuous availability of water was a problem by 67% of the health facilities. Although there found increment in the number and source of water, the growth is not statistically significant.

**Table 9: The Primary Source of water for HCs before and After Training**

		Before Training		After Training	
		Frequency	Percent	Frequency	Percent
Valid	Piped water	109	60.6	105	66.5
	Hand pump	18	10.0	18	11.4
	Well	9	5.0	8	5.1
	River	14	7.8	16	10.1
	Other	12	6.7	11	7.0
	Total	162	90.0	158	100.0
Missing	System	18	10.0		
Total		180	100.0		

The main problems mentioned during the KIIs and indepth interviews was the functionality of water lines during BEmONC services.

*“Water is a real serious problem in health centers. Even though we are teaching about the hygiene process, and as you know 85% of diseases in Ethiopia is communicable diseases. [...] Mostly we are suffering due to communicable diseases, why? Due to hygiene process. And we are teaching about hygiene, but we have no water.. even not to wash our hands! [...] Even though there are communicable diseases like hepatitis, and other transmitted (diseases).. that are really infected... Jesus.. I have told for the medical director so many times.. but... it has not changed. It is not changed.. And most of the clients they complain.. they complain that we are not knowing anything...[...] Like that.” (Midwife, Babilie HC)*

As far as the waste disposal mechanisms in the health center is concerned, the majority (87%) of the HCs used incinerator followed by hand-dug pit(9%) and placenta pit(1.2%).

The main type of latrine used was Pit both before and after training with a slight increment after training 73.2% and 74.8% respectively.

**Table 10: The Latrine used before and after training**

		Before Training		After Training	
		Frequency	Percent	Frequency	Percent
Valid	Pit	109	73.2	107	74.8
	VIP	19	12.8	17	11.9
	Water washed	21	14.1	19	13.3
	Total	149	100.0	143	100.0

Observation and Interviews with health center heads indicated that though progress was there, there found pressing problems in the availability of functional water lines in the maternity units and the number of available maternity beds. Essential equipment for newborn care, including suction machines, radiant heaters, and oxygen concentrators, remained the least available items.

The majority of the health centers (81.8%) have electric power from either of the electric station, solar or generator. Electric power was the main problem in all the health facilities that use power from the electric stations.

**Table 11: Availability of electricity at HC before and after training**

Availability of electricity at HC	Before Training		After Training	
	Frequency	Percent	Frequency	Percent
No	38	21.6	31	18.2
Yes	138	78.4	139	81.8
total	176	100.0	170	100.0

From the health centers which have electricity but continuous power interruption was a problem in 87% of the respondents.

#### 4.4. Relevance of the project

Despite their indispensable role in reducing maternal and neonatal deaths, the UN stipulated minimum coverage of functioning basic and comprehensive BEmONC facilities are not currently attained in many countries, including Ethiopia. Particularly, evidence shows that coverage of basic BEmONC is low in many developing countries, while adequate coverage of comprehensive BEmONC facilities does not always guarantee minimum acceptable population-based services such as cesarean section rates. The 2016 National BEmONC survey of Ethiopia<sup>10</sup> indicated that Ethiopia had just 40 percent of the recommended number of fully functioning EmONC facilities and only 15 percent of midwives and 2 percent of nurses ever received BEmONC training viewing huge gap.

The situation may be that health facilities are not able to provide emergency treatment and procedure as there may be inadequate infrastructure and transport to refer patients that are need, equipment may be available but needs repair, essential drugs may be in short supply, or indeed health care providers may not have capacity to provide the much needed emergency care.

Saving lives of mothers and newborns is dependent on ensuring that health facilities have basic or comprehensive EmONC coverage, but that alone is not sufficient. For the EmONC intervention to be effective, it must also be performed. In order to provide good quality care, health care providers must be well trained and able to detect complications. They must be able to assess patients, make the right diagnosis and administer the correct drugs. Patients with complications must seek care if deaths are to be prevented. Considering that EmONC signal functions are key for the prevention of maternal deaths, the role the BEmONC training brings about will be indispensable.

*BEmONC intervention is one of the key and resource friendly approach in poor countries like Ethiopia so as to reduce the huge maternal and neonatal deaths.( KII, UNICEF Ethiopia).*

<sup>10</sup> EPHI.Ethiopian Emergency Obstetric and Newborn Care (EmONC) Assessment 2016

Almost all of the midwives interviewed felt that the project was either very relevant or quite relevant to their current practice. Midwives explained that the training met their needs, and answered the questions that they wanted. Those who found the training the most relevant were midwives and other MNH health workers who were dealing with women on a daily basis. A BEMONC trainee nurse at Kamashe HC commented that:

*The training was completely relevant as the role I have is a different type of maternity assistant role. I sign post women and work autonomously. The training met my needs definitely as we have so many complex issues to undertake (health center head, Chiko, HC)*

A large number of midwives found the hand-outs, in particular the BEmONC practice resources given on the training to be of particular relevance. Many found the resources to translate labour information to have been especially useful. Even health workers who dealt with mothers less frequently found the training highly relevant. Although these health workers would only see women in the absence of midwives, what was covered on the training was still appropriate to their practice. One clinical nurse who shared knowledge and practice from BEmONC trained midwife in informal discussions explained that although she would only see a pregnant woman once in a while, she “*felt much more equipped*” to care for those women.

All respondents interviewed unanimously agreed on the indispensable relevance of the BEmONC training to their professional practices. Some of their words run:

*“BEmONC Training and Supportive supervision Project has helped to fund a number of BEmONC service gaps in our health facility. Case in point is the retention study, leavers study [on health workers who left their employment], assessments in staffing gaps and needs in districts, the study on services for reproductive health and HIV/AIDS – to mention but a few. This will help the Ministry to develop appropriate plans of action in scaling up proper BEMONC service delivery.”* (Health center head, Loke HC)

This project goal aligns with the Sustainable Development Goals (SDGs) 3 and 5 in year 3 and 4. SDG 3 aims to ensure healthy lives and promote well-being for all at all ages. SDG 5 aims to achieve gender equality and to empower all women and girls.

The Ethiopian Government’s Health Sector Transformation Plan 2015/16 - 2019/20 outlines the government’s priorities in health including reproductive, maternal, and newborn, child, adolescent health and nutrition. The Ethiopian Government’s National Reproductive Health Strategy 2006- 2015 identifies six priority areas including fertility

and family planning and maternal and newborn health. This project aligns with both these Government Strategies.

Representatives from the MOH and National Region Health Bureaus provided their feedback on the training programme was resoundingly positive. Taken together the responses suggest the successful achievement of the aim of the training project: a reduction in maternal and infant mortality rates in the rural areas of Ethiopia in general and National region in particular through improving the competencies and competence of midwives and other health workers. They all felt they were sufficiently involved in the design and implementation of the training. They all agreed that the trained midwives are able to assume responsibility for their clinical decisions and actions and that these midwives acted in accordance with professional values and ethics. All these representatives recommended replicating the training in other regions and covering a greater range of topics.

Responses from government officials at Woreda, zonal and regional level interviewed highlighted the synergies between the project and the government strategies and plans. The officials interviewed outlined how the delivery of the government's plans were strengthened by EMwA in terms of increased capacity, funding, access to Woredas and described an excellent working relationship with the EMwA team.

The evaluation team learned that the BEmONC training and supervision program implemented by EMwA in collaboration with MOH and RHBs, and with the support of UNICEF is aligned to this national direction. EMwA designed the program in such a way that mid-level health workers, mainly midwives, are provided competency-based BEmONC training in well-equipped training centers with additional telephone follow-up and when necessary, onsite supervisions, which ensured those who needed more support after the trainings are reached. Thus, there is no question that this program aligns with the national MNH strategy and has come at an opportune time to help the country achieve its goal of improving MNH services.

*The Ethiopian Midwives Association program on BEmONC training and supervision aligns with the national strategy. The program has a supervision component which ensures knowledge and skill retention at the facility level. That supports and goes with national efforts to achieving reductions in maternal and neonatal mortality ( KII, Health Bureau, Amhara Region).*

The project focused on 4 strategies to achieve its objective, and developed activities clearly linked to each of these strategies. The project activities contributed directly to the achievement of the project strategies, and the project goal. There is a clear relationship between the project activities, outcomes, objectives and the project goal. During the implementation period of the project there were no other donors present in the target woredas working on reproductive health services. EMwA worked in

partnership with the government across the project intervention woredas throughout the project timeframe. The results achieved by the project are as a direct result of the activities implemented by this partnership. There is no evidence to suggest that other factors impacted the project results, therefore this also suggests a causal relationship between activities, outcomes, objectives and the project goal.

EMwA has a deep understanding of the local context, given its specialized intervention on BEmONC over a decade in various parts of Ethiopia. It applied this knowledge to the original needs analysis for this project. All stakeholders interviewed agreed that the objectives of the project were appropriate given the health needs of the National region, and the Government Strategy of Ethiopia.

Objectives remain relevant to this region and the overall goals of the health strategy in Ethiopia. The reduction of maternal, neonatal and child morbidity & mortality is one of the indicators that the Ethiopian Government is using to measure the success of its first strategic pillar - Excellence in health service delivery. The zonal and woreda health offices confirmed this.

There is a lot of evidence outlining what is required for a reduction in maternal and child mortality. In its publication WHO outlines *“Effective prevention and management of conditions in late pregnancy, childbirth and the early newborn period are likely to reduce the numbers of maternal deaths, antepartum and intrapartum-related stillbirths and early neonatal deaths significantly. Therefore, improvement of the quality of preventive and curative care during this critical period could have the greatest impact on maternal, foetal and newborn survival.”*<sup>11</sup>

The evaluation team learned that the BEmONC training and supervision program implemented by EMwA in collaboration with MOH and RHBs, and with the support of UNICEF is aligned to the skill gaps and needs of the health workers, mainly midwives, are provided competency-based BEmONC training in well-equipped training this national direction. EMwA designed the program in such a way that mid-level health centers with additional telephone follow-up and when necessary, onsite supervisions, which ensured those who needed more support after the trainings are reached. Thus, there is no question that this program aligns with the national MNH strategy and has come at an opportune time to help the country achieve its goal of improving MNH services as highlighted by some of the key informants. The trained health workers also testified that the competency-based BEmONC training has improved their competencies, (91.5%) “Yes very much,” while five participants responded and 91.7% of the respondents believe they saved the lives of mothers and newborns as a result of the training. The majority of the participants also mentioned that their competencies in

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<sup>11</sup>WHO . WHO Guidelines for the Management of Postpartum Haemorrhage and Retained Placenta. 2009

performing specific BEmONC signal functions have improved as a result of the training. Furthermore, all trainees who reported receiving telephone follow-up and onsite supportive supervision rated the follow-up services as “very useful” or “useful.”

The expansion of knowledge, improvement of crucial competencies and the increase in the number of skilled birth attendants are all important building blocks in National Region’s quest to achieve improved maternal and infant care, decreased mortality rates and an enhancement of the nation’s overall well-being.

With regards to the relevance and appropriateness of the training materials and facilities, 100% of trained health workers and trainers felt that overall the quality of the capacity building training course was sufficient, relevant and appropriate. The majority of midwives, master trainers and health bureau officials wish to see an adjustment to the duration and frequency of the training based on tailored need and an expansion of the number of topics covered by the training. They were satisfied with the materials and modules used in training. Collectively they described them as: well organised, clear, relevant, interesting, and efficiently presented. The only negative aspect of the training implementation was that some rural health facilities lacked the necessary equipment and medication and had poor infrastructure and insufficient staff capacity for the training to be carried out as effectively as possible.

#### **4.5. Effectiveness of the Project**

The effectiveness of the evaluation assessed the extent to which the objectives of the project were achieved taking into account their relative importance. After training, the trainees were expected to develop an action plan at their corresponding health centers, work, lobby and advocate the availability of essential facilities for their provision of BEmONC services in their corresponding health centers. The effectiveness of the project, thus includes changes brought about by the training at the trainee and health facility level including in terms of availability of essential equipments and drugs used for knowledge, behavior, attitude and skill of health workers and improvements in quality of care as measured by indicators such as implementation of the seven BEmONC signal functions, increase in proportion of obstetric and neonatal conditions seen and managed by BEmONC trained staff, reductions in referrals and maternal and newborn mortality which the project intervention ultimately tried to meet.

##### **4.5.1. Availability of Delivery Coaches**

It is widely believed that trainees would work with the health facility management and staff to help improve availability of delivery couches and dedication of beds to EmONC services. Thus, change in the proportion of beds dedicated for the services and number of

couches available after the training is assessed. The proportion of beds dedicated to the services has increased after the training. Paired t-test done for mean difference in the number of couches available in the HCs showed a significant increase in the number of couches after training ( $P < 0.01$ ).

**Table 12:** Changes in Availability of Delivery Couches and Proportions of Beds Dedicated to EmONC Services

Region	Delivery coaches /tables are available After training			
	Before Training		After Training	
	Sum	Mean	Sum	Mean
SNNPR	97.0	2.1	97.0	2.5
Afar	23.0	1.9	26.0	2.2
Gambela	12.0	2.0	3.0	1.5
Amhara	124.0	2.3	119.0	2.5
Benshangul-Gumuz	32.0	2.1	32.0	2.3
Somali	36.0	2.3	38.0	2.5
Total	324.0	2.2	315.0	2.4

#### 4.5.2. Availability of Essential Drugs

Drugs related to BEmONC signal functions and emergencies require several different types of drugs that include antibiotics, anticonvulsants, antihypertensive, uterotonic, prostaglandins and drugs for use in emergencies. Gaps were present in availability of several essential BEmONC drugs at the time of assessment. Availability of individual drugs in the health centers showed no significant positive changes for all drug although there are minor improvements. An essential drug availability index was calculated using the list of drugs in Table Annexed. This index expressed as a percentage of the maximum possible score. Shortage of supplies and equipment like Magnesium Sulfate, Ergometrine, suction machine, heater, MVA set and autoclave were singled out as potential hinderances that could affect the trained health care workers effort to provide BEmONC services. There found increment in availability of the essentials drugs but the increment was not statistically significant difference both at ( $p\text{-value} < 0.01$ ) and ( $p\text{-value} < 0.05$ ) between before and after training ( see table 25 in Annex I).

### 4.5.3. Availability of Medical Equipment

The availability of medical equipment, including vacuum extractor sets, radiant heaters, and oxygen concentrators, showed no significant significant change after the project intervention. This implies that trained health workers would not provide the expected BEmONC services primarily for lack of equipment to perform assisted vaginal delivery. Despite these challenges, however, provision of BEmONC signal functions dramatically improved.

**Table 13: Change in availability of medical equipment before and after training (N=173)**

Drug	Before Training %	After Training %
Sphygmomanometer	96	98
Vacuum extractor	56	72*
Oxygen concentrator	32	46*
Suction machine	44.8	45.4
Radiant heater	38	57*
Ambu-bag & masks	87	92
Index score of availability of essential equipment (% of maximum score)	58.9	68.4*

\*Statistically significant both at ( $p$ -value<0.01) and ( $p$ -value<0.05)

KIIs findings indicate that BEmONC trained health workers were found to be highly involved in identifying the stock-out medication and supporting the health heads in facilitating the identification of the needed medication as per their action plan. There may be a need to improve timely identification of needed medication, strengthen the communication line and/or facilitate prompt delivering of the medication.

### 4.5.4. Amenities & Infrastructure Availability for Provision of BEmONC Services

The Amenities & Infrastructure Availability for Provision of BEmONC Services increased 21% points before and after the training which is statistically significant. After the exposure to the project intervention, more than 93% of health centers had a newborn corner and emergency cabinet for emergency drugs and equipment at the time of the endline survey. On the other hand, there was no significant improvement in the availability of light sources for vaginal procedures, easily cleaned floor tiles, and covering of delivery bed with washable plastic. The presence of functional electric lines was

improved but not statistically significant. Availability of a functional water line in the maternity unit was not significantly improved either.

**Table 14: Change in availability of maternity unit amenities & infrastructure before and after training (N=180)**

Drug	Before Training %	After Training %
Waiting area for family or Companion	34	79.0
Newborn corner	36	95
Emergency Cabinet	52	92.5
Light source for vaginal Procedures	60	65.8
Easily cleaned delivery floor tiles	76	**97.4
Delivery bed covered with washable plastic	89	86.8
Functional electric system	57	*86.8
Functional water Line	26	43.5
Telephone line for two-way communication	0.0	*55.3

\* statistically significant difference (p-value<0.05)

\*\* statistically significant difference (p-value<0.05)

#### 4.5.5. 24 hours a day, seven days a week (24/7) Service Availability

Availability of trained staff to manage complications, ambulance for emergency transport, pharmacy services, and laboratory services all times showed significant changes before and after the project intervention (Table 15).

**Table 15: Availability of ambulance in 24 hours a day, seven days a week (24/7)**

Service Availability	Before Training	After Training
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Trained staff on duty to manage obstetric Complications	42	**73
Ambulance service	63.3	68.7
Pharmacy service	83	*98.2
Laboratory service	71.6	**90.1

\*Statistically significant difference (p-value<0.05) before and after training

\*\*Statistically significant difference (p-value<0.05) before and after training

#### 4.5.6. Performance of BEmONC Signal Functions

The evaluation finding indicates almost all of the study participants (90.5%) replied that they are comfortable providing the seven signal functions after the training. The remaining 9.5% of the health workers mentioned at least one signal function they are not comfortable performing after training. Administration of parenteral antibiotics(94.9%) is the signal function most frequently cited while assisted vaginal delivery the least mentioned area is newborn resuscitation(76.5%). There is a significant variations among regions, for detail (See table Table 16).

**Table 16: Signal functions trainees are performing**

BEmONC Signal Function being performed	Before Training		After Training	
	Ferequency	Percent	Ferequency	Percent
Administration of parenteral antibiotics	64	38.8	169	**94.9
Administration of uterotonic drugs	42	23.5	157	**91.3
Manual removal of placenta	73	42.7	154	**91.1
Bimanual compression of uterus	83	48.3	148	**88.5
Removal of retained products	85	49.1	126	**78.3
Assisted vaginal delivery	81	48.8	130	76.5**
Newborn resuscitation	130	74.7	160	94.7**

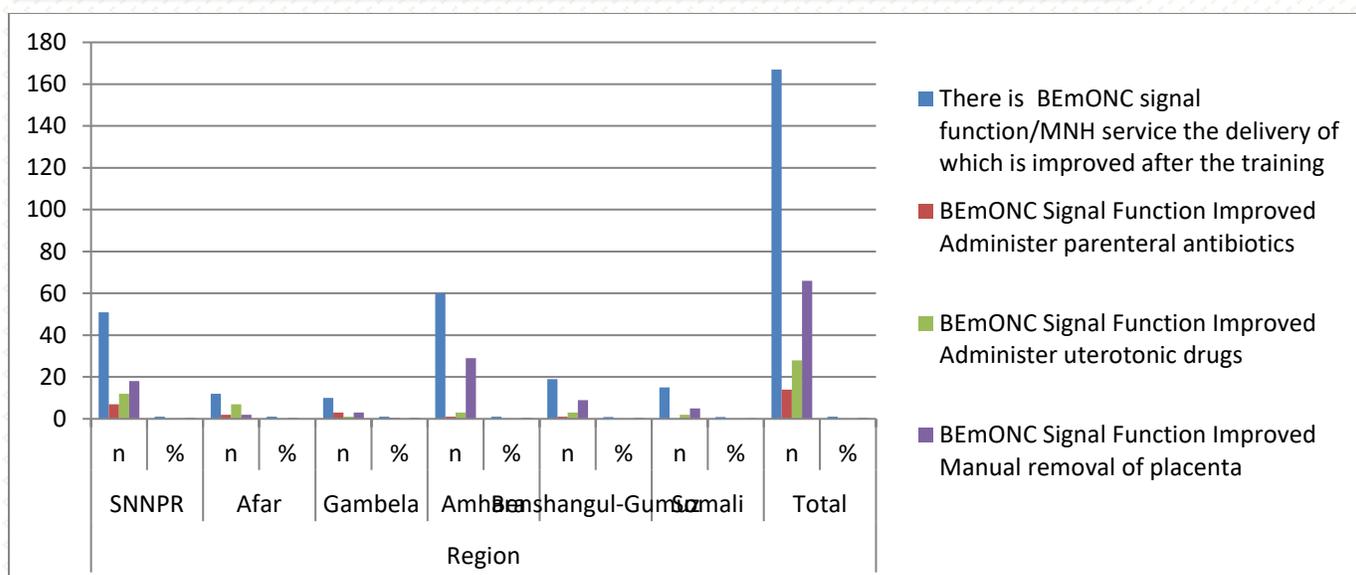
\*Statistically significant difference (p-value<0.05) before and after training

\*\*Statistically significant difference (p-value<0.01) before and after training

“Despite my BSC degree in midwifery and over a decade experience, I felt I have graduated in midwifery only when I received BEmONC training by EMwA. Now I confidently manage the seven BEmONC services including administration of parenteral antibiotics to prevent puerperal infection or treat abortion complications; administration of parenteral anticonvulsants for treatment of eclampsia and preeclampsia; administration of parenteral uterotonic drugs for postpartum hemorrhage; manual removal of the placenta; assisted vaginal delivery (vacuum extractions); removal of retained products of conception; and neonatal resuscitation,” Midwife, Derra HC

The use of IV antibiotics significantly increased, by 28% as compared to their usage before the training. The most commonly performed BEmONC signal function was the use of uterotonics and respondents improved on this measure. The use of uterotonics only increased a little (5%), but this was statistically significant ( $p$ -value $<0.01$ ). However, there were no statistically significant changes in the performance of manual removal of placenta ( $p$ -value $>0.05$ ) and neonatal resuscitation ( $p$ -value $>0.05$ ) (Table 11).

**Table 13: Percentage of health centers performing a particular BEmONC signal functions in the past three months and before the training.**



#### 4.5.7. Quality of care: Woman-centered Care, Partograph Use

The findings indicate that woman-centered cares such as delivery room privacy, choosing position, mothers treated cordially and cultural practices like coffee ceremony and allowing mothers to choose the birth position generally showed significant improvement. Likewise, use of partograph for follow-up of birth showed significant improvement over survey periods after the project intervention (Table 17).

**Table 17: Change in quality of care among health centers before and after the BEmONC training and supportive supervision (N=180).**

Services	Before Training %	After Training %
Delivery room privacy kept	57.3	*78.9
Mothers allowed to choose position	46.4	*77.5
Family member allowed to companion	60.2	*74.3
Cultural practices allowed (e.g. coffee, etc.)	44.5	*89.3
Treated cordially	77	*96.5
Used partograph for follow up of birth	69.2	*91.0

\*Statistically significant difference ( $p$ -value < 0.01) before and after the BEmONC training and supportive supervision;

*\*\*statistically significant difference (p-value<0.05) before and after the BEmONC training and supportive supervision*

Partograph review was carried out to assess the use and quality of partograph completion and labor management. For this purpose, data collectors were instructed to review three recently used partographs in each health center. The criteria for inclusion of partographs for review included partographs from cases in which 1) the woman was at term, 2) cervical dilatation was less than 8 cm at first exam, 3) fetus was in vertex presentation, 4) fetal heartbeat present at first exam, and 5) woman was without obstetric complications at first exam.

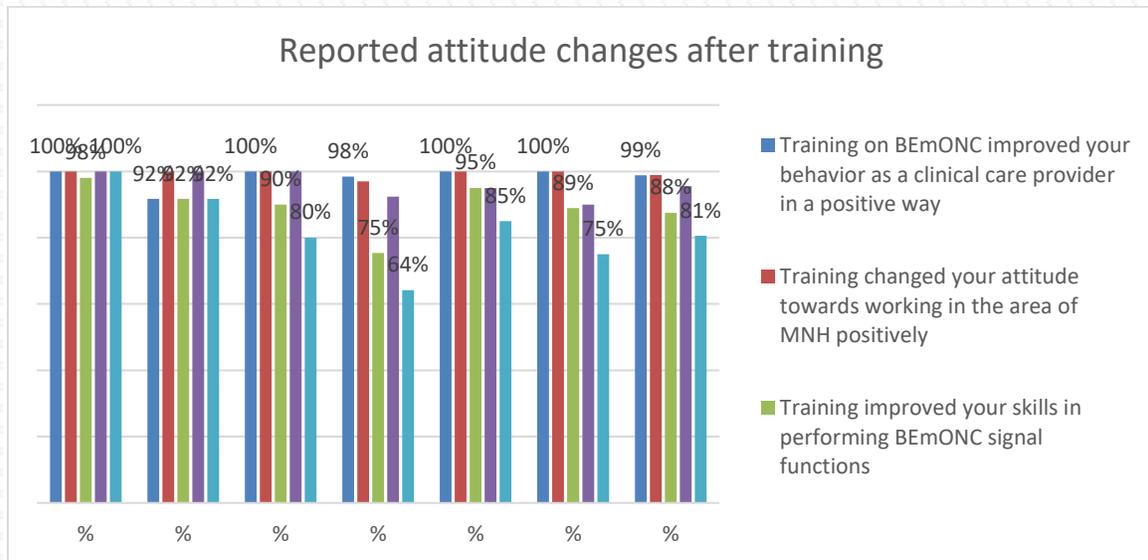
The result generally indicated that most of the health workers after the BEMONC training realized the vitality of the partograph to the pregnant woman and started to consistently use it.

I was not clear with the significance of partograph before I took the BEmONC training. Now I have come to realize the life of the woman and the neonate is on it. I am very careful to use and keep it.

#### **4.5.8. Changes in knowledge, attitude and skill of HCWs who received BEmONC training**

EMwA's BEmONC training and supervision project is aimed at improving the knowledge, competencies and practices among midwives and other HCWs so that they provide essential services for mothers and newborns with the required levels of competency, attitude, competencies and proficiency. Trainees were asked if they have observed any changes to their behavior and attitude as clinical care providers due to the training. The survey result indicates that the knowledge, competencies and practices among all midwives and health workers improved after they exposed to the project intervention: mainly the BEmONC training and supportive supervision. All (100%) of the respondents confirmed that the offered training efficiently filled previous numerous knowledge gaps and all (100%) of participating midwives and health workers also noticed that the training increased their professional confidence. Almost all (98%) of the respondents indicated that the training on BEmONC improved their behavior as a clinical care provider in a positive way.

**Figure 2 : Reported change in attitude by BEmONC trained staff**



KII respondents also mentioned that they noticed positive changes in the capacity of midwives to care for patients autonomously. Results show not only the value of training, but also how necessary consistent follow-up is to reinforce practices, support staff, and understand what providers' experience. The trainees repeatedly mentioned feeling positive and confident about providing BEmONC services. These changes were also noted by health facility managers who consistently stated their staff became more knowledgeable and assured and are motivated to work beyond their scope and share their knowledge and competencies to fellow health workers.

The claim that knowledge and competencies transfer is happening is also supported by what trainees had to say on the issue. From the trainees in the 166 health centers where the staffs are still working, nearly all (94.2%) reported they had shared the knowledge and competencies they obtained through the training to other staffs in the facilities.

A senior midwife who has been practicing for more than ten years, but received the BEmONC training recently discussed that BEmONC training is the lifesaving practical training skill which all health-care workers miss in school and how it is important for everyone to take.

Respondents at all levels discussed additional benefits to the BEmONC training, in particular:

*“Midwives said that it is much better now; the doctors have become more accepting and believe that midwives are able to teach.... At work, these midwives [also] say that they felt that doctors are more respectful in the hallways and behind closed doors.”* (Health center head, Arib Gebeya HC)

*“Training provided at health facilities with close follow-up has improved quality of service and service coverage”* (Somali Regional health bureau, MNH department head).

The majority of midwives and health workers interviewed also felt that their attitude had changed following the training. In particular midwives felt more attuned to the kinds of problems pregnant women face for example financial stresses. This made them more empathetic. A large number of midwives and health workers felt more concerned about current care for women following the training and an increased desire to change their own practice to further support women. Almost all of the midwives and health workers interviewed felt they wanted to get more involved BEmONC practice since the training.

Many midwives and health workers however felt that whilst the training had increased their knowledge about how to care for these women, their attitude towards them hadn't changed. As one midwife put it, *“I have always felt very strongly that we as midwives and health workers need to do more for this group, and I still felt that after the training.”* Another noted that, *“I have always supported these women, my attitude hasn't shifted.”*

Every midwife interviewed felt that her/his confidence in dealing with BEmONC serviceseeking women had increased following the training. Midwives made comments such as *“Yes I am so much more confident in the care I give,” “knowledge is confidence and now I am equipped with more of both.”* Many midwives and health workers felt more confident to approach different organizations that could support their HCs to fill-in their service gap that before they would have been hesitant to contact. The increased knowledge they had about procedures and processes made them feel more comfortable contacting such organisations. Many midwives and health workers felt more confident in their ability to take a client's problem to higher level decision makers such as Woreda and zonal health bureaus. One midwife explained how her and her colleagues that attended the training felt: *‘Yes so much more confident, there's less waiting or faffing about, I just phone or I'll go onto the concerned officer and find the information and tell women or phone them up on behalf of women, so nothing stops us now, we just get on with it whereas before we wouldn't have known where to go or wouldn't have understand so we would have left it with the women.*

Around half of the midwives and health workers interviewed mentioned that the training reassured them that their practices were not *“wide of the mark”* or *“too different from others.”* Whilst they recognised it was good to learn new ways of delivering care, the training helped increased their confidence that what they were doing wasn't completely

different from other midwives and health workers. A number of midwives and health workers went on to add that feeling more confident benefited their client who would ultimately feel more at ease with the midwife's decision.

Midwives offered numerous examples of how the training contributed to the quality of the care they give to BEmONC serviceseeking women.

A large number of midwives and health workers explained that following the training they were more sensitive to a client's emotional needs and were therefore more understanding and empathetic in their engagement with that client. Other midwives and health workers felt that because they knew more about what was going on in these women's lives they were more able to tailor the care according to specific situational needs and requirements. Quite a few midwives and health workers explained how since the training, the types of conversations they had with women were different. Now, they would ask for more information than they had done previously so that they were better able to help women and signpost her accordingly to other services. However, a lot of the midwives and health workers interviewed explained how instead of trying to find out everything about the women on her first meeting they would now explain to the women that she didn't need to provide all information on the first meeting. One midwife noted that:

*'I used to try to find out everything on the first consultation but because of the training I'm more aware now that trust needs to be built and it's ok if they don't open'.*

Several HC heads interviewed made reference to how a certain aspect of the training had a positive impact on midwives and health workers attitudes: *'Certain parts of the training really helped to change people's attitudes, women recurrently come and talk that really benefitted the midwives and health workers, listening to that person like a change study, you could feel things start to shift.* Interestingly, one of the HC heads commented that as a service, they had always been very BEmONC servicefriendly indicating that the training impacted greatly on the culture. The findings from HC heads concerning the knowledge and attitude change brought about by health workers after the BEmONC training include:

- The BEmONC trained health-care workers function as members of facility management team and attend management meetings usually every two weeks. In these meetings, performance related to MNH services is assessed, challenges are discussed and action plans are developed for corrective measures. They support in informed decisions with regards to planning, quantification of drug & supplies and allocation of facility beds to MNH cases.
- The training made health workers much more knowledgeable about complex issues for example the BEmONC serviceseeking process, what different statuses meant and what women are entitled to.

- Trained health workers now knew who to connect with when seeking information and entitlements for women. They also became more proactive in making contact with various services and providers.
- Since the training they were more able to lend a professional voice, asking for procurement of drugs and supplies. They started to routinely support their colleagues who had not attended the training. This had the consequence of making their colleagues more interested and committed to BEmONC.
- Most of the midwives and health workers' attitude towards BEmONC service seeking women had changed following the training. Midwives became more attuned to the kinds of problems women face.
- Midwives and health workers offered numerous examples of how the training contributed to the quality of the care they gave to BEmONC serviceseeking women. They became more sensitive to a client's emotional needs and were therefore more understanding and empathetic in their engagement with clients. Other midwives and health workers felt that because they knew more about what was going on in these women's lives they were more able to tailor the care according to specific situational needs and requirements. A large number of midwives and health workers described how following the training they felt more able to "go that extra mile" for their clients.
- Midwives felt that the training gave them a clearer sense of what was possible. It was also felt that the training helped midwives and health workers to think and work in different ways and go beyond what they would have done before.

Interviews with midwives and health workers also generally indicated that a large number of midwives and health workers had come away from the training feeling inspired and wanting to get involved in initiatives to improve the care for this group of women. Initiatives included the production of pamphlets covering key points from the training, information as the basics on ANC and PNC for client women. Some also had also gone on to present information given in the BEmONC basics to non-midwifery staff such as nurses, HOs as well as share knowledge. Others explained that the training had made them want to involve themselves with EMwA for instance peer support schemes to train BEmONC serviceseeking women.

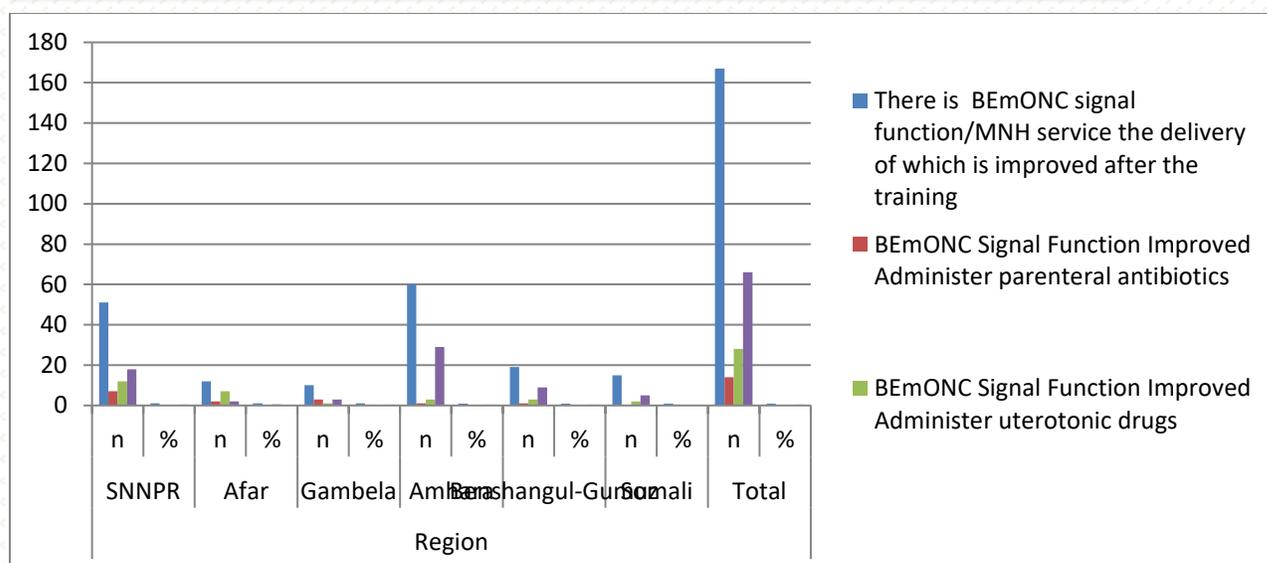
Improvements cited by interviewed health workers include an increase in skilled delivery; increased knowledge and skill capacity of health care workers; improved infection prevention; increased social mobilization; reduction in maternal and neonatal mortality and improved documentation, reporting and referral system (both within MCH departments and with referral hospitals).

The overall feedback from midwives and health workers regarding the training is very positive. All midwives and health workers participating in the training affirm that they would like to remain working in the field and continue improving their theoretical knowledge and practical competencies. They request more of this kind of training organized by EMwA and suggest an increase in the duration of practical sessions and that they continue to be held in well-equipped medical center's/ large maternity hospitals. *"Before the training, I was not even sure how to administer antibiotics let alone administering IV uterotonics, administration of parenteral MgSO4/diazepam, removal of retained products of conception, and assisted vaginal birth. With the knowledge I have gained, I feel equipped to manage a comprehensive care center."* (BEmONC trained midwife, Fante Ejersa HC, Shalla Woreda)

#### **4.5.8.1. Improved Signal function Delivery after BEmONC Training**

When asked if the competency-based BEmONC training has improved their competencies, 166 (96.5%) participants responded "yes very much," while five participants responded "yes, a bit." One of the interviewees stated it didn't help much. Besides, when asked about improvements in competencies to perform each of the signal functions, majority mentioned their competencies had improved ( ).

**Figure 3: signal functions delivery of which are improved as a result of the training**



#### 4.5.9. Management of Obstetric and Neonatal Conditions in the Facilities

Both the qualitative and quantitative data indicate that more obstetric and neonatal conditions have been managed within the health centers they are first seen ever since the health workers received the BEmONC training and supportive supervision. The survey indicated that in over half of the health centers the proportion of PPH cases managed in the same facility has increased after the training compared to before. The changes are also high for retained placenta, postpartum sepsis and pre-eclampsia/eclampsia (see table in annex 7). Moreover, substantial number of HCs showed no change in the proportion of cases managed in the same facility (see table 24 in annex I).

#### 4.5.10. Referral of Obstetric and Neonatal Cases to Other facilities

After the training, there is a decrease in referral of obstetric and newborn conditions. The decrease is particularly evident for PPH, retained placenta, postpartum sepsis, and complications of abortion, neonatal sepsis and RDS cases.

While 94.2% and 41% of health centers had access and available in their premises respectively to an ambulance for emergency cases to transfer to and from the facility. There found no significant difference in the access and availability of ambulance before and after the training. In other cases, ambulances were located at the other health center, district health office, or the woreda administration. In the majority of the cases where ambulances were outside the facility, it takes 30-60 minutes to arrange an ambulance for referral. The mean average was 45.6 minutes.

An overall improvement was seen with regards to adherence to referral protocols among maternal and newborn referrals before and after the project intervention. The improvement is not statistically significant (see table 1 below).

**Table 19: Adherence to referral protocols among maternal and newborn referrals (N=176).**

<b>Referral Situation</b>	<b>Before Training %</b>	<b>After Training%</b>
Access to an ambulance for emergency	75.6	93
Ambulance located in facility premises	31	43
<b>Time taken to arrange ambulance</b>		
< 30 minutes	36	38.5
≥ 30 minutes	64	61
Functional landline telephone	38	42
Functional cellular phone	84	86
Telephone in the maternity area for two-way communication	10.5	17.6
Direct access to ambulance by community	76.3	86.5
Presence of referral focal person	52.5	57.6
Unit coordinating referrals(office + supplies)	21	28.5
Standard protocol (for who to refer, when and where) for referral	70.3	73.5

### *Disposable gloves*

When asked about the practice of using disposable gloves for vaginal examinations, it was found that all health workers were observing this practice. As for frequency of use of disposable gloves, 99.6% of the respondents reported that they used disposable gloves every time they did a vaginal examination.

## **4.6. Project Efficiency**

The efficiency of the project was assessed based on its status in translating resources into the desired level of output. It is the productivity of the implementation process. It tried to check if project outputs achieved within expected cost and time. Thus, the efficiency of the project was assessed through examination of the relationship between resources allocated and the results achieved, mainly at the output level. This was an over 32,320,018.03 million earmarked during the project tenure. The general execution rate of EMwA was 90% which could be considered fairly efficient.

**Table 21: Project budget utilization rate**

	<b>Total Approved Budget for the project</b>	<b>Budget Released</b>	<b>Total utilized budget</b>	<b>Utilization Rate</b>
Quarter One	30,888,413.64	3,057,471.49	2,750,456.51	90%
Quarter Two		3,254,557.63	851,699.59	26.16%
Quarter Three		7,282,905.77	5,595,321.89	76.8%
Quarter Four		3,417,574.01	2,116,260.51	61.9%
Reimbursement			2,432,056.71	
Year Two Quarter one		4,702,346.13	4,702,346.13	100%
Year Two Quarter two		4,577,887.20	4,577,887.20	100%
No cost extension		6,027,275.80	6,027,275.80	100%
<b>Total</b>		<b>30,888,413.64</b>	<b>32,320,018.03</b>	<b>29,053,304.34</b>

So as to quantitatively measure the efficiency of the project, an extensive cost-benefit analysis of BEmONC is required. Available qualitative data, however, indicated that the project efficiency was highly satisfactory. A broad analysis of the budget indicates the efficient use of the budget resources with reference to the achievement of the project activities. The cost per individual training was less than other implementers' average. It was well managed and the resources were utilized efficiently. It used adaptive management extensively to secure project outcomes while maintaining adherence to the overall project design. The log-frame is one of the main management tools used to guide the implementation of the project. A highly committed and successful project team implemented the project.

In qualitative measures, however, the project efficiency was highly satisfactory throughout its short-term tenure (2.5 years). It was well managed and the resources were utilized efficiently. It used adaptive management extensively to secure project outcomes while maintaining adherence to the overall project design. The log-frame is one of the main management tools used to guide the implementation of the project. A highly successful project team implemented the project. They used short-term consultants extensively to check what has worked what has not before and after each project phase.

Nevertheless, stakeholders view the BEmONC outcomes as being of much higher quality than those of BEmONC and related MNH programmes. While it is likely that the level of investment is a factor in achieving this quality, another contributing factor is time—it is reasonable to expect that prolonged support to the target health centers would yield better results in some aspects of programme objectives.

The present evaluation finds that BEmONC project generally lacks resources compared to similar programs, according to qualitative interviews. Interviews with government officials indicate that BEmONC has a smaller budget than BEmONC projects in the region and nationwide level and those interviewed view BEmONC as a relatively more inexpensive programme as compared to the exhaustive supervision of its intervention components.

Although there have been delays in the inception phase of the project due to several extraneous factors, the project provided inputs and resources on time when needed. The activities were implemented according to the planned budget. The partners including UNICEF, National health bureau and zonal offices at different level monitored the inputs, activities and outputs regularly. EMwA through its collaborative partners particularly the health bureau and implementing health facilities was able to provide essential medical supplies to both BEmONC facilities.

The honest commitment of EMwA staff, the initiatives brought about a meaningful positive change in the mind-set of the target health workers as compared to that of BEmONC trained target health workers

#### **4.7. Monitoring and Evaluation Activities**

The projects has clearly identified and planned the methods of both participatory and independent projects monitoring and evaluation means. These were bi-annual review meetings, monitoring missions, telephone and supportive supervisions and endline evaluations. Bi-annual review meetings were consistently conducted by representatives of Regional Health Bureaus, Zonal Health Departments, EMwA, UNICEF and other relevant government and other stakeholders. Based on the projects document, which is reviewed yearly, the projects prepare an Annual Work Plan. This in turn is used as a basis for monthly work plan of the field workers and the projects coordinator. The field workers report monthly and quarterly and receive feedback from regular staff meeting. Frequent EMWA, FMOH and regional health bureaus monitoring missions and UNICEF Ethiopia missions have already been conducted at various sites of the projects in different times. Their outcomes have also been used as input in need based intervention and some

adjustment of project activities. Evaluation reports were duly submitted to the implementing organization and local health offices.

At the partner level transparency and accountability were very clear throughout the project. At the regional and zonal levels, each EMwA team had a very close relationship with the regional officials, and daily meetings took place. Monthly meetings were held with the region officials to gather data from region, and these meetings allowed time for updates and feedback. Once a year a workshop was held in Adama for the region officers and the Health Centre Directors. This was an update on the project (given by EMwA staff), and discussions/feedback. At zonal and regional level quarterly updates given to zonal and regional office, and the zonal office officials attended annual meetings.

At organisational level accountability and transparency were implemented through the monthly team meetings among EMwA, the region officials and UNICEF. Field staff and zonal staff attended, updates were given and discussed, and plans for the next month were made. Discussions included activities, finance and any other issues that arose during the month. At donor level, EMwA provided annual reports and accounts to the donor. EMwA has ongoing communications with the donor throughout the project.

#### **4.8. Potential Impact**

The BEmONC training intervention of the project need to be evaluated against set objectives for varies reasons. The impact of the interventions on the beneficiaries is one of the motives of the evaluation. However, the short projects life and the complex nature of behavioral outcomes of the trained health workers in rural HCs context call on effects rather than impact. The outcome of the evaluation may help for repeating the same activities in the same and other areas or redesign the interventions if some meaningful deviations occur between achievements and set targets.

This study tried to assess if the project brought about a meaningful change in the target widwives' and other health workers acquired knowledge and competencies, their attitudes and behavior change with regards to BEmONC practice in particular and maternal and neonatal health services in general.

Some of their wordings during interview run:

*“Really I feel quite confident in my performance [attending deliveries, applying the seven signal functions ...]. Anyway there is always a certain level of stress when attending births because it is an unpredictable event; it is always unpredictable, many things can be predicted but not everything. So to be totally*

*confident [in your approach to birth] can be a type of neglect (Midwife, pugnedo HC”.*

*“What I learned from the Project helped me to be confident as a midwife”  
(Clinical nurse, Keyit, HC)*

The overall evaluation findings, however, generally indicated that the BEmONC training followed by on-phone follow-up and supportive supervision brought about improved availability and utilization of obstetric services in the intervention facilities, which ultimately would enhance the uptake of life-saving interventions to tackle the major causes of maternal and neonatal mortality in target regions of Ethiopia. The evaluation result showed that facility input and process indicators increased significantly from the before training, demonstrating an increased level of readiness for emergencies and management of common obstetric and newborn complications in primary health care facilities. However, some basic interventions like neonatal resuscitation and the manual removal of the placenta did not change significantly, which might be due to the lack of specific technical competencies. Accordingly, focused and more intense mentoring and supportive supervision for particular competencies, such as neonatal resuscitation and the manual removal of the placenta, could be implemented to improve these interventions.

*“As a result of their training, midwives and nurses were confident in identifying risk factors. “I believe that [our training] is good, because they teach us to identify risk factors that could endanger the lives of the women and infants.” (MNH officer, Somali Region)*

The overall impact of the activities undertaken is to achieve an improvement in the access to and quality of preventive and curative maternal services in the target health facilities. Impacts were highlighted by target health workers and health facilities throughout the evaluation. Midwives reported increased confidence and ability due to stronger competencies learnt from BEmONC training. Women understand the importance of ANC, PNC and family planning and are now using maternal waiting homes to ensure safe deliveries. Health Workers reported how they can support their communities better through their increase in competencies, knowledge and confidence.

Health facility observation indicated that most of the BEmONC trained staff were highly motivated and the health facilities were ready to offer BEmONC services after the project intervention. Key items are available in many facilities and relatively good number of them had all the required commodities and equipment to provide BEmONC.

#### 4.9. Sustainability

The evaluation team found that project began thinking about sustainability from the onset of implementation. The end user beneficiaries of this program are mothers and neonates that obtain BEmONC services from the health centers where the trainees work. The objective of the project was to strengthen BEmONC services and enhance the quality of care through improving knowledge and competencies of health professionals and capacity of the health institutions. Being a training program, the main contributions that could be linked to the benefits of mothers and newborns are increasing access to BEmONC services at the HCs they visit, and ensuring the care is provided by knowledgeable and skilled personnel.

It is clear from the findings that the implementation of the seven signal functions had increased substantially in the health centers after the training was provided, and more mothers and newborns were seen and managed by BEmONC trained staff. Furthermore, referrals for several obstetric and newborn services have also decreased since the training. These are indications that mothers and newborns have benefited from the training program. The project is also aimed at improving the behavior and attitude of health care providers involved in providing BEmONC services. Majority of the trainees indicated that the training has brought positive changes in their behavior and attitude and has helped them be better care providers.

Prior experiences from maternal and neonatal health programs in the country as well as from abroad have proven that, duly implemented BEmONC strengthening projects with well-coordinated competency-based BEmONC training, including follow-up clinical mentorships and service site strengthening, play a significant role in improving essential services for maternal and neonatal health. Ensuring that health facilities are staffed with health workers with the required competencies is at the center of all MNH services strengthening efforts and is one of the strategic approaches outlined in the national accelerated MNH roadmap and Health Sector Transformation Plan (HSTP). Participants from all levels within the health system also agree that this program is pivotal to the current MNH strategies.

The project implemented BEmONC strengthening projects with well-coordinated competency-based BEmONC training, including follow-up clinical mentorships and service site strengthening, play a significant role in improving essential services for maternal and neonatal health. Ensuring that health facilities are staffed with health workers with the required competencies is at the center of all MNH services strengthening efforts and is one of the strategic approaches outlined in the national accelerated MNH roadmap and Health Sector Transformation Plan (HSTP). Participants from all levels

within the health system also agree that this program is pivotal to the current MNH strategies.

UNICEF National project trained regional and facility level health workers to provide quality BEmONC services. Training centers were well established and equipped in six selected hospitals in the region. These trainers have since trained a number of others in their corresponding health structures. UNICEF National project worked within existing infrastructure of the MoH and regional health systems, as opposed to creating parallel structures, especially for important functions like M&E, service delivery, and human resources. Additionally, throughout the life of the project, staff has focused on building capacity of health facilities and health workers so as to effectively provide BEmONC services in even poor resource settings. Technical capacity has been built through training and continuous supportive supervision. However, the project also actively engages these health workers with their regions and districts, thereby strengthening those bonds.

One of the most basic but crucial steps in the design of this project was to integrate project interventions with existing structures. This step alone guarantees at minimum that all those trained and supported under this project will effectively utilize their competencies in service delivery as well as their individual competencies and can easily attach themselves with these institutions. To ensure effective and efficient close-out, the Program Management in the project conducted a series of meetings with local partners/stakeholders including; government offices so as to discuss transitioning process and service planning post project activities.

The project staff ensured that accurate and consistent information was given to the health bureau, its structures and target health centers to avoid confusion or create misunderstanding during project close-out.

Consistent to their proposed sustainability strategy, the project made efforts to ensure sustainability in two broad ways:

- Using existing structures, capacity building, Establishing collaborations with other stakeholders
- Ensuring active involvement and participation of health workers in the decision making on issues related to BEmONC.

UNICEF National project signed memorandum of understanding (MoUs) with the Government Ministries (National Health Bureau which enables it to continue lobbying the government to continue service delivery and support). Another key factor that will influence the sustainability of the project is the alignment to government strategies and

plans. This ensures commitment even beyond the life of the project. There is a strong willingness from the government side to continue working on improving maternal health in this region; however limited, resources will determine the activities possible.

## **5. Program Analysis Lessons Learned**

### **5.1. Strengths**

- The planning and monitoring system used by the project was very effective. All stakeholders were clear on the process, and what their role was. It enabled efficient management of resources, and activities throughout the project despite the challenges encountered (for example poor communication network).
- Strong partnership among stakeholders and health professionals (midwives).
- Strong sense of ownership of the project by the National health bureau, zonal and Woreda health offices and local government stakeholders.
- Strong partnership among UNICEF, EMwA, and health bureaus.
- Regular monitoring of activities by the health bureaus, project staff, EMwA, and corresponding regional and zonal health bureau, and concerned government stakeholders with a well developed monitoring tools in place.
- Well established project administration and project staffing.
- High resource absorption/utilization capacity of EMwA, with high integrity as evidenced by the project.

- Project has done significant capacity building and ready for transition speciality for facility activities

## 5.2. Limitations

The main limitations of the project identified were:

- Referral linkages does not appear to have been formalized and integrated into existing government health system
- Delay of project activities at the beginning which hindered the impact of the project intervention at this point.
- Poor feedback mechanism and poor communication after supportive supervision made

## 5.3. Challenges

The common and main challenges of the project identified were:

- ***Human resources-related challenges, Acute shortage of trained personnel:*** Participants were unanimous that the EmONC workforce was inadequate, especially in the rural areas. Many attributed this partly to the period of the conflict when many health personnel fled out of the community for their personal safety. Other participants also associated the shortage of EmONC personnel to the introduction of the universal healthcare policy for pregnant women and under-five children that has led to an increase in the demand for EmONC services. Many respondents felt that the increase in the demand for maternal, reproductive and child health services have not be complemented with a corresponding increase in the workforce.
- ***Perceived poor living and working conditions:*** Some participants also felt that their working and living conditions are undermining their ability to deliver quality EmONC services. Many made mention of poor salaries that were not adequate to meet their needs as well as lack of some essential EmONC supplies as the main areas of concern.
- Broader mechanisms to translate programme readiness into sustainable system are not functioning well, compromising quality of available services.
- Communication across different levels of the health system was poor
- Local problem solving approaches using available resources is not well functioning challenges as they emerge :
  - Not enough facilities provide all the life-saving BEmONC functions and lagged behind to meet the UN standards.

- Facilities providing EmONC are not equitably distributed across the health facilities in the region.
- Although progress has been made, BEmONC services are still under-utilized and there is a strong unmet need for these services. Specific signal functions - such as manual vacuum extraction, anticonvulsants, manual vacuum aspiration, and newborn resuscitation were found to be underused compared to expected complications needing these interventions.
- The needs of newborns with complications are being insufficiently met and deserve particular attention moving forward.
- Despite significant improvement, the quality of EmONC services is still inadequate and requires more training, coaching and competencies refreshing of staff, as well as significant and continued supportive supervision.

#### **5.4. Lessons Learned**

The following were the lessons learned from this project implementation:

- A combination of well-coordinated demand creation and service improvement activities is essential to any successful scale-up of evidence-based interventions.
- Factors that promote such successful scale-up include increased awareness of the availability of global low cost solutions to the major causes of maternal and newborn mortality; strong government ownership of the national EmONC efforts that results in the domestication and implementation of global MNH standards; competency-based provider education leading to skilled birth attendance; and respectful maternity care in the context of health systems strengthening. In the sections that follow, information is provided on the settings and process used for dissemination of generic international standards for essential MNH care, provider education, and quality improvement.
- Follow-up and supportive supervision within three to six months will promote the retention of knowledge and competencies of BEmONC trained health workers. Follow-up and supportive supervision will be most successful when they are accompanied by refresher trainings and supply.
- Inculcating the knowledge and competencies of BEmONC and increasing demand for MNH services all take considerable time and effort and the impact of programme interventions may not be apparent in the short term.

- Developing strategic partnerships with the help of UNICEF to strengthen midwifery as a profession and the capacity of midwives to teach, manage and lead is important and more support is likely to be needed to enable the EMwA to take on a greater leadership role.
- There is a need to provide appropriate and on-going support to new cadres of midwives who have the potential to increase coverage of Emergency Obstetric and Newborn Care (EmONC) in areas where services are currently unavailable.
- Midwives and health workers should be fully involved in the planning, implementation and evaluation of the project.

## **6. Conclusion and Recommendation**

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### **6.1. Conclusion**

The competency-based BEmONC training and supervision program implemented by EMwA is highly relevant in the wider sense of the terms. Although it is just one of the several MNH interventions being implemented in the country, training remains crucial for bringing lasting change in the system. The program is aligned to the national and regional strategies aimed at reducing maternal and newborn mortality and morbidity through improvements in access and quality of EmONC services. This project has enabled a substantial number of health centers, many of them from rural and hard-to-reach areas, have BEmONC trained staff working in the MNH units. Many of the health centers, however, still had only one trained staff and staff turnover remains a challenge. Besides, even in those facilities with trained staff, substantial proportion of patients are still managed by staffs who are not trained on BEmONC. The need for continued

implementation of this project is thus crucial to ensure more health centers benefit from the project and those who had BEmONC trained staff also have a enough trained staff. Overall, EMwA has achieved its main results in relation to training targets set. There is, however, conflicting evidence regarding post-training telephone follow-up and on-site supervision, especially in relation to coverage and the sequence of events, which have not happened as planned. The onsite supervision has also exhibited problems with planning and coordination. At health facility level, substantial results that would contribute to improvements in quality of BEmONC services have been achieved. As a result of the training, more health facilities have started providing emergency obstetric and newborn services 24-hours a day, significantly higher numbers of facilities are providing the seven BEmONC signal functions. In general, following the training, more obstetric and neonatal conditions are being managed in the same facilities cases are seen, and referrals of obstetric and neonatal conditions have decreased in a substantial proportion of the health centers. Health workers have started performing many procedures and tasks they did not perform before and the level of confidence while performing the tasks has changed as a result of the training. In addition, all indications are that the training helped bring change in behavior and attitude among trainees. However, there are also challenges to the realization of full benefits of the training. Poor infrastructure and shortage and supplies and equipment remained huge challenges at the facilities. The number of BEmONC trained staff also remains low with most HCs having only one person.

The project has been implemented within the defined timeline, and training outputs have been delivered within planned time and cost. It can be argued that competency-based BEmONC training and supervision program implemented by EMwA has several characteristics that would favor sustainability both in terms the project and continuity of benefits in case the project ends. Key government and other stakeholders are sufficiently involved starting from the design stage; training centers have been set up and equipped in all regions, and RHBs are actively involved during the implementation and also have a positive view of the project. Furthermore, a large proportion of the trained staff remained within the health system, although individual facilities report attrition. Nearly all the trainees also shared their knowledge and competencies, and that helps the benefits extend beyond the trained staff alone. However, there are also threats to sustainability as well, including the high cost of training and lack of diverse sources of funding.

The number of BEmONC trained staff also remains low with most HCs having only one person. Moreover, health workers were trained in BEmONC services, and are able to provide maternal health services at the health facility level. The project has been implemented within the defined timeline, and training outputs have been delivered within planned time and cost.

Key government and other stakeholders are sufficiently involved starting from the design stage; training centers have been set up and equipped in six zones, and National health bureau has been actively involved during the implementation and also have a positive view of the project. Furthermore, a large proportion of the trained staff remained within the health system, although individual facilities report attrition. Nearly all the trainees also shared their knowledge and competencies, and that helps the benefits extend beyond the trained staff alone.

## **6.2. Recommendations**

Based on the findings of the project evaluation, the following recommendations are forwarded for future BEmONC intervention:

### **General Recommendation**

- Consideration be made to improve competencies of health care providers in management of obstetric complications, both during pre-service training as well as during in-service.
- Improved and upgrade the target health facilities to allow them to perform at least basic signal functions for treatment of obstetric complications and meet the stipulated standard of EmONC.
- Conduct regular staff audits by the concerned regional health bureaus so as to determine EmONC training needs and plan for follow up trainings for staff that need to be trained.
- Involve woreda health offices in conducting scheduled quality improvement visits to health facilities so as to identify gaps in maternal and newborn health care provision and devise strategies for improvement together with staff at health facilities providing EMONC.
- Address the water needs of those health facilities with no water source or non-functional waterlines in the labor and delivery rooms, equipment for newborn care, and infection prevention measures need to be further addressed. Although most project-supported facilities have adequate infrastructure (e.g., electricity, water), allowing staff to provide safe obstetric procedures, In collaboration with the regional administration, UNICEF could help address remaining infrastructural deficiencies in health centers by ensuring the 24/7 availability of electricity and backup generators.
- Develop a locally contextualized referral protocols to strengthen referral linkages. Thus, measuring implementation strength of BEmONC care in the context of rural facilities would include evaluation of 1) effectiveness of

- referrals, 2) completeness of resources available at the facility, 3) quality of care, and 5) technical inputs.
- Strengthen the already established mentoring and supportive supervision for particular competencies to reinforce the competencies of BEmONC providers and improve the quality of intrapartum care should be prioritized. Specific competencies that should be trained and supported include neonatal resuscitation, manual removal of placenta/removal of retained products of conception, PPH management, and care for the sick and low birth weight baby. Supervisory and mentoring visits can also help sustain the skill levels of providers who work in remote places. Developing a rotation that allows remote healthcare providers hands-on practice of obstetric competencies in facilities with a higher number of severe obstetric cases can also sustain providers' training. Alternatively, a trial of low technology simulation-based EmONC practice may be performed.
  - Develop a functioning means of communication and a functional means of emergency transport available 24/7, and emergency patients should be accompanied by a qualified health professional in all health centers. As such, the referral system should be strengthened for timely access to EmONC services.
  - Improve partographs completion through introducing closer supervision, providing training, and availing partograph use protocols in a bid to optimally utilize partographs as a managerial tool for the prevention and diagnosis of prolonged and obstructed labor. Adequate production and supply of guidelines and job aids particularly for infection prevention practices and labor-management protocol are also required. There is also a need for continuous training and monitoring of the utilization of guidelines and treatment protocols to enhance the performance of health care workers.
  - To offset the shortage of functional motor vehicles and fuel in most health centers, future project components should center on ensuring that facilities are equipped with vehicles, fuel, and vehicle-maintenance capacity.
  - All health centers reported having a working phone or radio, although such facility-based communication was only available in many of the facilities, some facilities primarily used personal mobile phones. Explore the feasibility and reliability of personal phones for emergency referrals, particularly regarding availability of phone credit and reimbursements.

Recommendation for EMwA:

1. Diversify the resource to and scale up the intervention with an emphasis to:
  - ✓ Addressing the least practiced signal functions: newborn resuscitation, assisted delivery, anticonvulsants, manual removal of placenta.
  - ✓ Continue focusing on hospital based training and capacity building for low levels
  - ✓ Shifting supportive supervision from center-based to catchment based mentorship approach
  - ✓ Strengthening pre-service BEMOC approach
  - ✓ Strengthening Associations (Ethiopian pediatric, MW and obstetrics and gynecology)
  - ✓ Shifting from sole training to continues professional development (CPD)
  - ✓ Considering introduction of certification/accreditation processes for BEmONC facilities, potentially involving civil society organizations
  - ✓ Working closely with RHBs to improve the planning and implementation of onsite supportive supervision. Strengthen the culture of providing feedback to visited facilities and staff, including the facility management.
  - ✓

Recommendation for Regional Health Bureaus:

- Review lists of standard equipment, supplies and essential drugs for EmONC (including refrigerator , charts for expiry dates and replenishment, emergency stocks)
- Ensure that all Health Centers have an emergency trolley with essential supplies -
- Review standards of infrastructure: increase number of beds, improve water hygiene and sanitation (esp. in labour room, prepare back up power generator, procure newborn cribs.
- Ensure access to a laboratory for all EmONC facilities
- Develop protocols for sending, referring and receiving patients
- Reinforce supervision, monitoring and misuse of ambulances
- Ensure availability of adequate and trained staff HCs and their evenly distribution among existing health centers.
- Verify that all BEmONC staff have received adequate in-service training to perform their tasks properly, giving priority to understaffed facilities
- Improve training by supervision and mentoring
- Ensure that newborn care functions are given enough place in pre- and in-service training programs

Recommendation for MoH:

Review core pre-service training programs to integrate evidence-based BEmONC

- Extend evidence-based BEmONC refresher in-service training programs with a focus on midwives, and with inclusion of least practiced EmONC functions.
- Consider incentive scheme for BEmONC trainees

Recommendation for UNICEF:

- Continue to provide technical and resource assistance to MoH in developing a scale-up plan
- Continue helping to increase the scalability, practicability, success and sustainability of the scheme

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**Annex 1**

**Table 22 : Deliveries conducted at health facilities before and after training**

Services			Before BEmONC Training						After BEmONC Training					
			Total			By BEmONC trained staff (all staff)			Total			By BEmONC trained staff (all staff)		
			Seen	Managed	Refer.	Seen	managed	Refer.	Seen	Managed	Refer.	Seen	managed	Refer.
701 - Deliveries Conducted at the facility	Total #deliveries	Mean	160.82	158.51	12.02	184.00	176.58	7.59	217.08	218.95	17.06	213.02	204.00	10.98
		SD	136.597	129.688	16.573	159.546	150.800	14.446	162.790	164.032	37.657	175.802	174.538	17.035
	# vaginal(normal) deliveries	Mean	157.72	157.36	4.76	157.62	156.65	.96	195.39	194.31	2.36	181.29	194.37	1.81
		SD	124.993	131.239	14.209	123.364	123.538	2.163	150.302	146.177	6.406	143.223	194.675	6.013
	# assisted deliveries (vacuum)	Mean	11.56	10.92	2.82	11.45	11.00	.45	14.66	15.30	1.36	20.52	19.85	
		SD	24.132	25.006	5.626	9.353	9.623	.820	35.046	36.029	2.580	49.856	50.055	
	# breech deliveries	Mean	4.83	2.85	2.91	7.67	6.50	1.28	5.59	4.87	1.92	5.33	3.52	2.11
		SD	4.563	4.951	2.452	7.154	7.610	2.191	5.339	5.459	2.834	5.240	5.228	2.764

**Table 23: Percentage of health centers performing a particular BEmONC signal functions in the past three months and before the training by region, 2019**

Performance of signal functions	Reasons for not performing	Region													
		SNNPR		Afar		Gambela		Amhara		Benshangul-Gumuz		Somali		Total	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%
Is there any BEmONC signal function that you are still not comfortable doing despite receiving the training?		18	36.0%	11	91.7%	5	50.0%	16	26.2%	8	42.1%	4	21.1%	62	36.3%
Administer parenteral antibiotics before training		24	48.0%	3	27.3%	9	90.0%	42	76.4%	11	73.3%	7	35.0%	96	59.6%
Administer parenteral antibiotics after training		47	92.2%	12	100.0%	9	100.0%	61	93.8%	19	95.0%	19	95.0%	167	94.4%
If not performed after training, WHAT WAS THE REASON?	HR/ training issues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Supply equipment, drug issues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	No indication	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
	Others	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Administer parenteral antibiotics before training		35	68.6%	5	41.7%	10	100.0%	56	88.9%	13	65.0%	10	50.0%	129	73.3%
Administer parenteral antibiotics after training		50	98.0%	11	100.0%	10	100.0%	47	81.0%	9	60.0%	18	90.0%	145	87.9%
If not performed after training, WHAT WAS THE REASON?	HR/ training issues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Supply equipment, drug issues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	No indication	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Others	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Administer parenteral anticonvulsants for pre-eclampsia and eclampsia before training		12	24.5%	6	50.0%	8	80.0%	61	95.3%	16	80.0%	6	30.0%	109	62.3%

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Administer parenteral anticonvulsants for pre-eclampsia and eclampsia after training		46	90.2%	10	90.9%	7	77.8%	39	69.6%	9	64.3%	15	75.0%	126	78.3%
If not performed after training, WHAT WAS THE REASON?	HR/ training issues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Supply equipment, drug issues	1	50.0%	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	50.0%
	No indication	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Others	1	50.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%	2	50.0%
Perform manual removal of placenta before training		14	27.5%	7	58.3%	9	90.0%	60	96.8%	19	100.0%	8	40.0%	117	67.2%
Perform manual removal of placenta after training		50	98.0%	11	100.0%	9	90.0%	42	73.7%	10	66.7%	19	95.0%	141	86.0%
If not performed after training, WHAT WAS THE REASON?	HR/ training issues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Supply equipment, drug issues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	No indication	1	100.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	100.0%
	Others	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Perform bimanual compression of uterus before training		8	16.0%	5	41.7%	7	77.8%	60	96.8%	19	100.0%	7	35.0%	106	61.6%
Perform bimanual compression of uterus after training		45	88.2%	11	100.0%	7	77.8%	44	80.0%	13	100.0%	18	94.7%	138	87.3%
If not performed after training, WHAT WAS THE REASON?	HR/ training issues	1	33.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	20.0%
	Supply equipment, drug issues	0	0.0%	0	0.0%	2	100.0%	0	0.0%	0	0.0%	0	0.0%	2	40.0%
	No indication	1	33.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	20.0%
	Others	1	33.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	1	20.0%
Perform removal of retained products before training		10	19.6%	5	41.7%	5	62.5%	63	98.4%	19	100.0%	4	21.1%	106	61.3%
Perform removal of retained products after training		37	72.5%	10	90.9%	7	70.0%	37	77.1%	8	88.9%	14	73.7%	113	76.4%
If not performed after training, WHAT WAS THE REASON?	HR/ training issues	2	18.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	11.1%
	Supply equipment, drug issues	6	54.5%	0	0.0%	3	100.0%	0	0.0%	0	0.0%	4	100.0%	13	72.2%

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	No indication	2	18.2%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	11.1%
	Others	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Perform assisted vaginal delivery before training		9	17.6%	5	41.7%	6	75.0%	49	92.5%	14	100.0%	6	31.6%	89	56.7%
Perform assisted vaginal delivery after training		34	66.7%	11	100.0%	7	77.8%	39	68.4%	10	71.4%	16	80.0%	117	72.2%
If not performed after training, WHAT WAS THE REASON?	HR/ training issues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Supply equipment, drug issues	12	85.7%	0	0.0%	2	100.0%	0	0.0%	0	0.0%	2	100.0%	16	88.9%
	No indication	2	14.3%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	2	11.1%
	Others	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Perform new born resuscitation before training		33	64.7%	7	58.3%	5	62.5%	59	96.7%	20	100.0%	9	45.0%	133	77.3%
Perform new born resuscitation after training		51	100.0%	12	100.0%	8	80.0%	47	85.5%	12	66.7%	18	100.0%	148	90.2%
If not performed after training, WHAT WAS THE REASON?	HR/ training issues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Supply equipment, drug issues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	No indication	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Others	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Provide long acting family planning method before training		24	47.1%	5	41.7%	7	77.8%	49	92.5%	14	77.8%	8	44.4%	107	66.5%
Provide long acting family planning method after training		50	98.0%	12	100.0%	7	77.8%	61	93.8%	19	95.0%	19	95.0%	168	94.9%
If not performed after training, WHAT WAS THE REASON?	HR/ training issues	0	0.0%	0	0.0%	2	100.0%	0	0.0%	0	0.0%	0	0.0%	2	100.0%
	Supply equipment, drug issues	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	No indication	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
	Others	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Mean percent of functions before training			36%		45%		80%		93%		90%		36%		65%
Mean percent of functions after training			88%		98%		84%		79%		77%		88%		84%

Table 24: Percentage of MNCH services among selected health centers before and after training, 2019.

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MNCH Services	Region													
	SNNPR		Afar		Gambela		Amhara		Benshangul-Gumuz		Somali		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%
FANC service Before BEmONC Training	50	98%	12	100%	9	90%	34	57%	18	90%	16	89%	139	81%
FANC service After BEmONC Training	49	96%	12	100%	10	100%	40	62%	18	95%	16	80%	145	82%
PMTCT service Before BEmONC Training	45	88%	9	75%	8	89%	54	81%	18	90%	19	95%	153	85%
PMTCT service After BEmONC Training	46	90%	9	75%	8	89%	57	85%	18	90%	20	100%	158	88%
Delivery service Before BEmONC Training	51	100%	12	100%	9	90%	51	80%	20	100%	17	85%	160	90%
Delivery service After BEmONC Training	51	100%	12	100%	10	100%	55	86%	20	100%	18	90%	166	94%
Post natal care service Before BEmONC Training	50	98%	12	100%	8	80%	7	11%	18	95%	12	67%	107	62%
Post natal care service After BEmONC Training	51	100%	12	100%	10	100%	7	11%	15	100%	14	78%	109	65%
Immunization service Before BEmONC Training	50	98%	11	92%	10	100%	61	97%	15	100%	18	95%	165	97%

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Immunization service After BEmONC Training	51	100%	11	92%	10	100%	63	97%	15	100%	17	89%	167	97%
Family planning Before BEmONC Training	49	96%	12	100%	10	100%	62	98%	15	100%	18	95%	166	98%
Family planning After BEmONC Training	50	98%	12	100%	10	100%	64	98%	15	100%	18	95%	169	98%
Comprehensive Abortion care Before BEmONC Training	28	55%	3	25%	9	90%	37	62%	4	25%	16	84%	97	58%
Comprehensive Abortion care After BEmONC Training	37	73%	7	58%	10	100%	51	78%	5	31%	16	80%	126	72%

Table 25 :

Antibiotics:	Before training				After training			
	Yes		No		Yes		No	
	No	%	No	%	No	%	No	%
Amoxicillin	151	87.3%	23	15.2%	163	94.8%	9	6.7%
Ampicillin(injection)	118	68.2%	53	35.1%	146	84.9%	23	17.2%
Ceftriaxone	127	73.4%	44	29.1%	149	86.6%	20	14.9%
Chloramphenicol(injection)	60	34.7%	107	70.9%	76	44.2%	91	67.9%
Oral flucloxacillin (fornewborn)	76	43.9%	93	61.6%	90	52.3%	75	56.0%
Gentamicin(inijection)	137	79.2%	32	21.2%	155	90.1%	11	8.2%
Metronidazole(inijection)	69	39.9%	101	66.9%	108	62.8%	58	43.3%
Penicillin G(Benzyl)	121	69.9%	48	31.8%	133	77.3%	36	26.9%
Procaine benzylpenicillin	107	61.8%	62	41.1%	127	73.8%	40	29.9%
Trimethoprim /sulfamethoxazole	95	54.9%	74	49.0%	110	64.0%	57	42.5%
Tetracycline eyeointment/drops	138	79.8%	32	21.2%	145	84.3%	22	16.4%

Availability of Essential Drugs, Equipment and Supplies before and after training

<b>Anticonvulsants:</b>								
	No	%	No	%	No	%	No	%
<b>Antihypertensive:</b>	130	87.2%	41	35.7%	161	93.6%	0	11.0%
Magnesium sulfate (injection)	80	53.7%	91	79.1%	103	59.9%	65	71.4%
Diazepam(injection)	92	61.7%	75	65.2%	126	73.3%	41	45.1%

	Before training				After training			
<b>Uterotonics-</b>	Yes		No		Yes		No	
	No	%	No	%	No	%	No	%
Misoprostol	102	64.6%	65	52.4%	120	72.3%	46	45.1%
Oxytocin	123	77.8%	44	35.5%	136	81.9%	31	30.4%
Ergometrine	71	44.9%	93	75.0%	89	53.6%	75	73.5%
<b>Steroids:</b>	Yes		No		Yes		No	
	No	%	No	%	No	%	No	%
Betamethasone	56	55.4%	109	94.0%	56	55.4%	109	94.0%
Dexamethasone	94	93.1%	73	62.9%	94	93.1%	73	62.9%
<b>IVfluids:</b>	Yes		No		Yes		No	
	No	%	No	%	No	%	No	%
Dextrose	157	90.8%	15	23.4%	165	94.8%	9	15.3%
Glucose 5%(DW)	160	92.5%	11	17.2%	165	94.8%	8	13.6%
Glucose10%	118	68.2%	52	81.3%	123	70.7%	49	83.1%
Glucose 40% or50%	162	93.6%	10	15.6%	164	94.3%	8	13.6%
Normal saline	162	93.6%	10	15.6%	165	94.8%	8	13.6%

**Annex 2**

*End-line Survey Questionnaire for Trained health workers*

**SECTION 0: IDENTIFICATION DATA**

**Q01** QUESTIONNAIRE IDENTIFICATION NUMBER |\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_|

**Q02** Zone \_\_\_\_\_

**Q03** Woreda \_\_\_\_\_

**Q03** Health Facility \_\_\_\_\_

**Q04** Name of interviewer \_\_\_\_\_

**Q05** Date of interviewee: \_\_\_\_\_

**INTRODUCTION**

“My name is \_\_\_\_\_”. I am collecting data to conduct an endline evaluation of *An Endline Evaluation of “Reduction of maternal and new born mortality through enhanced availability of trained human resource for the provision of quality basic emergency obstetric and new born care”* Project implemented by Ethiopian Midwives Association (EMwA). To do so, I am collecting information that will help to understand the project’s contribution with regards to availability and accessibility of BEmONC services, improving the competencies, competencies and knowledge of BEmONC trained health professionals.

I were talking with here in [health facility or site] in order to find out your experiences related to availability of health infrastructure, your status of performing tasks pertinent to obstetric and newborn care, availability of drugs and supplies. Your participation in this survey is voluntary and no remuneration or any form of benefit is provided for this.

**Confidentiality and consent:** “I may ask you some very personal questions that some health workers may find difficult to answer. I am not going to talk to anyone about what you tell me. Your name will not be written on this form, and will never be used in connection with any of the information you tell me. You do not have to answer any questions that you do not feel comfortable with, and you may end this talk at any time you want to. However, your honest answers to these questions will help us better understand your BEmONC service provision situation and how much relevant the supports to alleviate these problems by the project was.

I would greatly appreciate your help in responding to this interview. The interview will take about **60 minutes**. Would you be willing to participate?”

**1. Yes:** Thank him/her and continue with the interview

**2. No:** Note his reason briefly, thanks him/her and proceed to the next health

worker \_\_\_\_\_

**CHECKED BY TEAM LEADER: Signature \_\_\_\_\_ Date \_\_\_\_\_**

SECTION I00: BACKGROUND CHARACTERISTICS

101	RECORD SEX OF RESPONDENT	1= Male 2= Female
102	Your age ?	[ ___   ___ ] (years) 98=Don't know
103	What is your qualification	1. Junior Nurse 2. Diploma in nursing 3. Diploma in Midwifery 4. BSC nurse 5. BSC midwife 6. Health officer 7. Other (please specify)-----
104	How long have you worked in health centers?	[ ___   ___ ] (years) 98=Don't know

SECTION 200: Human Resource &Infrastructure

No.	Questions	Before training		After training	
201	How many staff do you have who received competency-based BEmONC training:	1. By Ethiopian Midwives Association in the last 2years_ 2. Before two years _____ 3. Trained elsewhere and moved here _____			
202	How many of staff trained on competency-based BEmONC are still working at MNH services in the facility?				
203	How many have left the facility after training				
204	If there are who left, reason for leaving	1. Transfer to other facility within the region Transfer to other facility in another region 2. For further education 3. Left for NGOs 4. Others(specify)_____			
205	How many of the total number of beds are dedicated exclusively to obstetric patients? (write	_____out of _____		_____out of _____	
206	How many delivery coaches /tables are available? (write				
207	Does this facility have electricity?	Yes	No	Yes	No
208	In the last 3 months, how many days were you without electricity?				
209	Does this facility have water supply?	1	0	1	0

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210	What is the <u>primary</u> source of water? (circle one)	Piped water..... Hand pump..... Well..... River.....	Piped water..... Hand pump..... Well..... River.....
211	In the last three months, how many days were you without water Supply? (write 88 if supply Fails sporadically)		
212	Is there a hand washing facility at MNCH service delivery	1      0	1      0
213	Type of latrine?	Pit.....1 VIP.....2 Water washed.....3	Pit..... 1 VIP..... 2 Water washed.....3
214	Are there means of waste disposal at the health facility?	Incinerator.....1 Hand dug pit.....2 Placenta pit.....3 Others-----4 Not available.....5	Incinerator..... 1 Hand dug pit.....2 Placenta pit..... 3 Others ----- 4 Not available.....5

SECTION 300: Service Delivery Systems

		<b>Before training</b>	<b>After training</b>
301	Does the facility provide obstetric and neonatal care 24 hours a day, 7 days a week?	Yes..... 1 No.....0	
302	What is the level of the referral hospital with CEmONC service? Primary hospital      General hospital      Tertiary hospital		
303	How far is the nearest referral hospital with CEmONC service?  __ __ __ __  km		
304	Does this facility have telephone service?	Yes -----1 No ----- 0	Yes-----1 No ----- 0
305	Does this facility have ambulance?	Yes -----1 No -----0	Yes-----1 No -----0
306	When a pregnant woman is being transported to the nearest hospital for emergency referral, does a health care worker from this facility accompany	Yes -----1 No ----- 0	Yes-----1 No ----- 0
307	Is a woman expected to pay a fee or buy supplies for a normal delivery?	Yes -----1 No ----- 0	Yes-----1 No ----- 0

SECTION 400: Maternal and Neonatal Health Services Availability

Code	Types of services	Before Training		After Training	
		Yes	no	Yes	no
401	FANC service				
402	PMTCT service				
403	Delivery service				
404	Post natal care service				
405	Immunization service				
406	Fam				
407	Comprehensive Abortion care (safe abortion care and post abortion care)				

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SECTION 500: Performed BEmONC Signal function on MNCH before and After Training

Item	Performed Before Training	Performed After Training	If not Performed after the Training, What was the reason
501 Administer parenteral antibiotics	Yes ..... 1 No ..... 0	Yes ..... 1 No ..... 0	HR/training issues Supplies, equipment, drug issues No indications Others
502 Administer uterotonic drugs (e.g parenteral <b>oxytocin</b> , ergometrin, misoprostol)	Yes ..... 1 No ..... 0	Yes ..... 1 No ..... 0	HR/training issues Supplies, equipment, drug issues No indications Others
503 Administer parenteral anticonvulsants for pre - eclampsia and eclampsia (e.g. <b>magnesium sulphate</b> )	Yes ..... 1 No ..... 0	Yes ..... 1 No ..... 0	HR/training issues Supplies, equipment, drug issues No indications Others
504 Perform manual removal of placenta	Yes ..... 1 No ..... 0	Yes ..... 1 No ..... 0	HR/training issues Supplies, equipment, drug issues No indications Others
505 Perform Bimanual compression of uterus	Yes ..... 1 No ..... 0	Yes ..... 1 No ..... 0	HR/training issues Supplies, equipment, drug issues No indications Others
506 Perform removal of retained products (e.g. manual vacuum aspiration, Evacuation and curettage)	Yes ..... 1 No ..... 0	Yes ..... 1 No ..... 0	HR/training issues Supplies, equipment, drug issues No indications Others
507 Perform assisted vaginal delivery (e.g. vacuum extraction)	Yes ..... 1 No ..... 0	Yes ..... 1 No ..... 0	HR/training issues Supplies, equipment, drug issues No indications Others
508 Perform newborn resuscitation with ambu bag and mask	Yes ..... 1 No ..... 0	Yes ..... 1 No ..... 0	HR/training issues Supplies, equipment, drug issues No indications Others
509 Provide long- acting family planning method (Implanon)	Yes ..... 1 No ..... 0	Yes ..... 1 No ..... 0	HR/training issues Supplies, equipment, drug issues No indications Others

SECTION 600: BEmONC Trainings and service utilization

601	When did you receive the training?	_____ (month and year)
-----	------------------------------------	------------------------

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602	Are you currently working in MNH service area?		
603	If not working in MNH area what are the reasons?	a. We work by rotation so it is not my turn b. I am not assigned to work there c. I wanted to work elsewhere d. I don't feel confident to work in MNH services? e. Other(specify)_____	
604	How long after the training did you start working in MNH services?	a. Within the first month after return b. 1-3 months after return c. 3-6 months after return d. > 6 months after return	
605	Has the training on BEmONC changed your behavior as a clinical care provider in a positive way?	Yes-----	1
		No-----	0
606	If yes, what are the changes in behavior you noted?	a) Caring/kind b) Considerate c) Enthusiastic d) Ambitious e) Polite f) Creative g) Active h) Assertive/confident i) Cautious j) Serious k) Other _____	
607	Has the training changed your attitude towards working in the area of MNH positively?	Yes-----	1
		No-----	0
608	If yes, what are the changes in attitude you noted?	1. Positive 2. Motivated/enthusiastic 3. Devoted 4. Ambitious 5. Eager 6. Other(specify)_____	
609	Has the training improved your competencies in performing BEmONC signal functions?	1. Yes, very much 2. Yes, a bit 3. Not much 4. Not at all	
610	Do you believe you have saved lives of mothers and or newborns as a result of the training that you would not have saved before?	1. Yes 2. No 3. Not sure	
611	The training project should be continued with other health workers who are not trained?	a. Strongly agree b. Agree c. Disagree	

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612	Have you shared what you acquired through the training to colleagues working in MNH area?	Yes-----1 No ----- 0
613	In your opinion, is there any BEmONC signal function/MNH service the delivery of which is improved after the	Yes, there is----- 1 No, there isn't any ----- 0
614	If the response to Q 613 is "Yes, there is," the delivery of which signal function(s) has improved after the training?	a. Administer parenteral antibiotics b. Administer uterotonic drugs c. Manual removal of placenta
615	Have you ever received telephone-based follow up from EMwA after the training?	Yes-----1 No ----- 0
616	How do you rate the usefulness of this follow up for your work?	a. Very useful b. Somewhat useful c. Not very useful
617	Do you think the kind of telephone follow up you obtained after the training should be done with future BEmONC trainings?	a. Strongly agree b. Agree c. Disagree
618	Have you ever received on-site support from EMwA after the training?	Yes-----1 No ----- 0
619	How do you rate the usefulness of this follow up for your work?	1. Very useful 2. Useful 3. Not much
620	Do you believe you have saved lives of mothers and/or newborns as a result of the on-site support that you would not have	1. Yes 2. No 3. Not sure
621	Do you think the onsite supervision should be continued with future BEmONC trainings with other health workers?	1. Strongly agree 2. Agree
622	Is there any BEmONC signal function that you are still not comfortable doing despite receiving the training?	Yes-----1 No -----0
623	If yes, which signal functions?	1. Administer parenteral antibiotics 2. Administer uterotonic drugs
624	If yes to Q5.22, what are the reasons?	1. Lack of knowledge 2. Insufficient competencies 3. Other (specify)-----

SECTION 700: Outcome, morbidity and mortality data on MNCH



SECTION 800:Essential Drugs, Equipment and Supplies

Are the following list of essential drugs, equipment and supplies available in this health facility?

	Before training		After training		Remarks
	Yes	No	Yes	No	
<b>Antibiotics:</b>					
Amoxicillin	1	0	1	0	
Ampicillin(injection)	1	0	1	0	
Ceftriaxone	1	0	1	0	
Chloramphenicol(injection)	1	0	1	0	
Oral flucloxacillin (fornewborn)	1	0	1	0	
Gentamicin(injection)	1	0	1	0	
Metronidazole(injection)	1	0	1	0	
Penicillin G(Benzyl)	1	0	1	0	
Procaine benzylpenicillin (procaine penicillinG)	1	0	1	0	
Trimethoprim/sulfamethoxazole	1	0	1	0	
Tetracycline eyeointment/drops	1	0	1	0	
<b>Anticonvulsants:</b>	<b>Yes</b>	<b>No</b>			
Magnesium sulfate (injection) 50%concentration	1	0	1	0	
Magnesium sulfate (injection) concentration other than50%	1	0	1	0	
Diazepam(injection)	1	0	1	0	
<b>Antihypertensive:</b>	<b>Yes</b>	<b>No</b>			
Hydralazine	1	0	1	0	
Labetalol	1	0	1	0	
Methyldopa	1	0	1	0	
Nifedipine	1	0	1	0	
<b>Uterotonics</b>	<b>Yes</b>	<b>No</b>			
Misoprostol	1	0	1	0	
Oxytocin	1	0	1	0	
Ergometrine	1	0	1	0	
<b>Steroids:</b>	<b>Yes</b>	<b>No</b>			
Betamethasone	1	0	1	0	
Dexamethasone	1	0	1	0	
<b>IVfluids:</b>	<b>Yes</b>	<b>No</b>			
Dextrose	1	0	1	0	
Glucose 5%(DW)	1	0	1	0	
Glucose10%	1	0	1	0	
Glucose 40% or50%	1	0	1	0	
Normal saline	1	0	1	0	

List out any MNCH service gaps available:

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SECTION 9: Satisfaction on Project Services

901	Have you benefited from the BEmONC trainings and supportive supervision?	Yes 1 No 2 No Response 99
902	How would you rate the benefit you received BEmONC trainings and supportive supervision services?	Excellent 1 Good 2 Satisfactory 1 Bad 3
903	Do you think such projects should be continued?	Yes 1 No 2 No Response 99
904	What do you feel are the strong points of the project?	----- ----- -----
905	What do you feel are the back draws of the project?	----- ----- -----

**Interview and FGD Protocols**  
**Introduction and Briefing sheet (Annexes 3-7)**

Good morning- afternoon- evening (as appropriate) my name is -----I'm working with assessment team for the UNICEF National project Final Evaluation.

We are currently doing an assessment on an endline evaluation of the UNICEF National project implemented by Ethiopian Midwives Association (EMwA) and our interview on your knowledge and experience on these issues is really important as you have a direct exposure to the project. The interview may not take more than an hour.

I would first like to thank you for sparing your precious time to attend this discussion. Please feel free to contribute/participate. I have some questions that will (help us to keep focused) or guide us in the discussion. If I discuss anything you have not heard before or don't understand, please feel free to ask for clarification.

Please remember that you are the expert and we are here to learn from you. Please do not tell us what you think we might want to hear. Tell us what you REALLY think. I should tell you that the information you are going to provide us were kept confidential and at no time will we record individual names.

Your decision to participate or not is highly respected. Now can we start the discussion?	
Yes _____	no _____
Interviewer's Name _____	sign _____
Agreement to participate secured Yes _____ No _____	
Signature of Interviewer _____	Date _____

*Questions for BEmONC trained health workers*

1. Warm-up:
  - ask about the health sector environment and MNH services
  - any other local issue of interest related to BEmONC.
  - Purpose of this discussion
2. Did you participate in training/support provided by the BEmONC training and supportive supervision project?
  - What training/support?
  - When?
  - For how long?
  -
3. Did the training/support fit your professional BEmONC service needs?
  - If yes, how?
  - If no, why?
4. What tangible change the training, telephone and supportive supervision brought about in your facilities BEmONC service? Evidence?
  - to the clients and patients?
  - to your facility (services, resources etc...)?
  - What will happen to your community?
5. Have you really benefited form the training and the support? How?
  - To what extent?
  - Their attitude to career
  - Their self-confidence
  - Their plan for the future
  - Was there any means which you otherwise better benefited from the project?
6. What aspects of training /support of the project you liked/did not like?
  - How do you suggest change of the training areas/kinds of support?
7. How many heath workers in your health facility participated in trainings/supports provided?

- If not all, why not everybody?
8. How did the BEmONC services training and you received affect your BEmONC practice?
    - How did you apply training you learnt to your BEmONC practice?
    - What changes has the project brought?
  9. How do you assess the burden of the target health workers before and after the project intervention?
  10. Are you satisfied with the service provided to you? Do you have any adjustments to be made, points to add for similar project implementation of this kind in the future?
  11. What need do you think to be addressed regarding better BEmONC practice in your areas?

*Annex 4*

*Questions for health center heads*

1. Can you explain BEmONC services being provided in your facility?
  - What are the roles and responsibilities of facility staff in relation to BEmONC?
  - What role does BEmONC trained staff play?
  - How do they compare with those who are not trained on BEmONC?
  - What is the role of the health facility management in BEmONC?
  - How involved are BEmONC trained staff in BEmONC related decisions making processes within the facility?
2. Do you believe BEmONC service provision in your facility is as per the national strategy and guidelines? Please explain?
3. Are you aware of any health workers trained on BEmONC?
  - How was the training provided? When? By whom?
  - Has the training helped your facility in providing BEmONC services? How? Please explain in detail.
4. Are you aware of any telephone and/or supportive supervision support being provided for BEmONC trained staff?
  - How was the support provided? When? By whom?
  - Has the support helped your facility in providing BEmONC services? How? Please explain in detail.
5. Have you assessed progress/implementation of BEmONC services after the project intervention?
  - If yes, how and what was the outcome?
  - Have the objectives been achieved?
6. What is your opinion on the project?
  - Do you think such kind of project services should be continued or not? How?
7. Do you think the project met the needs of the target community as well as the health facilities and the community?
  - How did you assess and analyze the needs of the target groups of the project?
8. What sort of good practices did you introduce in project implementation?
  - Any innovation?
9. What is the general situation of the project target beneficiaries after and before the implementation of this project? Evidence?

10. What lessons do you think you learnt after completion of the project?
11. How can this project be made sustainable?

*Annex 5*

*Questions for EMwA's UNICEF National Project Staff*

1. What do you know about UNICEF National Project in Ethiopia?
2. Are you aware of what UNICEF National Project has been trying to achieve?
3. What is your relationship (involvement) with the Project? Have you been kept informed about Project plans and activities?
4. How long have you been involved with the Project?
5. Have you visited the Project sites/activities? How frequently?
6. What is your opinion of the Project approach/ design to work at the health center level?
7. What changes have you seen, if any with regards to availability and accessibility of BEmONC services, improving the competencies and knowledge of BEmONC trained health professionals since the beginning of the Project?
8. What is the Project's contribution to the reduction in maternal and newborn mortality?
9. Have staff been trained through this project? If so what trainings have they received?
10. What evidence is there that staff has applied these competencies both within the project in another context?
11. What resources were dedicated to staff training?
12. What training do staff think could have received that would have helped improve their performance under this project that they did not receive?
13. What kind of supervision existed in this project?
14. Is the supervisory system fully institutionalized and can it be maintained?
15. Have there been any efforts to strengthen supervision during the training of this project? If so, how?
16. How have staffing issues affect the project's implementation?
17. Has the staffing pattern or structure changed during the life of the project? If so why?
18. Have there been any interpersonal or staff related issues that you have experienced? If so, what?
19. What has been the level of staff turnover throughout the life of the project and the impact it has had on project implementation?
20. What do you think are the Project strengths?
21. What were the Project weaknesses?

22. Are there areas that are not addressed by the Project that should have been?
23. What do you recommend for future activities of this Project (proposals)?
24. Was there a systematic way of collecting, reporting and using information and data by the Project?
25. How do you view the sustainability of this Project? (Explain).

**Annex 6**  
**Questions for the UNICEF Representative**

1. What do you know about UNICEF National Project Ethiopia?
2. What are the objectives of the UNICEF National Project?
3. Did you have a mechanism to track the Project's progress and accomplishments so far? What was that?
4. What kind of supervision existed in this Project [both Prim-to-Sub supervision and supervisory structures within each organization]
5. What do you feel the Project has accomplished so far?
6. What did you expect to accomplish but could not and why?
7. What could be done differently to better achieve the anticipated results?
8. From the stipulated in the Project plan, what intervention of the Project should/should not absolutely continue for similar Project intervention in the area?
9. What plans/activities should be done differently?
10. Was there any plan or strategy within the project design to address sustainability? [ask what it was]
11. How did the initial sustainability plan (if there was one) evolve through the implementation of the Project?
12. Describe the project planning process among the Project partners. Who was involved? How often was it done?
13. . How has Project funding and the changed in Project funding affected projects?
14. How were budget cuts managed internally and between partners?
15. Could the budget cut process been bettered managed? If so how?
16. Were there any other problems associated with financial management between the donor and the implementing partner?
17. How effective was the partner's fund management and procurement process/system?
18. What ways, if any, could fund management and procurement be improved?
19. Do the donor representative, concerned donor staff, headquarters staff, and the partner have a clear understanding of what the Project has achieved? If yes, how has information been disseminated and shared with them?

