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LIST OF ABBREVIATIONS

ANC	Antennal Care
BEmONC	Basic Emergency Obstetric and Newborn Care
CBNC	Community Based Newborn Care
CHX	Chlorohexidine
CEMONC	Comprehensive Emergency Obstetric and Newborn Care
CI	Confidence Interval
CSA	Central Statistical Agency
EDHS	Ethiopian Demographic Health Survey
EmNeC	Emergency Newborn Care
EmONC	Emergency Obstetric and Newborn Care
FDRE	Federal Democratic Republic of Ethiopia
FGD	Focus Group Discussions
FMOH	Federal Minister of Health
HC	Health Centre
HCT	Haematocrit Test
HEW	Health Extension Worker
HIV	Human Immunodeficiency Virus
HP	Health Post
HSTP	Health Sector Transformation Plan
HW	Health Worker
iCCM	Integrated Community Case Management
IMNCI	Integrated Management of Newborn and Childhood Illnesses
ITN	Insecticide-Treated Net
KMC	Kangaroo Mother Care
MDG	Millennium Development Goals
NBC	Newborn Corner
NICU	Neonatal Intensive Care Units
PH	Primary Hospital
PHC	Primary Health Care
PHCU	Primary Health Care Unit
PICT	Provider Initiative Counselling and Testing
PMTCT	Prevention of Mother to Child Transmission
PNC	Postnatal care
pPROM	preterm Premature Rupture of Membranes
PSBI	Possible Serious Bacterial Infection
QNC	Quality of Newborn Care
RHB	Regional Health Bureau
RHC	Rural Health Centre
SARA	Service Availability and Readiness Assessment
SBCC	Social Behaviour Change Communication
SOP	Standard Operation Procedure
SS	Supportive Supervision
TT	Tetanus Toxoid
UHC	Urban Health Centre
UNICEF	United Nations Children's Fund
UN-IGME	UN Inter-agency Group for Child Mortality Estimation
VSD	Very Severe Disease

WDA	Women Development Army
WHO	World Health Organization
WorHO	Woreda Health Office

CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

The chapter introduces the study by providing an overview of the entire research thesis report. It provides the background information of the research problem and key issues which brought the attention of the researcher to carry-out the research. Moreover, it highlights the research problem, the aim of the research, significance of the study, definitions of terms, theoretical foundation of the study, research designs and methods and scope of the study. Finally, it provides also a brief remark on overall structure of the study.

1.2 BACKGROUND INFORMATION ABOUT THE RESEARCH PROBLEM

In able to fast-track the progress made so far in under-five mortality, it is crucial to focus on reducing newborn mortality. Most of the deaths in the first months of life are due to diseases and conditions that can be either prevented or treated with available interventions (WHO 2014b:6). According to Knippenberg, Lawn, Darmstadt, Begkoyian, Fogstad, Walelign and Paul (2005:1097), while the country has poor health delivery platform, if the interventions effectively given outside health facilities including at household and village-community level, a considerable proportion of neonatal morality can be reduced. Most newborns live can be saved if the health facilities are supplied with medicines and supplies; and staffed with competent health professionals to provide quality of immediate newborn care during labour and delivery (WHO 2014b:6). A study done on newborn care in Indonesia, Lao People's Democratic Republic and the Philippines found the quality of newborn care is generally substandard at the primary health care and referral level due to limited knowledge and skills among providers (Dusburgh, Kerstens, Diaz, Fardhhdiani, Reyes, Phommachanh, Temmerman, Rodriques & Zaka 2014:1). However, Darmstadt, Bhutta, Cousens, Adam, Walker and Bernis (2005:977) came with evidence that universal coverage of 16 high impact interventions with ninety-nine percent coverage can prevent about 41-72% of neonatal deaths globally.

The purpose of this study was to assess the effectiveness of neonatal health care services in the primary health care units in north-west of Ethiopia. This study was carried out in the primary health care units of West Gojjam zone, Amhara region of Ethiopia. West Gojjam is one of the 11 administration zones in the Amhara region which covers 91 health centres and 373 health posts.

1.2.1 The magnitude of the neonatal health problem

Out of the total newborn deaths in 2013 globally, two million newborns died within the first seven days after birth, which account for 73% of all neonatal deaths and 32% of all under-five deaths. A significant proportion of newborns died in the first 24 hours of their birth, contributing for 16% and 36% of all under-five and neonatal deaths (UNICEF 2014:30; Lawn, Blencowe, Oza, You, Lee, Waiswa, Lalli, Bhutta, Barros, Christian, Mathers & Cousens 2014:195).

Ethiopia achieved under-five mortality (MDG Goal-4) three years ahead of the 2015 deadline with a remarkable decline in child mortality, from 204 in 1990 to 68 deaths per 1000 live births in 2012 (UN IGME 2013:18; UNICEF 2014:79). It has shown a 5% annual rate of reduction within 1990-2013 period (UN IGME 2013:18; UNICEF 2014:92); and a 69% total reduction from the 1990 (UN IGME 2014: 10). However, in the year of 2013, newborns death shared about 43% of the under-five mortality which could be translated as estimated 84,000 newborns died in the same year (UNICEF 2014: 28, 33 & 93; UN IGME 2014:19). As per the report of Gizaw, Molla and Mekonnen (2014:1) cohort prospective study in Butajira, Ethiopia, from the total neonatal mortality registered, the contribution of the newborn deaths in the early neonatal period was high; and the likelihood of dying in the first 24 hours after delivery was also higher.

In Ethiopia, a higher proportion of neonatal deaths are associated with intrapartum related complications (birth asphyxia and birth trauma), followed by infection and preterm birth complications (WHO 2015c:[online]). In every year in Ethiopia, about three million babies are born and with close to 85% of the expected births occurring at home without the assistance of health professionals' (Central Statistical Agency Ethiopia 2014:45). In addition, 88% of women do not receive a postnatal visit or examination in the period of 48 hours after their births, even if, this period is crucial to save the lives of

the mother and her baby. The essential packages of interventions in the existing delivery points in the health system are not properly utilized by newborns in Ethiopia (Central Statistical Agency Ethiopia 2014:49). Overall, the scope of neonatal health care provision in the delivery points in the existing health system of Ethiopia and the neonatal health care seeking experience by the family and community are not satisfactory (FMOH 2013:6).

The qualitative study conducted in three zones of Ethiopia (Degefie, Amare & Mulligan 2014:1) found that, deliveries occurred at home and the communities practiced sub-optimal or bad practice in newborn care. Except for thermal care, most of the expected newborn care indicators didn't show differences between facility and home deliveries (Callaghan-Koru, Seifu, Tholandi, Graft-Johnson, Daniel, Rawlins, Worku & Baqui 2013:1). The study conducted by Salasibew, Filteau & Marchant (2014:1) also found that immediately bathing and drying the infant was a widespread practice by women who gave birth at home in agrarian areas; and there was a practice of touching and applied some pressure on the soft palate of the baby's mouth with finger with the assumption of having a good voice and speech when the newborn getting older. Additionally, only 41% sought formal medical care and 28% of newborns with severe neonatal infection received antibiotics treatment in the health centre or hospital out of the 12% of mothers who reported that their newborns had symptoms of illnesses (Berhanu 2014:72).

Babies born to families with inadequate income sources, illiterate or not educated mothers, age of the mothers below twenty or above the age of forty, mothers gave birth before the older child is celebrating the second years birth day, neonatal birth size (very small or small), and residence in agrarian areas could have a high chance of dying in the neonatal period (UNICEF 2014:33, 34). This is also substantiated by a study of Meoknnen, Tensou, Telake, Degefie and Bekele (2013:1) that being male baby, neonates born to mothers with the age of under eighteen years and babies born with a narrow birth spacing especially 2 years or below; spring births, women with no education compared with newborns with their mother had a higher education status, and birth in rural dominated regions had increased risk of neonatal mortality.

According to FMOH (2013:11), culture, physical access due to distance and limited communication are access to healthcare barriers for newborns in Ethiopia. A qualitative

study by Sisay, Yirgu, Gobezeayehu and Sibley (2014:1) in Amhara and Oromia regions of Ethiopia reported that neonates before their 40th day of birth are considered as not full human, and are seen as strangers to the community. As a result, neonate deaths are not considered to be a significant loss in the community, and are buried inside at home or nearby which is atypical to other funerals in the community.

1.2.2 Strategies to improve neonatal health and survival

Complications during births can rapidly lead to deaths, therefore, requiring a rapid response by health-care workers (Lawn et al 2014:189). Many neonatal mortalities can be reduced if the quality of services provided to the mother and their baby during the critical periods particularly in the period of labour and delivery; and essential newborn care services provided to the newborns in the first day after delivery (UNICEF 2014:6). However, the utilization of services by pregnant women and their newborns and the quality of services offered by health facilities are not similar and consistent. Moreover, regardless of the low service utilization, those mothers and their babies who are in contact with the service delivery points in the health system are getting the sub-optimal quality of care (Wardlaw, You, Hug, Amouzou & Newby 2014:1).

Though high impact interventions are available to prevent more than forty percent of neonatal deaths at a global level (Darmstadt et al 2005:977); most of mothers and their babies are not getting these high impact interventions (UNICEF 2014:7). The provision of the high impact interventions shall be started as early as possible when the pregnancy is identified and continued up to the period of labour and delivery, early and post neonatal period, and along the continuum of care to effect the neonatal mortality. However, such target populations are not getting the required interventions, and in most of the time, the services provided are not well coordinated across in the health system (Martines, Paul, Bhutta, Koblinsky, Soucat, Walker, Bahl, Fogstad & Costello 2005:1191).

The Ethiopian health care delivery system is organised in three tier systems. In the bottom of the health system, the primary health care delivery that encompasses health posts, health centres and primary hospitals. The health post provides service to a population of 3,000 to 5,000, health centre that provides service to an estimated population of 15,000 to 25,000, and primary hospital is also provides services to 60,000

ot 100,000 catchment population. In the middle of the health system tier, there is secondary level health care delivery system that service is provided by general hospital to a population of 1 million to 1.5 million. In the upper tier of the health system, tertiary level health care delivey system, where 3.5 to 5 million population are getting service from the teritiary hospital. Within the primary health care, the primary health care unit covers health posts and health centres (HSDP IV 2010:77-8), whose focus was on the effectiveness of neonatal health care services.

Maternity care (antenatal care, delivery and postnatal care), integrated management of newborn and childhood illnesses (IMNCI) and essential newborn care are key components of services provided at the health centres and primary hospitals. In addition, antenatal care, postnatal care, integrated community case management (iCCM) of common childhood illnesses and community based newborn care (CBNC) including neonatal sepsis management are the responsibility of Health Extension Workers (HEWs) in the health post or Kebele (the lowest administrative unit, with 5,000 population) (FMOH 2013:14).

Despite the recommended interventions for neonatal health care services are supposed to be available in the primary health care units, the researcher has observed the following critical challenges; these include, low service utilization of community based neonatal health care services, very low coverage of early postnatal care visit, poor quality of maternal and neonatal health services provided by health centers and health posts, poor referral linkage across the primary health care units, shortage and interruption of supply of essential drugs and commodities, irregularity of supportive supervision or mentorship, and inadequate capturing and utilization of neonatal health services data for decision making.

Therefore, the focus of this research was to explore the effectiveness of neonatal health care services in the primary health care units in north-west of Ethiopia and to develop guidelines for primary hospitals (PHs), health centers (HCs) and health posts (HPs) at woreda/district level.

1.3 RESEARCH PROBLEM

Although Ethiopia has achieved under-five mortality reduction (MDG Goal-4) three years ahead of the 2015 schedule with remarkable reduction of under-five deaths; from the 10 highest countries for under-five deaths in terms of the absolute number, still Ethiopia is one of them. Out of the total under-five mortality in Ethiopia, newborn mortality accounts for 43% (84,000 newborns died per year) which is unacceptably high. Decreasing neonatal mortality is critical for Ethiopia to sustain its under-five mortality reduction effort in post MDG. As a result, the probability Ethiopian children dying in the first 28 days after birth is too high (UN-IGME 2014:12; UNICEF 2014:6).

The causes of neonatal deaths in Ethiopia are concentrated in three major arrears, namely intrapartum related complications (birth asphyxia & birth trauma), infection and preterm birth complications (WHO 2015c:[online]). Most of neonatal deaths are caused by illnesses and circumstances that can be prevented or treated with the recommended interventions (UNICEF 2014:6). In the first level healthcare service provision and referral level, the quality of newborn care is generally substandard; and poor quality of newborn care contributed by limited knowledge and skills among providers (Dusburgh et al 2014:1). It is known that improving the access of the clinical service to the newborns is difficult, but is quite essential to impact the neonatal morality and address the issue of equity of services. Those essential interventions contributing for the reduction of neonatal morality are not dependant on technologies or supplies; rather it depends on the adequate skills set that the health care providers should have at all levels (Knippenberg et al 2005:1087).

To fast-track the reduction of unacceptable deaths in the age of under-five years, prioritizing the newborns conditions is very crucial for Ethiopia by addressing the issue of access, quality of care and improving service utilization. However, the neonatal health services provision in the primary health care units in Ethiopia is not well studied. Therefore, this research project focuses on neonatal health care services in north-west of Ethiopia.

1.4 AIM OF THE STUDY

1.4.1 Research purpose

The purpose of this study was to explore the effectiveness of neonatal healthcare services in the primary health care units in the north-west of Ethiopia and develop guidelines for effective neonatal care.

1.4.2 Research objectives

1.4.2.1 Quantitative research objectives

The research objectives that guide the study were to

- assess the quality of neonatal health care services in the primary health care units in the north-west of Ethiopia
- evaluate the service utilization of sick young infants in the primary health care units in the north-west of Ethiopia.

1.4.2.2 Qualitative research objectives

The qualitative research objectives were to

- explore factors affecting the effectiveness of neonatal service delivery at primary health care units in the north-west of Ethiopia
- develop the guidelines to improve the quality of neonatal health care services and service utilization at primary health care units of Ethiopia

1.4.3 Research questions

1.4.3.1 Quantitative research questions

This quantitative research seeks to explore:

- What are the strategies that the primary health care units use to improve neonatal health care services utilization?
- What kind of health system factors affects the quality of neonatal health care services in the primary health care units?
- What kind of neonatal health interventions are utilized in the primary health care units?
- What are the factors affecting the utilization of neonatal health care services in the primary health care units?

1.4.3.2 Qualitative research question

- What are the factors affecting the effectiveness of neonatal service delivery at primary health care units?

1.5 SIGNIFICANCE OF THE STUDY

This study assessed the effectiveness of neonatal health care services in the primary health care units in the north-west of Ethiopia; and the findings is expected to contribute to improve the existing body of knowledge on neonatal health care services in Ethiopia.

Accordingly, guidelines were developed to improve quality and utilization of neonatal health services delivery at primary health care units in Ethiopia. The package in the form of guidelines were presented and shared to the federal ministry of health Ethiopia, regional health bureau, zonal health department, stakeholders and primary health care workers to improve the neonatal health services. Thus, this research was worth for public health sectors and stakeholders who are involved in the neonatal and child survival health programs in Ethiopia. The researcher certain that the study addressed neonatal health which is critical to the fundamental wellbeing and the growth of society.

1.6 DEFINITION OF CONCEPTS

Effectiveness

The ability of an intervention to achieve some specified results or to employ a defined intervention for the intended result (the free medical dictionary [Sa]). Effective, in the

way that produces the intended result or a successful result (*Oxford Advanced Learner's Dictionary* 2010:486). In this research, effectiveness of neonatal health care services refers to a composite score (index) which includes neonatal service availability, neonatal service readiness, neonatal service utilization and quality of neonatal care in the primary health care units.

Neonate

A baby that has recently been born, especially within the last four weeks (*Oxford Advanced Learner's Dictionary* 2010:1024). In the first 28 days of life after birth, there is a high chance of dying. Hence, proper feeding and provision of the required care to the newborn is highly essential to build the foundations of the child survival and preventing from disease conditions so that the child will have a better wellbeing and healthier life (WHO 2015a:vi).

Newborn deaths

The death of live born newborn within 28 days of birth (WHO 2014:4).

Neonatal mortality rate (NMR)

Probability of neonate dying in the first 28 days after birth, aggregated and interpreted from 1,000 live births in the same period (UNICEF 2014:89).

Primary health care unit

The lower level health care delivery functions in the primary health care that comprises five satellite health posts and one health centre (HSDP IV 2010:77-8; FMOH 2014:9). In this research primary health care unit includes health posts, health centres and primary hospital in the West Gojjam Zone of Amhara region.

Frontline health workers

Frontline health workers are those directly providing services where they are most needed, especially in remote and rural areas. It includes community health workers

(health extension workers), midwives, nurses, health officers and doctors who serve in the health posts and health centres (frontline health workers coalition).

Quality

According to *Oxford Advanced Learner's Dictionary* (2010:1240), quality implies to the standard of some product or result in comparison with other similar product or result. Everything will be compared with the agreed and established standard for the same thing, process or product. Quality of neonatal care in this study refers to competency of health workers, consistency of case management and essential newborn care, provision of follow-up care, linkages/referral, pre-referral management, and planning for the services and reviewing of neonatal service provision data to take informed decision to improve the services.

Utilization

The *Oxford Advanced Learner's Dictionary* (2010:1705) describes utilize as to use some effects, especially for a practical purpose (make use of). In this study, neonatal service utilization refers to the utilization of neonatal services in the health facilities during neonatal period which includes getting care for essential newborn care, for small babies and sick neonates & young infants.

Factors

The *Oxford Advanced Learner's Dictionary* (2010:545) describes factor as one of the several things that cause or influence something. In this study factors states the variables which determine to offer effective neonatal service delivery at primary health care units.

Guideline

Guideline is defined as some orders or directions stipulated by an institution to perform something or procedure or activities in similar fashion; so that it will support the organization to deliver the intended goal by miming the confusion of doing something (*Oxford Advanced Learner's Dictionary* 2010:691). In this study, guideline describes to

an agreed or recommended rules or instructions that health workers in the primary healthcare units in Ethiopia adhere to provide the neonatal healthcare services.

1.7 THEORETICAL FOUNDATIONS OF THE STUDY

1.7.1 Research paradigm

This research employed a mixed method approach to answer the effectiveness of neonatal healthcare services in the primary healthcare units in north-west of Ethiopia: Quantitative approach addressed two quantitative objectives (to assess quality and analyse utilization of neonatal health care services), and both qualitative and quantitative approaches addressed to one objective (to explore factors affecting the effective neonatal service delivery). The quantitative was the major method for this research while the qualitative was done on a small scale to enhance the quantitative results.

A researcher believes that using a mixed method for this research is benefiting to answer the research question on the effectiveness of neonatal health care services at primary health care units. The quantitative phase of this study was to provide an overall understanding of the neonatal healthcare services in the primary healthcare units, which was then augmented by the qualitative study through focus group discussions with the health workers and health extension workers.

A mixed method uses a combination of quantitative and qualitative approaches to maximize the strengths of both research approaches to understand the research problem (Creswell 2009:203, 213; Wheeldon & Åhlberg 2012:119), and it helps to provide a deeper and more contextual understanding of a variety of subjects and experiences (Larkin, Begle & Devane 2014:8).

The research paradigm for this research is pragmatism. The pragmatism allows the researcher to employed multiple methods like mixed, use different assumptions from both quantitative and qualitative; conduct many approaches for collecting and analysing data; use data from both quantitative and qualitative to draw the best understanding of a research problem and recommend action (Creswell 2014:39).

1.7.2 Theoretical framework

The conceptual framework illustrates for the paths of newborn survival with recommended routine interventions for both the mother and neonate at various stages of conditions that determines the surviving circumstances of the neonate and its wellbeing; and focused service provision for ill newborns including timely care seeking, recognition & appropriate response to illness (Figure 1.1) as adapted from Marsh, Darmstadt, Moore, Daly, Oot and Tinker (2002:573-574).

The rectangles describing the recommended actions or interventions that should be given for both the mother and newborn in the normal conditions during pregnancy, at birth, immediately after birth and in the early postnatal period. However, detours represented by diamonds which illustrates the critical situations that are possibly happening during in the period of pregnancy, labour and delivery and early postnatal period that leads to the death or illnesses of newborns.

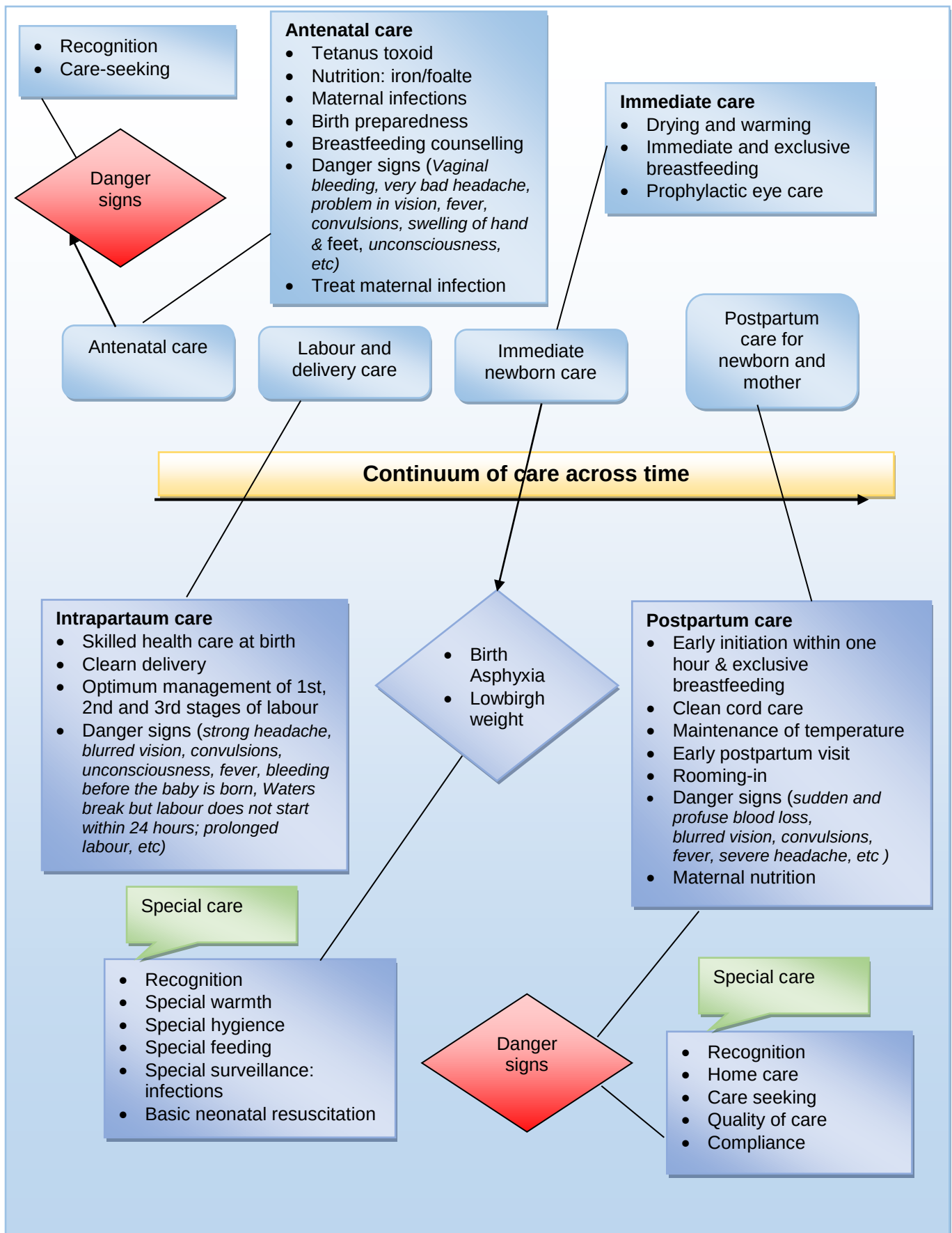


Figure 1.1 Newborn survival theoretical framework

1.8 RESEARCH DESIGN AND METHOD

According to the views of Saundres, Lewis and Thornhills (2009:136) research design is a general plan of how the research questions are going to be answered and what is a logical blue print (Yin 2011:75). In addition (Babbie 2007:87) tell us that research design is all about what we observe and analyse the why and how aspects.

A mixed method approach with sequential explanatory design was applied; where a major quantitative study in the first phase was done followed by a small scale qualitative study in the second phase to enhance the quantitative findings. In the cross-sectional survey, interviewer-administered closed-ended structured questionnaire was used on frontline health workers in the primary healthcare units. The document review checklist was used to abstract sick young infants' service delivery data on the neonatal service delivery documents in the hospital, health centres and health posts. In addition, a semi-structured interview guide was applied for focus group discussions for frontline healthcare workers.

1.8.1 Research design

In this research the sequential explanatory mixed methods design was employed to answer the research objectives. Specifically, quantitative data was collected and analysed in the first phase of research, followed by the collection and analysis of qualitative data in the second phase that builds on the initial quantitative results. The quantitative approach had informed the qualitative and the qualitative methods played a complementary role to understand the effectiveness of neonatal health services in the primary health care units of Ethiopia (Larkin et al 2014:11). As a result, much weight was given to the quantitative method, which depended on a large degree on the type of research questions (Wheeldon & Åhlberg 2012:121) while the qualitative study was in a small scale and used only to enhance the quantitative findings.

1.8.1.1 Quantitative research design: First phase

This study was used a survey design to assess quality of neonatal healthcare provision, and analysed the services utilization of sick neonates and young infants at delivery points in the primary healthcare units. Survey research is an effective means of

providing who, when, where, what and why related questions and survey designs are conducted at specified time that give information to explain the status of the effectiveness of the neonatal health services in the primary healthcare units during the time of data collection (Clow & James 2014:162-163).

1.8.1.2 Qualitative research design: Second phase

This study was employed a qualitative research as small scale in the second phase to explore factors affecting the effective neonatal care services in the primary healthcare units in the north-west of Ethiopia. This type of research seeks to understand the actual Experience of the target groups for a certain condition in their natural settings, and try to give meaning to their thought and events they encountered (Tracy 2013:5). A research design that is carried out within the natural setting to understand a lived experience of human with the collection and analysis of subjective, narrative materials using flexible procedures (Polit & Beck 2010:23; Green & Throgood 2004:25).

1.8.3 Research methods

The research methodology is the overall guiding assumptions to carry-out the planned research while the research methods are the instruments that used for collecting the intended data in various forms (Dawson, 2007:16) and provides information as to how the research will be done (Ogden & Goldberg 2002:10).

1.8.3.1 Quantitative study: Phase one

1.8.3.1.1 Study population

The research population of the current study was health workers in the primary hospital & health centres; health extension workers in the health posts and neonatal health service delivery documents at primary hospital, health centres and health posts in the Amhara region of Ethiopia. Amhara is the second populous region in Ethiopia, which is found in the north-west part of Ethiopia. The region has 11 administration zones, and 20,769,337 estimated population in 2016 (FDRE, CSA 2013).

1.8.3.1.2 Target and accessible population

Health workers in primary hospital and health centres who were working in maternity ward (delivery and early post-natal) and under-five clinic; all health extension workers who were working in the health posts; and neonatal service delivery documents in the primary hospital, health centres and health posts in West Gojjam Zone of Amhara, Ethiopia were targets of this research. West Gojjam is one of the 11th zones of Amhara region, which 2,503,337 estimated total populations for 2016 in 15 districts (woredas). In this zone more than 88% of the population live in the rural area. Region and zone are purposively selected by researcher because of the reason that Amhara region is the second highest neonatal mortality in the country which is much higher than the national average (54/1000 live births in Amhara, 37/1000 live births in Ethiopia; EDHS 2011); and the second populous region in Ethiopia. Moreover, Amharic is the native language which minimizes the translation of the questionnaire with different local language. West Gojjam zone is selected among the 11 zones in the region because of their reasonable distance from their regional city of Bahir Dar and Addis Ababa, the capital city of Ethiopia. In this study, the researcher used random sampling to select primary health care units (one primary health care unit has one health centre and five health posts in average in the catchment). Once the primary health care units were selected, the health posts were selected by random sampling with the available in average five health posts in the health centre catchment from the list of sampling frame.

As per the researcher experience, two health workers are expected to be available in the primary hospital and health centres both in the under-five clinic and maternity ward; for this research all were taken as study participants. If in case two or more health workers were available in each unit in the day of data collection, one health worker was selected in random sampling for this study. The availability of health extension workers per health post is expected to be 2 in average but it varies from 1 to 3; because of having similar responsibilities in the health post except one of them is assigned as head of the health post; one health extension worker was selected with random sampling as the study participant among the available health extension workers in the day of data collection. In addition, one-year sick young infants' service statistics data was collected from the neonatal services delivery documents with structured document review checklist. One-year data would be useful to compute neonatal service utilization coverage from the annual expected population. For this purpose, data was abstracted in

all selected primary hospital, health centres and five or available health posts in the health centre catchment to get adequate service delivery data.

1.8.3.1.2.1 Background information of the study area

In the Amhara regional state of Ethiopia there are eleven zones, and West Gojjam (Mirab Gojjam) is one of the zones belongs to in this region. This zone shares bounders in the norther and southern part with Abay/Blue Nile River, west with Awi zone, north-west with Semien/North Gondar, north with Lake Tana, and east with Misraq/East Gojjam (Figure 1.2). Finoteselam is the administrative town of the West Gojjam zone. As per the 2007 census conducted by the Central Statistical Agency of Ethiopia (CSA); in this zone an estimated population of more than two million (2,106,596) living within 480,255 households with an area of 13,311.94 square kilometers. Among which close to 50% of the populations are represented by women. All most all (99.43%) and 98.68% population are speaking Amharic as their mother tongue language practiced Ethiopian Orthodox Christianity respectively. (Wikipedia 2015).

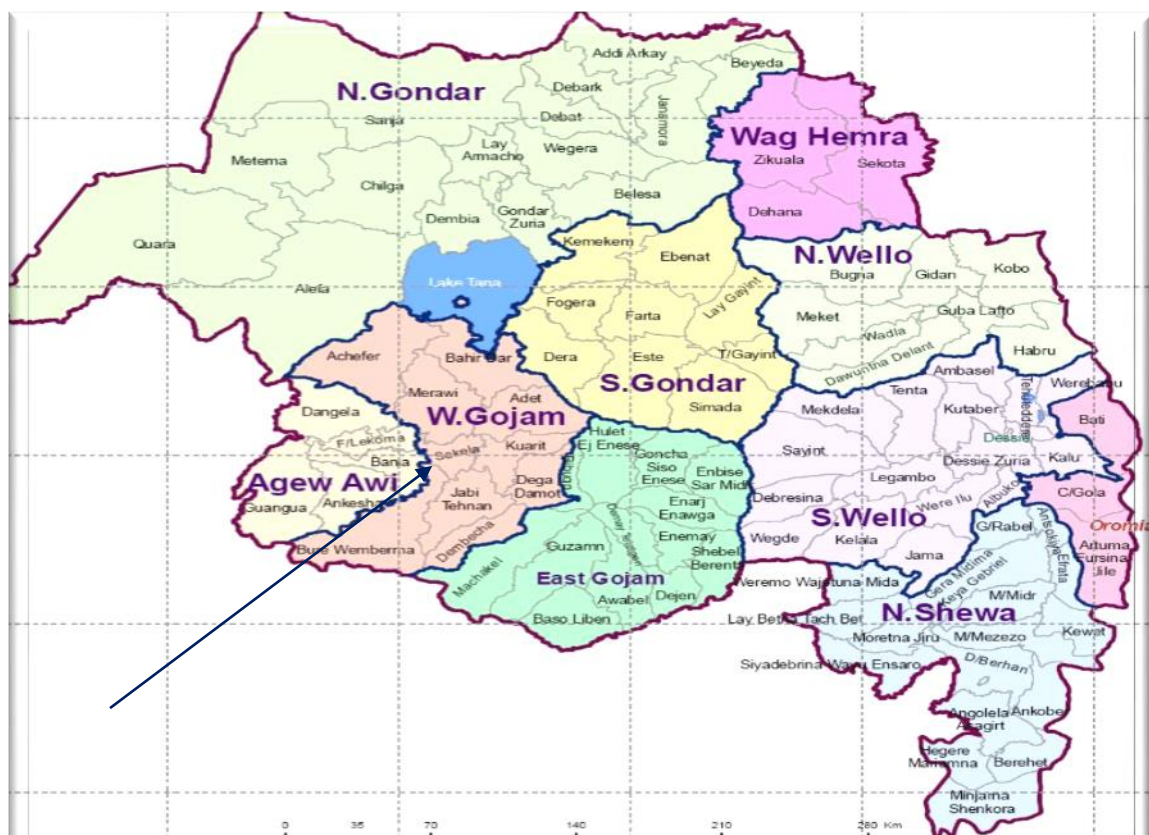


Figure 1.2 The map of West Gojjanm Zone , the study area

Source: Wikipaida (2015)

1.8.3.1.3 Data collection

The interviewer-administered closed-ended structured survey questionnaire was applied for health workers in the primary hospital and health centres, and health extensions workers in the health posts. In addition, structured document analysis checklist was used to collect data on neonatal service delivery documents in the primary health care units. All the questionnaires and document analysis checklist were prepared in English. The English version of document analysis checklist was used for data collection. The health workers and health extensions questionnaire was translated into Amharic, the regional language of Amhara region and the federal language of Ethiopia was used for data collection. The translation from English to Amharic was done by the researcher, who is the native speaker of the Amharic language. It was further re-checked by the researcher colleague who has experience on translating survey questionnaire.

1.8.3.1.4 Data management and analysis

The quantitative data entry was done by temporarily recruited data entry clerk by using the computer software EpiData 3.1 which is freely available, suitable for simple datasets, and controlled data entry by designing skipping patterns. Then the data was exported to Statistical Package for Social Science (SPSS windows version 23) and STATA 15. The analysis was done by the researcher with close technical support from an experienced researcher specialized in data management and analysis. Though the two forms of data separately analysed the mixing was done in the interpretation and discussion section to provide quantitative statistical results followed by qualitative findings. Overall, the interpretation of the entire result was done by merging the major quantitative and the small scale qualitative study results to assess the effectiveness of neonatal health care services in the primary health care units in north-west of Ethiopia.

1.8.3.1.5 Data and design quality

1.8.3.1.5.1 Research design

Internal validity

To ensure the internal validity in this research, the questionnaire was developed and tailored in agreement with the research objectives. The study subjects were selected based on their fully volunteerism and consent with the right selection procedures. This research applied mixed research methodology, where qualitative study followed based on the quantitative data analysis, with focus group discussions to explore the phenomena in depth.

External validity

In this research the external validity was ensured thorough the use of probability sampling especially simple random sampling to select primary hospital, health centres and health posts and taking all the available health workers in the maternity ward (delivery and early postnatal care) and under-five clinic as the study subjects in the primary hospital and health centres; and selection of health extension workers by random sampling after selection of health posts. The researcher used maximum sample size to carry-out the study ($p=50\%$) and used primary health care units as study units (health facilities, health workers and service delivery documents) to answer the research questions.

1.8.3.1.5.2 Data gathering instrument

Validity

Validity is described as the degree to which anything that could be a tool or a device that measures and gives the expected value or results as per the expectation (Polit & Beck 2010:377). The validity of the questionnaire and document review checklist was ensured thorough careful preparation of research questions which are relevant to the study subjects. The questionnaire was developed thorough the experience of the researcher and comprehensive literature review (Polit & Beck 2010:378) so that the tool

can capture the full content domain. In addition, the tools were reviewed by an expert on newborn and child health experts, in the federal ministry of health Ethiopia and other colleagues who are expert in cross-sectional survey to check the content validity of the tool (Polit & Beck 2010:378). Content validity deals with the scope to which the developed tools equipped with the expected contents to measure the concepts asked by the researcher to answer the objectives of the study (Polit & Beck 2010:377).

Reliability

Reliability is the uniformity a tool that provides a similar result after the subsequent measurement of the characteristic regardless of the timing; so that such tool/instrument try give the actual results in the measuring process of the phenomena and decreases results due to a fault of a designed tool (Polit & Beck, 2010:373). In this research, to ensure the reliability of the questionnaire and document review checklist, the researcher has adapted standardized questionnaire and carried-out pre-testing in the same kind of study population prior to one month of the actual study data collection. This helped the researcher to double check the level of understandability of each question in the questionnaire and document review checklist; and appropriate modification was done after the pre-testing. In addition, Chronbach's (coefficient) Alpha, can also help to test the internal consistence of the contents or variables in the designed tools. As per the Chronbach's alpha test, if the reliability coefficients reported above than 0.70, in most of the time, the internal consistency of the items will be defined as adequate (Polit & Beck 2010:275).

1.8.3.2 Qualitative design: Second phase

1.8.3.2.1 Population and sampling

1.8.3.2.1.1 Study population

The research population of the qualitative study were health workers in health centres and health extension workers in health posts in West Gojjam zone of Amhara region of Ethiopia. In this zone, woreda/district which comprises health centres and health posts were selected to reach health workers and health extensions workers respectively.

1.8.3.2.1.2 Target population

All health extension workers in the health posts, and all health workers in the health centres who are assigned and working in the delivery, early post-natal care and under-five clinic, leading maternal and child health unit and senior health workers who are receiving or sending referral cases and head of the health facilities were the target population among the frontline health workers.

1.8.3.2.1.3 Sample and sampling technique

In qualitative study the researcher purposively selected the study subject in the study population (Kothari 2004:59). Among the different sampling strategies, purposive sampling is frequently used to select the study subjects based on preselected criteria relevant to a research question (Mack, Woodsong, Macqueen, Guest & Nameet 2005:5). In purposive sampling, sample sizes are usually decided on the amount and adequacy of information collected, at a time when increasing sample will stop when the new data no longer bring additional insights or data saturation occurring (Mack et al 2005:5). Hence, in West Gojjam zone, health centres and health posts were selected purposely. A series of focus group discussions were held with health centre and health post staff to understand the factors affecting the effectiveness of neonatal service delivery at primary health care units.

1.8.3.2.1.4 Sample size

In a qualitative study, sample sizes are determined by the depth and the duration required for each interview, not governed by hard and fast rules (Pope & Mays 2006:19). In purposive sampling, sample sizes are usually decided on the amount and adequacy of information collected, at a time when increasing sample will stop when the information being collected is reached at a level of saturation (Mack et al 2005:5).

1.8.3.2.1.5 Data collection

A focus group interview is a method by which many respondents provide their view, attitude, emotion, explanation and practises on a selected issue or phenomena (Maltby, Williams & LiZ Day 2010:2, 121). The group discussions allow the investigator to asking

may respondents at one given time to understand some common issue (Babbie 2007:308). Therefore, this research involved focus group discussions for health workers and health extension workers to explore factors affecting the neonatal health care services in the primary health care units of Ethiopia. The focus group discussions were conducted with health workers and health extensions workers until the information is getting saturated; and audiotape was used to record the discussion as per the agreement of the participants.

1.8.3.2.1.6 Data analysis

In this research, audiotape records and transcripts from focus group discussions were used as data sources for analysis. As a result, all audiotape records were transcribed into Amharic language and followed by the Amharic transcription was translated into English language by the experienced translator. Transcriptions should be done carefully not miss any information gained form the discussion (Polit & Beck 2010:465). In thematic analysis, data is analysed by themes, where the major themes identified first followed by other sub-themes defined in each major theme (Dawson 2007:120), which is an exhaustive approach to know all the insight in the data captured during in focus group discussion (Maltby et al 2010:146). Hence, this study adapted thematic in-depth analysis to explore factors affecting neonatal health care services.

1.8.3.2.1.7 Data and design quality: Trustworthiness

Credibility

In qualitative study, credibility refers to the truth of the data and its interpretations and the truth-value of the findings (Polit & Beck 2010:492, 511). Triangulation gives options for the investigator to cross check the true data and evidence by deploying more than one data collection approaches and sources (Polit & Beck 2010:500). In this study, credibility was ensured by pre-testing the interview guide prior to the actual study.

Dependability

According to Polit and Beck (2010:492), dependability is the reliability of the available information or data within a different periods and circumstances. In this research, an

experienced qualitative researcher carried-out independent analysis; and audio data, field notes and transcribed data both in English and Amharic were kept for other interested researcher for further verification to ensure *dependability of data*.

Confirmability

Confirmability describes to the neutrality of the collected information or data and the findings must represent the respondents' response (Polit & Beck 2010:492, 511). In this study, the data collection process in the field and data analysis procedure were documented. In addition, focus groups participants' voice and speech was quoted and included as part of the report as a strategy of ensuring conformability.

Transferability

Transferability is the scope of the qualitative findings that can be transferred or give some insight in other different conditions and targets (Polit & Beck 2010: 511). In this research, transferability was maintained thorough detailed description of the data collection processes, the demography of focus group discussants, the steps and the methods of data analysis, and data presentation to support the major quantitative findings.

1.9 ETHICAL CONSIDERATIONS

Permission to conduct the study

First, the researcher obtained ethical clearance from University of South Africa Research and Ethics Committee, Department of Health Studies (Annexure A). Following this, a proposal was submitted to Amhara regional health bureau to obtain ethical clearance from the bureau and permission to conduct the study in the West Gojjam zone (Annexure C).; accordingly, the required permission had provided by the regional health bureau to commence the research (Annexure D). Again, the West Gojjam zonal health department was approached to seek a support letter to access the health facilities (Annexure E). Finally, the directors of primary hospital and health centres, and heads of the health posts were asked to get their permission to access the maternity

ward and under-five clinic, and health professionals and neonatal service documents in their respective health facility (Annexure F & G).

Informed consent

Polit and Beck (2010:127) describes informed consent that the respondents should have a clear information about the intended research, understand the given information on the research, and have the authority to join the research or not. In this research, the study participants were informed about the purpose of the study, estimated duration of the interview, and their rights to participate or withdraw from the study to make an informed decision (Annexure F & G). In addition, they were also informed that they could withdraw at any point of the interview or not answer any question they felt uncomfortable answering. Only health workers and, health extensions workers who were put their signature in the consent form were allowed to participate in the study. To avoid the interference of care provision with clients in the health post and health centre during data collection process, prior discussion was held with the health workers and health extension workers to schedule the appropriate time for the interview.

Privacy and confidentiality

Study participants have the right that any data they provide will be kept in the strictest confidence and is protected through various confidentiality procedures (Polit & Beck 2010:129). In this research, the research participants were not being recognised by name or revealed by their personal identification characteristics, as a result, it won't possible to identify the participants. The information that the participants provided have kept confidentially and used only for the research purpose. Filled questionnaires, field notes and tape-recorded voices was kept properly in the researcher office; and no information were disclosed by indicating individual respondent and health facility. Health workers and health extension workers privacy were ensured by conducting the interviews in their respective office by arranging convenient time.



Protection from harm

The researcher informed participants that their refusal to participate in the study will not be communicated to the head of their health facility or any member of their colleague. Therefore, all potential harm or distractions to the participants were considered.

1.10 SCOPE OF THE STUDY

The scope of this research was to assess quality and analyses the utilization of neonatal services; and to explore factors affecting the effective neonatal service delivery at primary health care units in north-west of Ethiopia. The research was conducted in the primary hospitals, health centres and health posts in the West Gojjam zone of Amhara region, Ethiopia. Even though, the results of this study will not be generalizable beyond the West Gojjam zones of Amhara region, because the contexts of the zones in the regions are similar, this study provides information to other zones and regions to understand the effectiveness of neonatal health care services in the primary health care units. In addition, this research was not considered general and specialized hospitals as a study unit; though they are not available in the study area.

1.11 STRUCTURE OF THE THESIS

In addition to the orientation of the study (chapter one) which is intended to give an overview and serves as an introduction to the study, other seven interrelated chapters were constructed where the preceding chapters' will provide the foundation for the next chapter to make a follow-up of information in the logical order to write the thesis report.

These interlinked chapters are:

- Chapter 2 (Literature review)
- Chapter 3 (Research design and method)
- Chapter 4 (Quantitative analysis, presentation and description of the research findings)
- Chapter 5 (Qualitative analysis, presentation and description of the research findings)
- Chapter 6 (The integration of quantitative and qualitative data)

- Chapter 7 (Proposed guideline)
- Chapter 8 (Conclusion, recommendations and limitation of the study)

1.12 CONCLUSION

This chapter outlines an orientation of the study to provide effective neonatal healthcare services in the primary healthcare units in Ethiopia. Most under-five deaths in Ethiopia happen in the first 28 days of birth; focusing on newborn health services is critical for Ethiopia to accelerate progress towards reducing under-five mortality. In the Ethiopian healthcare system, the primary health care units are supposed to provide promotive, preventive and curative care services for children. As a result, studying the effectiveness of neonatal healthcare services in the primary healthcare units was very useful to improve the quality of care and health care service utilization for newborns.

This chapter provided an overview of a general background information on the study, aim and objectives of the current study, a research problem that draw the attention of the researcher, theoretical foundation of the study that governs the study, and a research design and methods that followed in sequential manner in this study. The next chapter will present a literature reviewed which is pertinent for the current study on the effectiveness of neonatal health care services.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter presents a review of literature on the effectiveness of neonatal health care services in the primary health care units in Ethiopia. Studies which have been carried-out related to newborn health in the primary health care set up both national and international level were systematically reviewed to understand the status of newborn health. The literature review describes the magnitude and trends of the neonatal mortality, causes of neonatal mortality, determinants of neonatal mortality, high impact interventions to improve newborn survival, challenges of newborn survival, and opportunities for neonatal health in Ethiopia.

2.2 NEWBORN HEALTH IN ETHIOPIA

2.2.1 Causes of neonatal mortality

The causes of neonatal deaths in Ethiopia are concentrated in three major causes namely intrapartum related (birth asphyxia and birth trauma), infection and preterm birth complications (World Health Organization (WHO) 2015c:[online]). As illustrated in Figure 2.1, more than a third of neonatal deaths are caused by intrapartum related factors (birth asphyxia & birth trauma), more than a quarter by infection and a quarter by preterm birth complications (WHO 2015c:[online]). The major causes are similar with the global estimate where the most common causes of death are prematurity (37%), infection (28%), and asphyxia (24%) (Liu, Johnson, Cousens, Perin, Scott, Lawn, Rudan, Campbell, Cibulskis, Li, Mathers & Black 2015:2151).

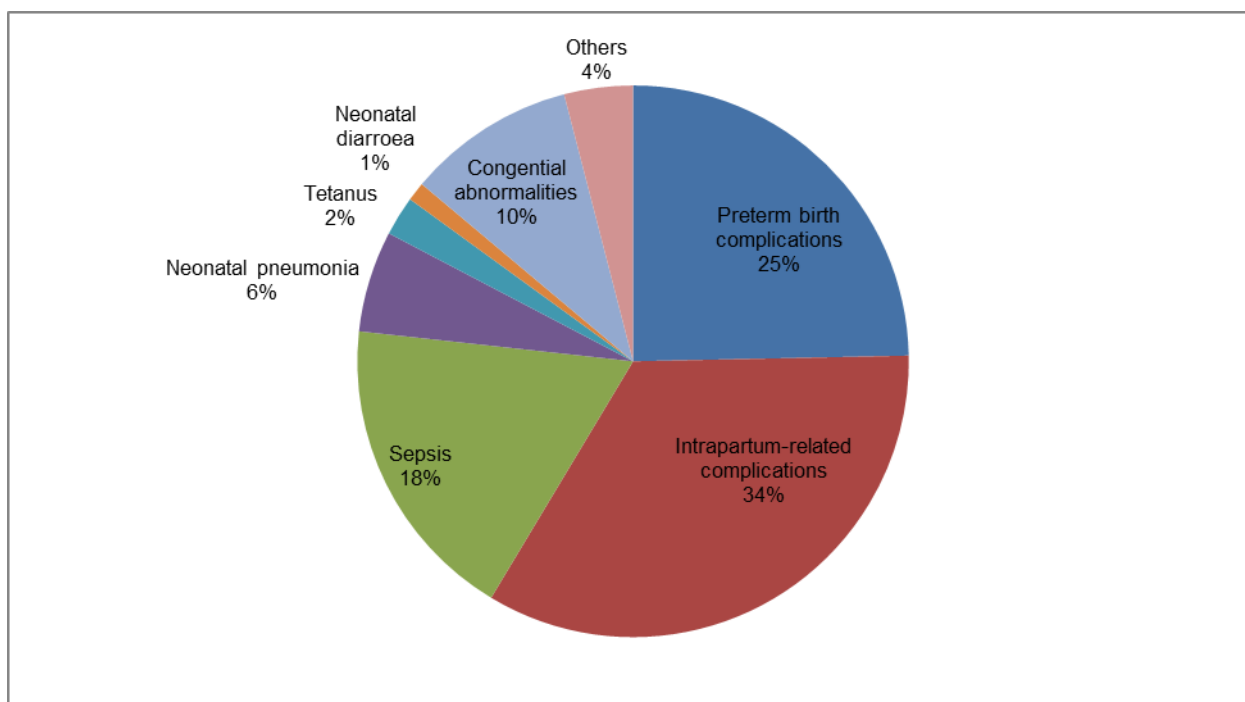


Figure 2.1 Distribution of neonatal deaths by cause in 2013, Ethiopia

(Source: WHO 2015c)

2.2.2 Where and when do newborns die in Ethiopia

Ethiopia achieved under-five mortality (MDG Goal-4) three years ahead of the 2015 deadline with a remarkable decline in child mortality, from 204 in 1990 to 68 deaths per 1000 live births in 2012 (United Nations Inter-Agency Groups for Child Mortality Estimation (UN-IGME 2013:18), United Nations Children Fund (UNICEF 2014:79). However, in the year 2015, neonatal mortality accounted for 47% of the under-five mortality which could be translated as an estimated 87,000 newborns who died in the same year (UN-IGME 2015:21). The trends of under-five and infant mortality rates have been reduced significantly between 2000 and 2016, however, in the same period, the changes for neonatal mortality rates didn't show much improvement as presented in Figure 2.2. It is well-known that decreasing the neonatal mortality is key to accelerate the reduction of mortality for the under one and five years of age. In fact, majority of newborns mortality can be prevented with available evidence based interventions with a lessor cost for newborns. To achieve significant reduction in newborn mortality it is important to give due emphasis to neonatal health problems that are readily preventable or treatable with proven, cost-effective interventions that can significantly contribute to the reduction of under-five mortality by 2020 and beyond (FDREMOH 2015a:14).

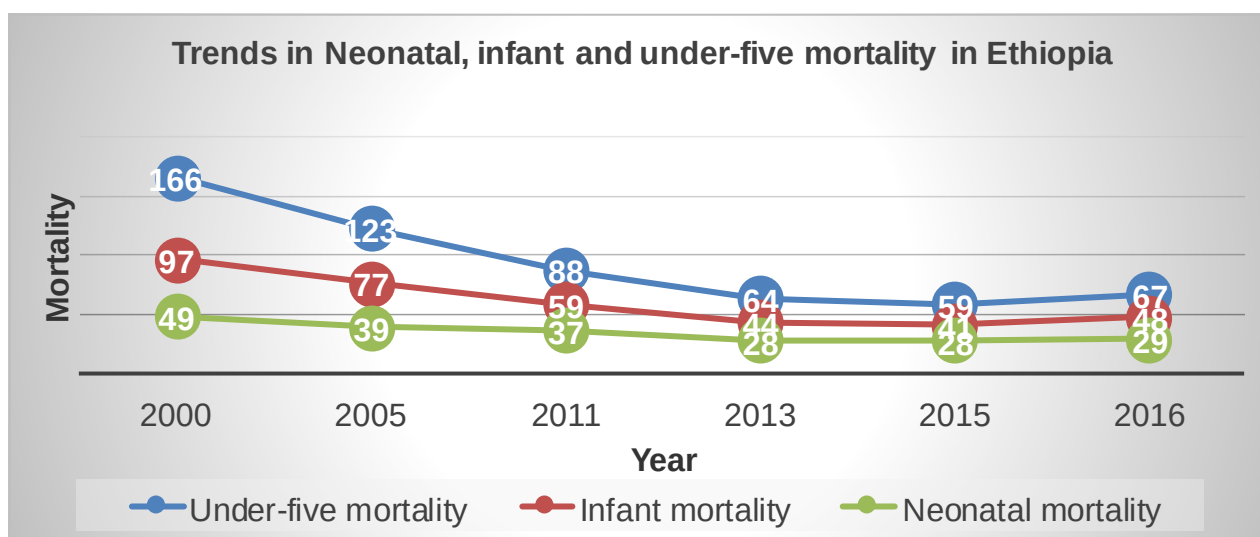


Figure 2.2 Trends, levels and comparison of neonatal mortality rates in Ethiopia

(Source: Ethiopia Demographic and Health Survey (EDHS) 2016:22; National Strategy for Newborn and Child Survival in Ethiopia 2015a:10; UN-IGME 2015:20-21; UN-IGME 2014:18-19; EDHS 2005:104; EDHS 2000:99)

As illustrated in the Figure 2.3, a higher proportion (47%) of under-five deaths in Ethiopia occur within the first 28 days of life due to the high rate of death of neonates. Snakar, Natarajan, Das, Agarwal, Chandrasekaran and Paul (2016: s1-11) pooled result shows about 62% the total neonatal deaths happened in the first 72 hours of newborns life; and two-thirds of the neonatal deaths happened in the first 24 hours only. 98% asphyxia and 83% prematurity related neonatal deaths happened in the first 7 days of life. In the same wise, one-half of sepsis related deaths occurred in the first week while one-quarter occurred in each of the second and third to fourth weeks of life.

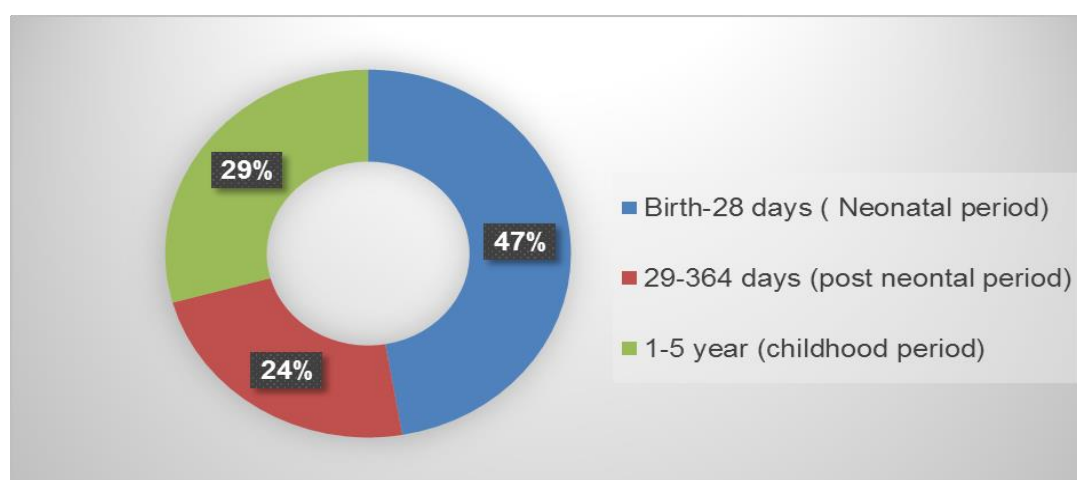


Figure 2.3 When are newborns dying in Ethiopia?

(Source: UN Inter-Agency Group for Child Mortality Estimate 2015:21)

2.2.3 Newborn mortality in the study context, Amhara Region

Within Ethiopia, there is a wide regional difference in neonatal, infant and under-five mortality; where neonatal mortality rates range from a low level of 21 per 1,000 live births in Addis Ababa (the capital city of Ethiopia) to high rate of 54 per 1,000 live births in Amhara region, the study context; much higher than the national average of neonatal mortality 37 per 1,000 live births. Before reaching the age of one month, 17% more newborn infants die in Amhara region than in the nation (Ethiopia Demographic and Health Survey (EDHS 2011:112) (Figure 2.4). That is why the researcher selected Amhara region as the study context for this research.

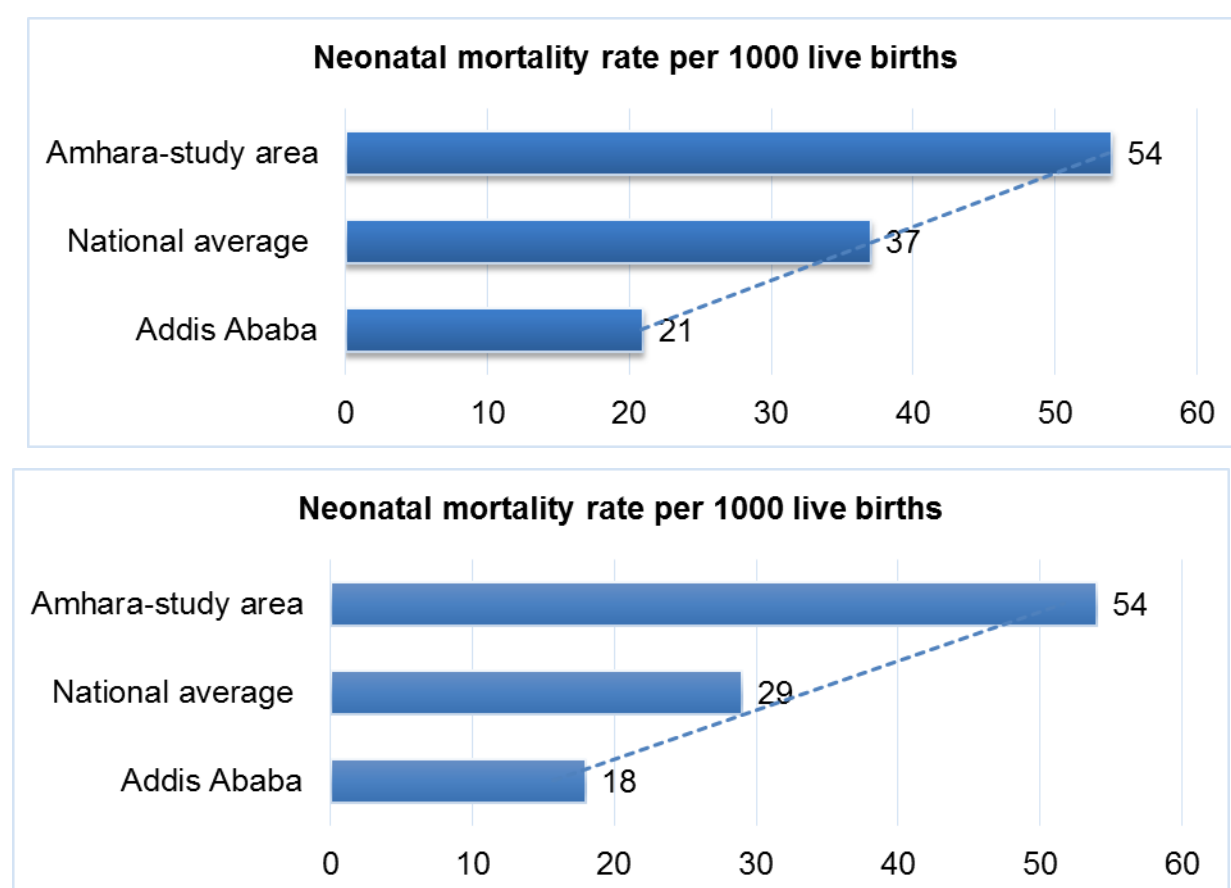


Figure 2.4 Status of neonatal mortality in the study context, Amhara Region
(Source EDHS 2011; EDHS 2016:128)

2.4 Determinants of neonatal mortality

Babies born to very poor family, illiterate mothers, mothers under the age of 20 and over 40 years, narrow birth spacing between two children specially < 2 years, neonatal birth size (very small or small) and born & residing in the agrarian areas encounter risks to die in neonatal period of life (UNICEF 2014:33& 34). This is also substantiated by a study of Meonnen et al (2013:1) that being male baby, neonates born to mothers with under eighteen years, newborns born within a very close spacing like 24 months from the previous sibling; spring births, women with no education compared with neonates born to women with high level education status, and birth in rural dominated regions had an increased risk of dying in the neonatal period.

Another study in Butajira, Ethiopia by Gizaw et al (2014:1) indicates that, neonates born to poor women who had no cattle, lived in thatched houses and far from a health facility entails the highest risk of neonatal deaths. Yaya, Eide, Norheim and Lindtjørn (2014:1) study shows that the poor family or household against with the rich family, headed by illiterates compared to better educated, distant from access to road versus with easily access to road within 5 km, experienced of three or more births in the period of 5 years compared to two or less, had a greater neonatal mortality.

According to FMOH (2013:11), culture, physical access due to distance and limited communication are barriers for newborns in Ethiopia for them to access health care. A qualitative study finding by Sisay et al (2014: s110) in Amhara and Oromia regions of Ethiopia, reported that neonates are not considered as full human beings before they celebrated their 40th day of life after birth but before this age the newborns are acknowledge as strangers by the respective village. As a result, their deaths are not discussed as a big deal and dead neonates are buried at home or near to home which is not like for the human being.

In summary, newborn and child mortality has a strong association with maternal fertility, residence, wealth, access to safe water and sanitation services and maternal education (EDHS 2011:112-117).

2.2.5 Challenges of newborn survival

To continue to accelerate the progress made so far in under-five mortality, focusing on reducing newborn mortality is critical (UNICEF 2014:6). As it has been stated by (UNICEF 2014:6) a higher proportion of neonatal mortality in the 28 days of life resulted from illnesses and conditions that are possibly prevented or treated with the evidence based high-impact interventions with affordable cost. Improving access to the clinical services for the newborns is not easy; however, this intervention shall have reached most of the newborns to impact the neonatal mortality and address the issue of equity. In the places where the service delivery platforms in the health system is weak, if the neonatal healthcare services provision is initiated outside in the health facilities including at household and community level, a considerable number of neonatal mortality can be reduced (Knippenberg et al (2005:1087).

Most neonatal deaths can be prevented if the health facilities are equipped with the required medicines and supplies; and staffed with skilful and competent health professionals to provide the quality of care for the mother and newborn during the time of labour and delivery (WHO, UNICEF 2014:6).

In the time of births, the neonatal deaths might be occurred very quickly, so that rapid actions should be done by health professionals to save lives (Lawn et al 2014). As a result, if the essential quality of services is provided for the mothers and their babies during the labour and delivery and in the early postnatal period particularly within the 24 hours, it is expected to contribute for a significant reduction of newborn deaths (UNICEF 2014:6). However (Wardlaw et al 2014:1) there was a huge variation on the utilization of services by the pregnant women and newborns and quality of services provision by health system to the pregnant women and newborns. In addition, quality of care is not offered for the newborns and mothers who are already visiting the health system. Too many mothers and newborns miss out key interventions that can save their lives (UNICEF 2014:7). The assessment done on newborn care in Indonesia, Lao People's Democratic republic and Philippines by Dusburch, Kerstens, Diaz, Fardhhdiani, Reyes, Phommachanh, Temmerman, Rodriques and Zaka (2014:1) reported that within primary healthcare and referral level health facilities, the newborn care services provision is found to be in poor quality; and this poor quality is contributed by deficient competency by health professionals.

In Ethiopia, only 28% of births are assisted by skilled birth attendants and only 17% women have received a postnatal care (PNC) check-up within 48 hours after. Though access to proper medical attention and hygienic conditions during delivery can reduce the risk of complications and infections that may lead to death or serious illness for the mother, baby, or both. The provision of care followed by birth for both the mother and her newborn is critical to initiate the routine care, identify danger signs and initiate treatment and promotion of essential neonatal health care interventions (Ethiopia Demographic Health Survey (EDHS 2016:23-25).

In general, increasing skilled attendant at birth, establishing quality improvement mechanisms, engaging community's representatives to improve the uptake of the available neonatal health care services at community level; and scale-up of quality facility based newborn care services are essential to save the lives of newborns. It not easy to successful accomplish all but the country shall provide priorities for the implementation of these programmes and activities to save the lives of newborns (WHOa 2015:5).

2.2.6 Newborn health interventions

According to every newborn action plan (WHO 2014b:6) each country is expected to reduce their respective neonatal deaths up to the level of ten or less per 1,000 live births by 2030. The acceleration in the reduction of neonatal deaths and complications are recommended to be addressed by five proposed objectives; provision of optimal services during labour, delivery and in the early neonatal period- the first 24 hours after delivery ; quality of care during labour and delivery by competent health professionals with having the essential medicines and supplies; timely provision of child spacing methods ; increase access to and utilization of key high impact interventions to the communities particularly for pastoralist and inaccessible communities; birth registration of all newborns and improve the knowledge and skills of parents and communities in the care of newborns.

Provision quality of care for newborns includes weighing the baby to identify low birth weight babies, promotion of breastfeeding in the first hour of birth as soon as the birth of the baby is reducing the risk of the newborn death by 44 percent, provision of postnatal

care to the mother and her newborn immediately after birth within in the first day, 72 hours, between day 7 and 14 and finally at 45 days (WHO 2014a:3).

In 2005, Darmstadt, Bhutta, Cousens, Adam, Walker & Bemis came with evidence that universal coverage of 16 interventions with 99% could avert an estimated 41-72% of neonatal deaths worldwide (Table 2.1).

Table 2.1 Key interventions to reduce neonatal mortality

<i>Time in the life cycle</i>	<i>Intervention</i>
<i>Preconception</i>	Provision of folic-acid
<i>Antenatal</i>	Vaccination of tetanus-toxoid
	Syphilis infection management
	Prevention of pregnancy induced hypertension (Preeclampsia & eclampsia)
	Antimalaria treatment for the pregnant women before they develop sign of malaria infection
	Management of non-symptomatic bacteriuria
<i>Intrapartum (birth)</i>	Administration of antibiotics if the membranes ruptures before the pregnancy is reached at term
	Administration of corticosteroids if the labour initiated before the term stage of the pregnancy
	Early examination of breech presentation and appropriate actions including possibly caesarean section
	Monitoring of labour with using tools such as partograph for decision making based on data
	Assisted delivery by health professionals
<i>Postnatal</i>	Birth asphyxia management including resuscitation of the baby with bag and mask
	Promotion of immediate breastfeeding within one hour of birth
	Provision of thermal care for the newborn
	Kangaroo mother care for low birth weight infants in health facilities
	Community based treatment of sick newborns diagnosed with pneumonia

(Source Lancet 2005:980)

The lives saved tools (LiST) model also estimated that optimal implementation of the package of key interventions will prevent a total of 210,234 neonatal deaths over the period of five years. Among the most effective interventions; institutional delivery, treatment of pneumonia at all level, promotion of breastfeeding and treatment of very severe diseases for the newborns prioritized by the LiST (FDREMOH 2015a:27). Ethiopia has been implementing key neonatal and child survival interventions to reduce

neonatal mortality, however, coverage of services remains quit low for most of the interventions (EDHS 2016:20-26; FDREMOH 2015a:15) (Figure 2.5).

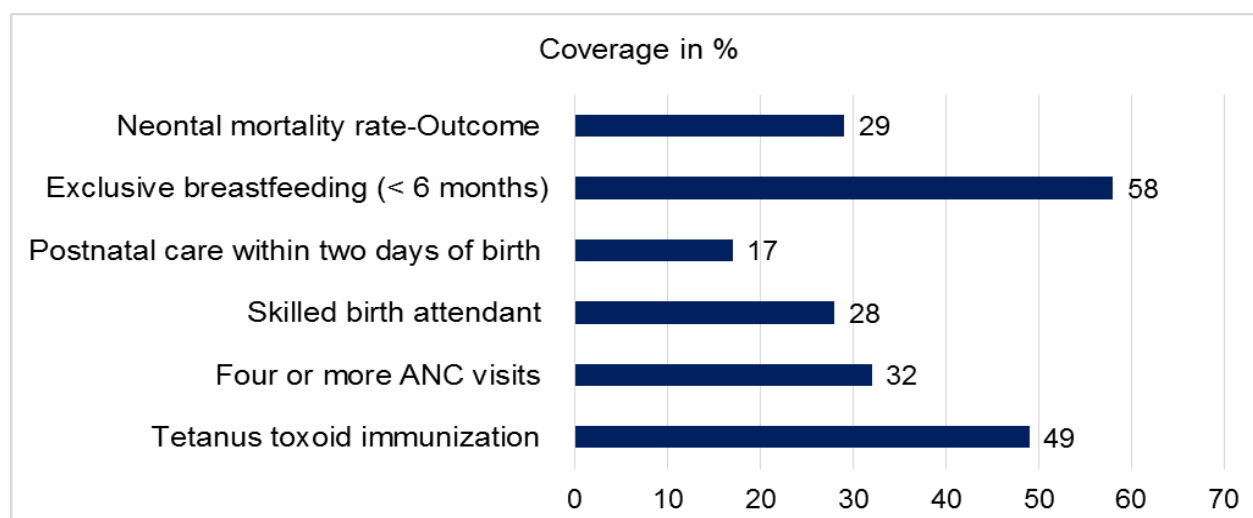


Figure 2.5 Coverage of key interventions to reduce neonatal mortality in Ethiopia
(Source: EDHS 2016)

2.2.6.1 Health facility delivery and early postnatal care

Possibly all expected pregnant women are advised and counselled to give birth in the nearby health centres and hospitals with equipped health professionals (FDREMOH 2015b:26). However, the EDHS 2016 shows that the coverage has reached only 26% (EDHS 2016:136-7). In the early days up to 28 days of birth, majority of maternal and neonatal deaths occurred which requires a serious investment in this particularly high-risk time. Lack of appropriate care during this period could result in significant ill health and even death. Rates of provision of skilled care are lower after childbirth when compared to rates before and during childbirth (FDREMOH 2015b:26; WHO 2014a:1). Despite the importance of having early PNC, EDHS 2016 reported coverage shows, only 17% and 13% women and newborn respectively received postnatal care (PNC) within the recommended two days period (EDHS 2016:139-140). The PNC service is supposed to be provided at hospitals, health centres, health posts, and home visits. After attending the normal births at hospitals or health centres, both the mother and her baby shall receive the recommended routine care in the early postnatal period by extending the discharge time in health facilities at least for the first day after birth. This is a fantastic opportunity to provide the essential care in the first 24 hours by skilled health professionals. However, if the women gave birth at home without the assistance

of healthcare provider, the first home visit to provide the postnatal care for the women and her baby need to carried-out shall be given in the first 24 hours of birth. In general, in addition to having postnatal care within the first 24 hours visit, a minimum 3 more postnatal care contacts are advised for all neonates and their mothers at least on day 3 of birth (between 48-72 hours, between days 7–14 after birth, and 45 days after birth. Since the care given for the newborns and their mothers are very important, scheduled home visits is advised in the first 7 days of after birth (WHO 2014a:3).

2.2.6.2 *Newborn corner and intensive care unit*

Equipping health centres with newborn corner and hospitals with neonatal intensive care unit supplies and equipment and providing the required care at all level is expected to contribute for decrement of the unnecessary newborn deaths. Though, provision of quality of services for newborns is a major challenge in many health centres and hospitals in Ethiopia. Neonatal intensive care units (NICUs) are also ill equipped and not reached by all hospitals. In general, there are critical issues identified by the Federal Ministry of Health to save the lives of newborns during delivery and immediately after delivery; which includes; below or suboptimal skill of the healthcare providers including midwives, doctors and anaesthetists in the provision of emergency obstetric and newborn care services, absence of a neonatal intensive care unit in hospitals, lack of a separate newborn corner in health centres and the services coverage for assisted delivery by health professionals is low (FDREMOH 2015b:25).

2.2.6.3 *Case management services for sick newborns*

As a part of the management protocols of sick newborns, hands-on skill set such as proper assessment and identification of danger signs on the newborns, and communication skills to advise the family or caregiver for immediate seeking care for their ill newborns in the health facilities are required (Tropical medicine and international health 2013). As per the classification of integrated case management of newborn and childhood illnesses (IMNCI), the sick young infant is classified as having if the sick young presented with one of the following sings: not able to feed; history of convulsions or convulsing now; if the breathing is counted 60 or more breaths per minute; severe chest indrawing; fever or low body temperature; and when the movement of the newborn is limited like the newborn is either shows movement when stimulated or not

shows movement at all. These signs are used to manage the sick young at health facilities or issuing referral for the next higher-level health facility (WHOc 2015:5; WHO 2014a:20).

In Ethiopia a majority of the population, close to 85 percent, resides in rural areas and a significant proportion of deliveries (73%) occur at home, as a result, there is limited health care services for newborns (EDHS 2016:136-137). To address the less improvement of neonatal mortality compared with under 5 mortalities, the Federal Ministry of Health Ethiopia has launched community based-newborn care initiative in 2013 to reach all health extension workers in all rural woreda in the country (FMOH 2013:14). In this strategic initiative, interventions which are provide at community level in the existing platform of health extension programme and packages which includes promotion of antenatal care, postnatal follow-up of women and newborn, referral of pregnant women for health facility delivery, and management of neonatal sepsis by health extension workers at community level when referral is not possible (WHO 2015a:22; FMOH 2013:26). In addition, the Integrated Management of Newborn and Childhood Illnesses (IMNCI) is a case management strategy implemented by trained health care providers to assess, classified and treated sick young infants and children less than five years old. It is a case management process in a first-level health facility including health centres or an outpatient department of hospitals (WHO 2014c).

2.3 OPPORTUNITIES FOR NEONATAL HEALTH SERVICES IN ETHIOPIA

2.3.1 Health system structure

The Ethiopian health care delivery system is organised in three tier systems. In the bottom of the health system, the primary health care delivery that encompasses health posts, health centres and primary hospitals. The health post provides service to a population of 3,000 to 5,000, health centre that provides service to an estimated population of 15,000 to 25,000, and primary hospital is also provides services to 60,000 ot 100,000 catchment population. In the middle of the health system tier, there is secondary level health care delivery system that service is provided by general hospital to a population of 1 million to 1.5 million. In the upper tier of the health system, tertiary level health care delivey system, where 3.5 to 5 million population are getting service from the teritiary hospital. Within the primary health care, the primary health care unit

covers health posts and health centres (HSDP IV 2010:77-8), whose focus was on the effectiveness of neonatal health care services.

Maternity care (antenatal care, delivery and postnatal care), newborn corner, integrated management of newborn and childhood illnesses (IMNCI) and essential newborn care are key components of services provided at the health centres and primary hospitals. In addition, antenatal care, postnatal care, integrated community case management (iCCM) of common childhood illnesses and community based newborn sepsis management are the responsibility of Health Extension Workers at community level in the health post or Kebele (the lowest administrative unit, with 5,000 population) (FMOH 2013:14).

2.3.2 National level strategy for newborn and child health

In the federal ministry of health newborn and child survival strategy, much emphasis has been given to the reduction of neonatal mortality rate from 28 newborns deaths to 11 deaths of 1,000 live births by 2019/20 (FDREMOH 2015a:25). Among the others priority key high impact interventions proposed in the four years period, postnatal visit for mothers and newborns within 48 hours is planned to achieve 50% from the 12% target and antibiotics for neonatal sepsis is targeted to reach 80% from the eligible (FDREMOH 2015a: 34).

2.3.3 Health sector transformation plan

In the five years Ethiopian federal ministry of health, health sector transformation plan from 2015 up to 2020, the following key strategic recommendation are included: addressing the equity of service, improving the effective coverage for maternal, newborns and child health interventions, improving the quality care provision and increase the health sector competency on the health care management. In this high-level strategy, it is aiming to end the under-five children and maternal deaths due to preventable by 2030, so that, among the others, maternal, newborn and child considered as the key priority for the ministry (FDREMOH 2015b:10).

2.3.4 Health extension program

Ethiopia's health extension program (HEP) is a strategy managed by Health Extension Workers at community level. These Health Extension Workers are trained and deployed at rural, urban and pastoralist communities. Health Extensions Workers are providing a comprehensive service for the rural communities that includes health promotion and disease prevention, and some selected case management activities. Overall, the HEP strategy is designed with four major components categorized with sixteen packages of interventions. The newborn and child health is being addressed under family health service package. This strategy is improving the utilization of basic health services and improves the linkage between the community and health centres. To reach all households, the health extension program is supported by organized and functioning health development army. Moreover, Health Extension Workers have also started treating common childhood diseases, including neonatal sepsis where referral is not possible (FDREMOH 2015b:40-41; FMOH 2012).

2.4 CONCLUSION

The neonatal mortality rates did not show much improvement in over 15 years in Ethiopia, despite significant improvements has been shown in reducing under-five mortality. The Amhara region (study context) has much higher neonatal mortality than the national average. Reducing the deaths in the neonatal period is critical to achieve a significant reduction of under-five mortality. It is well-known that, majority of newborns deaths can be prevented with by effectively implementing the recommended high impact interventions at different level including at household and community level. In the Ethiopian health system, the primary health care units are supposed to provide promotive, preventive and curative care services for women, newborn and children; however, the key neonatal interventions coverage are remains low at country level.

Overall, the literature review revealed that information is available mainly on newborn morality, causes and determinants of newborn death, and recommended high-impact interventions to improve the newborn health conditions. However, it lacks, in providing the required knowledge in the provision of neonatal health care services in the primary health care facilities. Thus, this research was aiming to assess the effectiveness of the neonatal health care services provision in the primary health care units.

CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

In this chapter, the research design and methodology to conduct the study on the effectiveness of neonatal health care services in the primary health care units in north-west of Ethiopia is discussed and elaborated upon. Under different subtitles, the chapter explains the rationality of mixed method approach, explanatory sequential mixed design, population and sampling, data collection and data analysis. In addition, issues related to ethical considerations and assuring of internal and external validity of the study are discussed. Since, the explanatory sequential mixed design was employed in this study; the research design and method discussion was done in line with this selected design.

3.2 RATIONALITY OF MIXED METHOD APPROACH

Mixed methods research is an approach to that employed collecting and analysing both quantitative and qualitative data in a single research study (Creswell 2014:32; Cameron 2009:143). Onwugbuzie et al (2009:14) argue that the mixing of the two approaches and the combined results have the benefit of complementarity, triangulation, initiation, development, expansion, identification, enhancement and legitimation (Onwugbuzie et al 2009:14). In line with Onwugbuzie et al (2009) a mixed method uses a combination of quantitative and qualitative approaches to maximize the strengths of both research approaches to understand the research problem (Creswell 2009:203; Wheeldon & Åhlberg, 2012:119), and it helps to provide a more detail understanding and explore the subjects' exposure and experience within in their contextual situations (Larkin et al 2014:8). As stated by, Creswell (2014:32), the core assumption of mixed methods of inquiry is that the combination of qualitative and quantitative approaches provides a more complete understanding of a research problem than either approach alone. Consequently, this research used a mixed method approach to answer the effectiveness of neonatal health care services in the primary healthcare units in north-west of Ethiopia: Quantitative to address two quantitative objectives (to assess quality

and analyse utilization of neonatal health care services), and both qualitative and quantitative to address one objective (to explore factors affecting the effective neonatal service delivery). A researcher believes that using a mixed method for this research is benefiting to answer the research objectives on the effectiveness of neonatal health care services at primary health care units. The quantitative phase of this study provided an overall understanding of the neonatal health care services in the primary health care units, followed by the qualitative study to further in-depth discussions with the health workers & health extension workers to understand the factors affecting the effective neonatal service delivery.

3.3 RESEARCH DESIGN

According to the views of Saundres, Lewis and Thornhills (2009:136) research design is a general plan of how the research questions are going to be answered and what is a logical blue print (Yin 2011:75). In addition, (Babbie 2007:87) tell us that research design is all about what we observe and analyse with why and how questions.

Explanatory sequential mixed design is a mixed methods strategy that involves two phases, in the first phase where the researcher collects quantitative data and analyses results, and based on the key results from the first phase, the second phase qualitative data collection and analyses is planned and employed (Creswell 2014:274; Creswell 2009: 206). The qualitative results in the second phase of the study is helpful to provide more explanation and interpretation in the quantitative results (Creswell et al 2011:8; Salehi & Golafshani 2010:118; Creswell 2009:211; Onwugbuzie et al 2009:18). In this approach, relatively much weight is provided for the quantitative data and the two data sources is mixed during the analysis phases. Eventhough, the quantitative and qualitative data are collected separately, but they have connected each other (Creswell 2009:211). The main reasons to choose this mixed method is to explain quantitative results with qualitative data and provided a more detail insight on the quantitative results (Johnson et al 2007:124; Creswell 2014:274).

The first phase of the quantitative study employed survey approach to come-up generalizable results at a population level, and the follow-up qualitative second phase, collect data from participants with open ended interviews to have a better explanation for survey data collected (Creswell 2014:48).

In this research, a mixed method approach with sequential explanatory design was employed; where a major quantitative study in the first phase was done and followed by a small scale qualitative study in the second phase to enhance the quantitative findings. Specifically, the quantitative and qualitative objectives of this study are addressed in the first and second phases of this study. The quantitative approach had informed the qualitative and the qualitative methods played a complementary role to understand the effectiveness of neonatal health services in the primary health care units of Ethiopia (Larkin et al 2014:11; Creswell 2014:274; Cameron, 2009:145). As a result, much weight was given to the quantitative method, which depends on a large degree on the type of research questions (Wheeldon & Åhlberg 2012:121) while the qualitative study was in small scale and used only to enhance the quantitative findings. Though the two forms of data were separately analysed, the mixing was done in the interpretation and discussion section to have a combined quantitative and qualitative results for a better understanding. A sequential explanatory design is important to explain and interpret quantitative results by collecting and analysing follow-up qualitative data to examine results in more detail (Figure 1) (Creswell 2009:211).



Figure 3.1 Flow of sequential explanatory research design

(Adapted from Creswell 2014:270; Creswell 2009:210; Wheeldon & Åhlberg 2012:121; Padgett 2012:49; Wilkins & Woodgate 2008:30)

3.3.1 Quantitative research design: Phase one

This study was used a cross-sectional survey design to assess quality of care, and analyses factors affecting utilization of neonatal healthcare services at delivery points in the primary healthcare units. Survey research is an effective means of providing who, when, where, what and why related questions and cross-sectional studies are conducted at single point in time that provide a snapshot of the effectiveness of the neonatal health services at that time (Clow & James 2014:162). In addition, survey

research is used to gather data from large groups of people in a relative short period of time (Wagner, Kawulich & Garner 2012:100). Therefore, a cross-sectional survey design was selected for this study to reach the selected health facilities within a brief period of time with the reasonable cost.

3.3.2 Qualitative research design: Phase two

This study employed a qualitative research as a small scale in the second phase to explore factors affecting the effective neonatal care services in the primary healthcare units in the north-west of Ethiopia. A research design that carry-out within the natural setting to understand a lived experience of human by collecting and analysing of the views and written or documented concepts by applying a modifiable approach whenever necessary (Polit & Beck 2010:23).

It helps to understand the sense of how human being's lives in the natural or in their day-to day circumstances. It is also representing the opinions and perceptions of humans, and translating the people lives without affecting the natural context (Yin 2011:7). As per the explanation of Tracy (2013:5) it focuses on lived experience, placed in its context, and keeps the discussant's senses on the concept. Overall, qualitative data are basically built on interlinked concepts that developed during the discussion with the participants with open and flexible questions, from investigators field observations, or by reviewing various sources of documents (Wheeldon & Åhlberg 2012:125).

Therefore, this study employed a qualitative research as a small scale in the second phase to explore factors affecting the effective neonatal care services in the primary healthcare units in the north-west of Ethiopia.

3.4 RESEARCH METHOD

The research methodology is all about describing the philosophy to conduct the research; however, the research methods are systems and actions to collect different forms of data and its analysis (Saunders, Lewis & Thornhill 2009:3). The research methodology is the overall guiding assumptions to carry-out the planned research while the research methods are the instruments that used for collecting the intended data in various forms

3.4.1 Sampling for quantitative study: phase one

3.4.1.1 Population and sample selection

3.4.1.1.1 Study population

Smith, Francis and Schafheutle (2008:83) defines the study population as all the individuals to whom the study relates. In addition, as per (Babbie 2010:199) descriptions, a study population is the whole sources where the sample is selected by researcher. The research population of the current study was health workers in the primary hospitals and health centres; health extension workers in the health posts and neonatal health service delivery documents at primary hospital, health centres and health posts in the Amhara region of Ethiopia. Amhara is the second populous region in Ethiopia, which is found in the north-west part of Ethiopia. The region has 11 administration zones, and 20,399,004 estimated population for 2015 (FDRE, CSA 2013).

3.4.1.1.2 Target population

Target population is the specific collection of elements that the researcher will study (Neuman 2014:250). Ornstein (2013:61) is also defined that the survey intended to describe in the population. Health workers in primary hospital and health centres who were working in maternity ward (delivery and early post-natal) and under-five clinic; all health extension workers who were working in the health posts; and neonatal service delivery documents in the primary hospital, health centres and health posts in West Gojjam Zone of Amhara, Ethiopia were targets of this research. West Gojjam is one of the 11th zones of Amhara region, with 2,463,004 estimated total population for 2015 in fifteen districts (woredas). In this zone more than 88% of the population live in the rural area.

3.4.1.1.3 Sampling frame

Sampling frame is a list of all the members of a study population where the sample is to be drawn (Neuman 2014:252; Ornstein 2013:62; Babbie 2010:208). In West Gojjam

zone, all health facilities and the available sick newborn registers in the facilities were considered for the sampling frame for this research. If the sample is to be considered representative of the population, the sampling frame needs to include all members of the population (Babbie 2010:208). Hence, this study listed all primary health care units (one health centre with five health posts together) as sampling frame to get the study population. The list of health facilities was collected from West Gojjam zonal health department and confirmed with their respective district/ woreda health offices.

3.4.1.1.4 Accessible population

As per the researcher experience, two health workers are expected to be available in the primary hospital and health centres both in the under- five clinic and maternity ward; for this research all were considered as a study participant. If incase two or more health workers were available in each unit in the day of data collection, one health worker was selected with random sampling for this study. The availability of health extension workers per health post is expected to be 2 in average but it varies from 1 to 3; because of having similar responsibilities in the health post except one of them being assigned as head of the health post; one health extension worker was selected with random sampling as the study participant among the available health extension workers in the day of data collection. In addition, one-year neonatal case management service statistics data was collected from the neonatal services delivery documents with structured document review checklist. One-year data is useful to compute neonatal service utilization coverage from the annual expected population.

3.4.1.1.5 Sampling technique

Sample or sampling element is the name for a case or single unit to be sampled from the wider population (Neuman 2014:250). Probability sampling remains the primary method of selecting large, representative samples. In the process of selecting the sample with random sampling technique, everyone of individuals have equal probability to be selected and each even doesn't affect the probability of the selection of each unit (Neuman 2014:255; Babbie 2010:211; Creswell 2009:146; Ornstein 2013:64) argues that in a random sampling each unit in the source population has an equivalent chance of selection; so that, the research is done with representative study units and the result could be inferred into the general population (Creswell 2009:148).

Region and zone were purposively selected by researcher because of the reason that Amhara region is the second highest neonatal mortality in the country which is much higher than the national average (54/1000 live births in Amhara, 37/1000 live births in Ethiopia; EDHS 2011:113); and the second populous region in Ethiopia and Amharic is their native language which minimizes the translation of the questionnaire with different local language. West Gojjam zone is selected among the 11 zones in the region because of their reasonable distance from their regional city of Bahir Dar and Addis Ababa, the capital city of Ethiopia. In this study, the primary health care units/health centres were selected with random sampling approaches. Once the primary healthcare units/Health centres were selected, the health post was selected by random sampling with the available 5 health posts in the health centre catchment from the list of sampling frame.

3.4.1.1.6 Sample size

Sample is a set of target respondents selected from the larger population or a finite part of statistical population (Singh 2007:88). The final sample size is almost always a matter of judgement as well as of calculation (Saunders et al 2009:218). It is governed by the aims and objectives of the study (Smith et al 2008:90). For this study, the final sample size under each phase.

StatCalcEpi info version 7 statistical software was used to calculate the sample size. For the sampling units of primary health care units and neonatal service delivery documents, the same number of sample was selected by simple random sampling where each primary hospital, health centre and health post are considered as a primary health care unit.

To calculate the sample size of primary health care units (health centres and health posts); the following assumptions were considered: ninety-one health centres (primary health care units) as a total population size; prevalence is considered as 50% the reason that no similar study was done so far; confidence limits is 5%; confidence level is 95%; design effect is 1 and clusters is considered as 1.

Based on the above assumptions, the calculated sample primary health care units were 71 (71 health centres and 71 health posts). Simple random sampling methods was employed to select health centres and health posts in the sampling frame. As a result, data collection was done from a total 142 health facilities (3 hospitals, 76 health centres and 63 health posts), and all the 15 districts in the West Gojjam zone were represented. Because the primary hospitals were three in number, all these hospitals were considered as a study unit. Consequently, interviewer-administered questionnaires were administered in 221 health and health extension workers in 142 health facilities including hospitals, health centres and health posts; 2 health workers each in the primary hospital and health centres and one health extension worker per health post. In addition, 767 sick young infants' case management service statistics were abstracted from sick young infant registers in health facilities.

3.4.2 Sampling for qualitative design: Phase two

3.4.2.1 Population and sampling

3.4.2.1.1 Study population

The research population of the qualitative study are health workers in the health centres and health extension workers in health posts in West Gojjam zone of Amhara region of Ethiopia. Since the phase one, quantitative study was done in West Gojjam zone, and health facilities in West Gojjam was selected for the phase two quantitative study.

3.4.2.1.2 Target population

All health extension workers in the health posts and health workers in the health centres who were assigned and working in the delivery, early post-natal care and under-five clinic, leading maternal and child health section or team and senior health workers who were receiving or sending referral cases and head of the health facilities were the target population among the frontline health workers.

3.4.2.1.3 Sample and sampling technique

In non- probability sampling approach, the researcher purposively selects the study participants in the study population (Babbie 2010:192). Among the other non- probability sampling techniques, purposive sampling is often employed to select the sample to able to gain a more pertinent and useful data as per the intention of the study (Yin 2011:88; Babbie 2010:193); and the investigator employs different approaches to access unreached and some unique study units (Neuman 2014:273). In purposive sampling, sample sizes are usually decided on the amount and adequacy of information collected, usually, the researcher stops to collect more data from the additional study units as soon as no longer additional information is not emerging or when the data reached at saturation level (Neuman 2014:274; Kumar 2011:194). Since the quantitative study was done in West Gojjam zone, similarly, health centres and health posts were selected purposely in the same zone for the phase two study.

3.4.2.1.4 Sample size

In purposive sampling of qualitative study, sample sizes are usually decided on the amount and adequacy of information collected, at a time when increasing sample will stop when the new data no longer bring additional insights to the research questions (Neuman 2014:274; Kumar 2011:194). For this study, and focus group discussion was carried-out with health workers and health extensions workers until the information got saturated.

3.4.3 Data collection for quantitative study: Phase one

3.4.3.1 Data collection

3.4.3.1.1 Data collection approach and methods

The researcher-administered closed-ended structured survey questionnaire for health workers (HWs) in the primary hospitals and health centres (HCs), and health extensions workers (HEWs) in the health posts (HPs). In addition, structured document analysis checklist was used to collect sick newborn service statistics data from sick young infants' registers in the primary health care units. Following the quantitative methods, partially structured interview guide and questions that can facilitate the discussion was

employed in the focus group discussions (FGDs) for HWs and HEWs to explore factors affecting the effectiveness of neonatal health care services.

Regarding the tools, all the questionnaires and document analysis checklist were prepared in English and it was translated into Amharic, the regional language of Amhara region and the federal language of Ethiopia was used for data collection. The translation from English to Amharic was done by the researcher, who is the native speaker of the Amharic language. It was further re-checked by the researcher colleague who has experience on translating survey questionnaire. However, the English version of document analysis checklist was used for data collection.

3.4.3.1.2 Adaptation of data collection instrument

In this quantitative study, the survey questionnaire was adapted from newborn services rapid health facility assessment tool (Healthy newborn network 2012), rapid health facility assessment tool to enhance quality & access at primary health care level (USAID MEASURE Evaluation 2008:27-35), service availability readiness assessment manual (WHO,2013: 11-29), rapid health facility assessment (R-HFA) for core maternal, neonatal, and child health services at the primary level (Macro 2007), and a health facility assessment tool for a quality of newborn care in rural Ghana (Vesel et al 2013) as per the permission given by the lead researcher. In addition, sick young infant data abstraction checklist adapted from a standard integrated supportive supervision checklist to review the quality of case management of sick young infants by health posts and health centres staff with register review (FMOH 2014b:7)

3.4.3.1.3 The data collection instrument

An interviewer administered questionnaire was composed of three major parts including background and health facility identification, maternity unit (antenatal care, delivery, and postnatal care and neonatal health services and management of sick neonates in under-five clinic (Annexure H.1). Over all, this questionnaire was used to solicit information from a sample of health service providers on their qualification, position, trainings, experience and supervision they received, and a set of service specific knowledge questions, case scenarios to capture correct practices on resuscitation, immediate newborn care of stabilized baby, thermal care, immediate care of very low

birth weight and breastfeeding advice were included. In addition, to collect information on general facility readiness focusing on maternal and newborn health such as facility infrastructure (electricity, water), staffing, availability of basic supplies and equipment, medicines and commodities, infection prevention, laboratory diagnostic capacities were organized under different subtitles.

In addition, the document review checklist for sick neonates was designed to include background and health facility identification, age of the neonate, sick neonate classification/diagnosis and treatment, treatment outcome and agreement between case management tasks (Annexure H.4).

3.4.3.1.4 Data collection process

For the data collection, 10 experienced health professionals on neonatal and child health services, who has prior experience on data collection in health facilities or provision of supportive supervision or mentorship to health facilities, at least first degree in nursing or health officers and who speak Amharic (the local language) were selected, trained and deployed in the field. Two days training was provided for data collectors on data collection procedures, each item of the questionnaire, data review checklist and how to obtain consent. Since the questionnaire has questions which required observation, verification by checking the document, and knowledge and practice questions which avoids probing/seeing from the list of the options; as a result, the researcher preferred to employ interviewer-administered questionnaire. The questionnaire and document review checklist was pre-tested in the two primary health care units in the same study area, but health facilities which are not included for the study, three days prior to the actual data collection as a practical session of data collectors training. Pre-testing helps to get feedback on individual questionnaire items, test the entire questionnaire and the survey procedures (Czaja & Blair 2005:22). In the pre-test, no major correction was done except correction of some of the skipping patterns in some of the questions, and rewording some of the length questions.

3.4.4 Data collection for qualitative study: phase two

3.4.4.1 Data collection

3.4.4.1.1 Data collection approach and methods

3.4.4.1.1.1 Data collection

A focus group interview is a method by which most of the study units provide their views, understanding, emotions and practice on the requested discussion point or subject (Maltby et al 2010:2). Organizing an interview for study units grouped together facilitates the dialogue (Babbie 2010:32). In addition, the group discussions allow the researcher to forward discussion points to many study units at the same time and progressively (Babbie 2007:308). Therefore, this research conducted focus group discussions with health workers and health extension workers to explore factors affecting the neonatal healthcare services in the primary healthcare units of Ethiopia. The focus group discussions were carried-out with health workers and health extensions workers until the information got saturated. In the data collection process audiotape was used to record the discussion as per the agreement of the participants.

3.4.4.1.2 Development and testing of the data collection instrument

Qualitative interviewing approach is mainly facilitating a broader discussion with properly leading the conversation than looking for a certain thought or point (Babbie 2014:329), this is also in line with Maltby et al (2010:56), semi-structured interviews like a formal conversation where the researcher prepared questions on the topic covered which doesn't emphasis in the order of questions or asking the same way which facilitate the genuine interactions between the researcher and respondent. One data collector with the researcher was administer partially constructed interview questions for focus group discussions. This interview guide was developed first in English and translated into Amharic. The data collector was trained, and the interview guide was pre-tested at a non-study area, three days prior to the study to make appropriate correction based on the pre-test findings. Some of the questions were refined as per the findings.

In addition to note taking, audiotape recorder was used to recorder the interviews to capture most of the information. With the intentional of having backup, two audiotape recorders were used in each focus group discussions.

3.4.4.1.3 The data collection instrument

The focus group discussion guide composed of identification and health workers profile, and key questions to explore factors affecting the effective newborn health services in the primary health care units (Appendix H3). The interview guide developed based on the research objective, first phase quantitative result and literature review.

3.4.4.1.4 Data collection process

Qualitative data collection began with focus group discussions with health extension workers followed by health workers from health centre. Seven focus group discussions were carried-out. There were responsible note taker and the investigator moderator for each focus group discussion. In addition to note taking, the discussion was recorded with audio-tape. After each sessions of focus group discussion, the audio-recorded information and note recorded were checked for their consistency.

3.4.5 Data analysis

According to Creswell (2014:274), in the explanatory sequential mixed methods design, the data collected in quantitative and the qualitative methods are analysed without merging together. Meanwhile, the planning and developing questions for the second phase of qualitative data collection are benefited from the results generated from the quantitative data during in the first phase of the study. Consequently, the quantitative results are reported initially since the data was collected in the first phase, followed by reporting the results of the qualitative data that was captured in the second phase of the study. However, the results from the two methods were merged together in the discussion section of the report to give more sense. In addition, the quantitative results are supported by the qualitative results to provide a better and detail interpretation (Creswell 2014:274-275). Consequently, in this research, the interpretation of the major quantitative and small scale qualitative results was done in the discussion section by pulling the major follow-up results from the two approaches to answer the research questions on the effectiveness of neonatal health care services in the primary health care units in north-west of Ethiopia.

3.4.5.1 *Data analysis for quantitative study: phase one*

The data entry was done by a temporarily recruited data entry clerk by using the computer software EpiData 3.1 which is freely available, suitable for simple datasets, and controlled data entry by designing skipping patterns. The data clerk could only enter the data when the required conditions fulfilled which includes specified legal values with attached text labels (1=Yes, 2=No), range check or legal or dates (Lauristen & Bruus 2005:3; Mc Gowan 2016:4) Then the data was exported to Statistical Package for Social Science (SPSS windows version 23) and STATA version 15. The analysis was done by the researcher with close technical support from an experienced researcher specialized in data management and analysis. These softwares were greatly helped to run descriptive and inferential analysis to respond the research objectives and associated dependant and independent variables. Descriptive statistics is applied to have a comprehensive description of the quantitative data, and inferential statistics helped to interpret results for the general population (Polit & Beck 2010:392). Statistical relationship is the expression of whether two or more variables affect one another or whether there is an association between them or independence (Neuman 2014:403). Variable oriented analysis involves identifying the relationships among variables, often probabilistic in nature, which leads to external statistical generalization (Onwugbuzie et al 2009:17). The analysis was presented in table with number, percentage, frequencies, means, p-value and confidence interval. The rationale for choosing SPSS is that, the software is accessed from UNISA Akaki Regional Learning Centre and the researcher has experience of using SPSS while he was doing his master thesis. In addition, the researcher colleague is highly experienced in using STATA for advanced analysis.

3.4.5.2 *Data analysis for qualitative study: Phase two*

In this research, the information captured thorough audiotape records and transcripts from focus group discussions was used as data sources. All audiotape records were transcribed into Amharic and the Amharic transcription was directly translated into English by translator who have a solid experience of such kind of translation. It is highly advised that the transcription must provide the entire and consistent information that was captured during the data collection process (Polit & Beck 2010:465).

In thematic analysis, the successive analysis is managed based on the themes identified from the data, which is basically starts by identifying the major themes or insights and followed by providing a more detail meaning to the identified sub-themes (Dawson 2007:120). It followed an exhaustive approach until the insight is fully understood as per the data collected from the qualitative method (Maltby et al 2010:146). Hence, this study adopted thematic analysis to explore factors affecting neonatal health care services. This thematic analysis has six different stages, such as familiarizing the researcher with the data, generating initial codes, searching for themes, reviewing the themes, defining and naming the themes and producing the report (Braun & Clarke 2006:87). Since the researcher facilitated the focus group discussion, the data analysis was started during in the phase of data collection.

3.4.5.3 Delphi techniques to develop the guidelines

The Delphi technique was approved as part of the study research proposal. WHO (2014b:19) recommends that many groups and people shall be engaged from the onset in the guideline development process. It should involve a multidisciplinary expertise and seeks their expertise opinion and inputs on the draft guideline. This is expected to minimize the risk of bias in the recommendations included in the guideline (WHO 2014d:2). In line with this, for this guideline development, the researcher employed Delphi method. It is well known that, the assumption of the the Delphi method built on that the group opinion is more valid than individual opinion (Keeney, Hasson & McKenna 2011:3).

3.5 INTERNAL AND EXTERNAL VALIDITY OF THE STUDY

3.5.1 Internal and external validity for the quantitative study: Phase one

3.5.1.1 *Data and design quality*

3.5.1.1.1 *Research design*

Internal validity

To ensure the internal validity in this research, the questionnaire was developed and tailored in harmony with the research objectives. The study participants were chosen as their fully volunteerism and consent with the right selection procedures. This research applied mixed methods research, where qualitative study was followed based on the quantitative data analysis.

External validity

In this research the external validity was maintained by applying probability sampling techniques especially simple random sampling to select primary hospitals, health centres and health posts and taking all the available health workers in the maternity ward (delivery and early postnatal care) and under-five clinic as the study subjects in the primary hospitals and health centres; and selection of health extension workers by random sampling after selection of health posts. The researcher used maximum sample size to carry-out the study ($p=50\%$) and used primary health care units as a study unit (health facilities, health workers and service delivery documents) to answer the research questions.

3.5.1.1.2 *Data gathering instrument*

Validity

Validity is defined by Polit and Beck (2010:377) it is the degree to which a tool or a device that intended to measure and gives the expected value or results as per the agreed standard. The validity of the questionnaire and document review checklist were

ensured thorough careful preparation of researcher questions which were pertinent to the intention of the research. The questionnaire was adapted thorough the experience of the researcher and an exhaustive literature review (Polit & Beck 2010:378) as a result the tool would be comprehensive enough to respond the research questions. In addition, the questionnaire reviewed by an expert on newborn and child survival programme, and other two colleagues who are expert in cross-sectional survey to assess the questionnaire to ensure its content validity (Polit & Beck 2010:378). The content validity in questionnaire is all about the tool or device that build with adequate variables that could able to respond the research questions (Polit & Beck 2010:377).

Reliability

Reliability is the repeatability of the tool that measures the characteristic at the different period; where a reliable tool has the high chance of providing the true measurement results of the variables; and in addition, it is also reduces the possibility of measuring the wrong score (Polit & Beck 2010:373). In this research, to ensure the reliability of the questionnaire and document review checklist, the researcher has adapted standardized questionnaire and carried-out pre-testing in the same kind of study population prior to three days of the actual study data collection. This greatly helped the researcher to confirm the simplicity and precisions of each questions in the survey questionnaire and document review checklist; and appropriate modification was done after the pre-testing.

3.5.2 Internal and external validity for the qualitative study: Phase two

3.5.2.1 Data and design quality: Trustworthiness

Credibility

In qualitative study, credibility refers to the truth of the data and its interpretations and the truth-value of the findings (Polit & Beck 2010:492). Triangulation gives options for the researcher to identify the true information from other relevant information by using multiple methods and perspectives (Polit & Beck 2010:500). In this study, credibility was ensured by pre-testing the focus groups interview/discussion schedules on the test groups prior to the actual study to ascertain the credibility of the study materials.

Dependability

According to Polit and Beck (2010:492), dependability is the constancy of the collected data to provide the meaning at different period and settings. The audio data and transcribed data both in English and Amharic will be kept for other interested researcher for further verification to ensure dependability of data.

Confirmability

Confirmability states about the neutrality of the collected data; and the result of the study should have to represent the individuals' views and experience which has shared during the interview period (Polit & Beck 2010:492; 511). In this study, the data collection process in the field and data analysis procedure was documented. In addition, focus groups participants' voice and speech were quoted and included as part of the report as a strategy of ensuring conformability.

Transferability

Transferability is the scope of the research results that could be transferred into another situations or study participants (Polit & Beck 2010:511). In this research, transferability was confirmed by providing a thorough explanation of the methods of the data collection and its tool, the demography of focus group discussants, the steps and the procedures applied for the analysis of the data, and data presentation to support the major quantitative findings.

3.6 ETHICAL ISSUES RELATED TO SAMPLING AND DATA COLLECTION

3.6.1 Permission to conduct the study

Following the approval of ethical clearance from University of South Africa Research and Ethics Committee, Department of Health Studies (Annexure A), the Amhara regional health bureau was requested to get permission to conduct the study in the West Gojjam zone (Annexures B & C); accordingly, the required permission has been provided by the regional health bureau to commence the research (Annexure D). Again, the West Gojjam zonal health department was approached to seek a support letter to

access the health facilities in the zone; and support letter was issued in line with the request (Annexure E). Finally, the directors of primary hospital and health centres, and heads of the health posts were asked to get their permission to access the maternity ward and under-five clinic, and health professionals and neonatal service documents in their respective health facility (Annexures F & G).

3.6.2 Informed consent

Polit and Beck (2010:127) stated that, informed consent is the preconditions where the study participants' must be well informed about the whole intention of the research, understand the given details about the research, and should be at a good integrity to take the decision either to participate or not. In this research, the study participants were adequately briefed regarding to the aim of the research, the maximum possible required time to finalize the interview, and the full power they possessed to be considered as the study participant's or not. In addition, consensus was reached that the participant can withdraw at whatever time of the interview process or refuse to respond among the questions if they are not willing to respond. Only health workers and, health extension workers who put their signature in the consent form could participate in the study. To avoid the interference of care provision with clients in the health post and health centre during data collection process, prior discussion was held with the health workers and health extension workers to schedule the appropriate time for the interview.

3.6.3 Privacy and confidentiality

Study participants have the right that any data they provide was kept in the strictest confidence and is protected through various confidentiality procedures (Polit & Beck 2010:129). In this research, since the individuals of the study participants were not tied with any of the personal identification data, so that there is no any possibility to identify who said what in the report of the study. The data collected from everyone was exercised only to fulfil the intention of the research by ensuring its confidentiality and it was well kept by investigator. Filled questionnaires, field notes and tape-recorded voices were kept properly in the researcher house; and the health facilities and health professionals' unique personal identification was not described in the report or shared. Health workers and health extension workers privacy were ensured by conducting the interviews in their respective office by arranging convenient time.

3.6.4 Protection from harm

The researcher and data collectors informed participants that their decision not to be considered as the study participants or decline from the interview were not communicated to the head of their health facility or any member of their colleague. Therefore, this study considered all the possible consequences that was harming or destructing every one of the study participants.

3.7 CONCLUSION

In this research, sequential explanatory mixed design was employed. The quantitative was the major method for this research while the qualitative was carried-out on a small scale to enhance the quantitative findings.

Consequently, the analysis of the quantitative and qualitative data was done separately. As per the sequence of the data collection process, the quantitative results reported first, and followed by reporting of the qualitative results in the subsequent chapter. However, the interpretation of the major quantitative and small scale qualitative results was done by integration of the quantitative and qualitative results in a separate chapter to give a more comprehensive explanation of the research questions.

In the next chapter the quantitative analysis, presentation and description of the research findings will be presented.

CHAPTER 4

QUANTITATIVE ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS

4.1 INTRODUCTION

In this chapter, the findings of the quantitative data are presented, interpreted, and discussed as per the analysis of the researcher-administered survey and register abstracted data. In this study, descriptive and inferential analysis methods were utilised. In the conclusion, the chapter is synthesised and key findings from the quantitative data are provided.

4.2 DATA MANAGEMENT AND ANALYSIS

4.2.1 Administration of questionnaire

The researcher-administered closed-ended structured survey questionnaire was applied for health workers in the primary hospitals and health centres, and health extensions workers in the health posts. In addition, structured document analysis checklist was used to collect sick newborn service statistics data from sick young infants' registers in the primary healthcare units (Chapter 3, Section 3.4.3.1). For the data entry purpose, everyone of studied health facilities was coded with a unique identification number as per the systematically given code to their respective woreda/district, and followed by primary health care units. Therefore, the questionnaires for each facility were numbered consecutively. This helped to conduct a quality control in each of the data by checking the completeness and consistency of the questionnaire in the process of data entry and cleaning. However, study participants were not assigned any identification code.

Based on the calculated sample size (Chapter 3, Section 3.4.1), data collection was done from a total 142 health facilities (3 primary hospitals, 76 health centres and 63 health posts), and all the 15 woredas in the West Gojjam zone were represented.

Consequently, interviewer-administered questionnaires were administered to 221 health workers and health extension workers in 142 health facilities including hospitals, health centres (HCs) and health posts (HPs); 2 health workers per primary hospital and health centre, and one health extension worker per health post. In addition, 767 sick young infants' case management service statistics were abstracted from the sick young infants' registers in health facilities.

4.2.2 Data analysis

4.2.2.1 *Statistical analysis programme*

In this research data was analysed and presented by manipulating the quality assured data and valid percentage was taken consistently throughout the analysis. In general, data was presented in a sequenced manner according to the three main sections of the questionnaires which are: maternity services, neonatal health services and management of sick neonates, and document review for neonatal health services in the primary health care units.

After the data entry was entered by a data entry clerk by using the computer software EpiData 3.1, data was then exported to Statistical Package for Social Science (SPSS windows version 23), and STATA 15. The analysis was done by the researcher with close technical support from an experienced researcher specialized in data management and analysis. SPSS software greatly helped to run descriptive analysis including frequency; and STATA also used to recode the variables and create new variables, construct graphs and carry-out the regression multivariate analysis in response to the research objectives and associated dependant and independent variables. To consider whether the association between or among variables has statistical significance or not, a p-value less than 0.05, was considered as major test value. In most of the variables, a mean was used to report the findings with 95% confidence interval (CI).

4.2.2.2 *Data cleaning, checking for completeness and consistency*

In this study, data was cleaned at three different stages namely at the stage of data collection and entry by chekcign manually and employed the software before running

the analysis of the data with a through manually. As adapted procedure, the data entry clerk checked all the questionnaires before commencing the data entry and those questionnaires not fulling the completeness and consistency criteria were discarded and not used for any further actions. In addition, the consistency each data was ensured after the data entry by SPSS data, by running a simple frequency, split and select analysis. For example, with the simple frequency running, if ultrasound scan for pregnant women was available at the health post level, the hard copy of the specified code of the questionnaire and entered data were verified.

4.3 RESEARCH RESULTS

4.3.1 Results from descriptive statistics

Descriptive statistics was used to provide a comprehensive explanation of the data, and inferential statistics was used to interpret the generalizability of the data into the general population (Polit & Beck 2010:392). The establishment of associations between variables is an important part of descriptive analysis; and explanatory analysis can be conducted on both bivariate and multivariate relationships (Blaikie 2003:120). Variable oriented analysis involves identifying the relationships among variables, often probabilistic in nature, which leads to external statistical generalization (Onwugbuzie et al 2009: 17). The analysis was presented in tables with number, percentage, frequencies, means, p-value, and confidence interval.

4.3.1.1 Characteristics of surveyed health facilities

4.3.1.1.1 Type of health facilities

Out of the total 142 surveyed health facilities in the West Gojjam zone, 63 (44.4%) were rural health centres, 63 (44.4%) health posts, 13 (9.2%) urban health centres, and 3 (2 %) primary hospitals (Table 4.1).

Table 4.1 Percent distribution and number of surveyed facilities in the West Gojjam Zone

Health facility type	Frequency	Percent
Primary hospitals	3	2
Urban health centres (UHCs)	13	9.2
Rural health centres (RHCs)	63	44.4
Health posts (HPs)	63	44.4
Total health facilities	142	

As shown in Table 4.2, all fifteen woredas/districts from West Gojjam zone are represented by the surveyed health facilities. In the simple random sampling procedure, 2 (1.4%) of health facilities were surveyed from Burie, and Finote selam town administrations, whereas 18 (12.7%), 17(12%), and 16 (11.3%) of health facilities were surveyed from Jabi Tehnan, Mecha, and Yilmana Densa woredas respectively. The two town administrations are represented by the smaller number of health facilities in the West Gojjam Zone; whereas the biggest populated woredas like Jabi Tehnan, Mecha, and Yilmana Densa have shared the bigger representation of health facilities in the zone. The simple random sampling procedure reflected the population demographic of the targeted woredas in that most of health facilities selected were from larger woredas such as Jabi Tehna, and Yilmana Densa; while, the remaining selected health facilities were from woredas with fewer number of health facilities serving a smaller population catchment.

Table 4.2 Percent distribution of surveyed facilities in fifteen woredas of West Gojjam Zone

Name of the woreda	Frequency	Percent
Burie town	2	1.4
Finote Selam town	2	1.4
Quarit	5	3.5
Dega Damot	6	4.2
Dembecha	6	4.2
Burie Zuria	7	4.9
Bahir Dar Zuria	8	5.6
Gonjikolela	8	5.6
North Achefer	10	7
Wonberima	11	7.7
Sekela	12	8.5
South Achefer	14	9.9
Yilmana Densa	16	11.3
Mecha	17	12
Jabi Tehnan	18	12.7

4.3.1.1.2 Profile of health providers who were targeted for the researcher administered questionnaire

To address the two major sections of the researcher - administered questionnaire, 2 providers (1 for each unit) working in maternity units and under-five clinics for the management of maternal and neonatal health services were targeted for researcher-administered questionnaire in primary hospitals (PHs) and health centres (HCs); however, in the health posts (HPs), a single health extension worker (HEWs) was targeted for both sections of the questionnaire. From the total HCs and PHs assessed, 43 (31.2%) of interviewed health providers in the maternity units were had midwife diplomas, while 13 (9.4%) and 10 (7.2%) had Bachelor of Science in a Midwife degree and Nursing diploma respectively. Bachelor of Science in Nursing degree represented 1.4% and health officer 5.1%. In addition, HEWs accounted 63 (45.7%) from the total health providers interviewed for maternal health section of the questionnaire.

Table 4.3 Profile of interviewed health providers in the maternity units in 142 PHs and HCs, and HPs by type of qualification and percent distribution

Background characteristics	Frequency	Percent
Nurse (degree)	2	1.4
Health Officer	7	5.1
Nurse (diploma)	10	7.2
Midwife (degree)	13	9.4
Midwife (diploma)	43	31.2
Health extension workers	63	45.7

Regarding the roles of the interviewed health providers in the maternity units, 39 (28.3%) were maternity unit staff, 27 (19.6%) were heads of the maternity units, 61 (44.2%) were health post staff, 4.3% were heads or deputy heads of the health facility, and 3.6% were heads of the maternal and child health units of the health facility (Table 4.4).

Table 4.4 Responsibilities of interviewed health providers in the maternity units in 142 PHs and HCs, and HPs

Background characteristics	Frequency	Percent
Head of maternal and child health unit	5	3.6
Head or deputy head of the health facility	6	4.3
Head of the maternity unit	27	19.6
Staff of the maternity unit	39	28.3
Staff of the health post	61	44.2

After completing the maternal health section of the questionnaire, the second major section to address the management of neonatal health services including the management of sick newborns was handled with health providers who were working in under-five clinics in PHs and HCs; and any available HEWs in the targeted health posts.

From the total HCs and PHs assessed, 51 (35.9%) of the surveyed health providers had some kinds of Nursing qualification. More specifically, 22 (15.5%) were Health officers, 5 (3.5%) were Midwives all types and 1 (0.7%) was a Medical doctor interviewed regarding the management of sick newborns. Apparently, from the total health providers interviewed for newborn health services, 63 (44.4%) were HEWs (Table 4.5).

Table 4.5 Profile of interviewed health providers in the under-five clinics in 142 PHs and HCs, and HPs by type of qualification and percent distribution.

Background characteristics	Frequency	Percent
Medical doctor	1	0.7
Midwife all types	5	3.5
Health officer	22	15.5
Nurse all types	51	35.9
Health extension workers	63	44.4

Additionally, 37 (26.2%) were heads of the under-five clinics, 34 (24.1%) were staff in the under-five clinics, 4 (2.8%) were staff in the maternal and child health units, 3 (2.1%) were heads of the maternal and child health units, and 1 (0.7%) was head or deputy head of the health facility. In fact, 63 (44.4%) of the interviewed health providers were health post staff who were providing full packages of the health extension programme including preventive, promotive, and selective curative care (Table 4.6).

Table 4.6 Responsibilities of interviewed health providers in the under-five clinics in 142 PHs and HCs, and HPs.

Background characteristics	Frequency	Percent
Head or deputy head of the health facility	1	0.7
Head of maternal and child health unit	3	2.1
Staff of maternal and child health unit	4	2.8
Staff of the under-five clinic	34	24.1
Head of the under-five clinic	37	26.2
Staff of the health post	63	44.4

4.3.1.2 Key maternal health services contributed to improving the outcome of newborn health

4.3.1.2.1 Antenatal care

The availability of antenatal care (ANC) service components is summarized in Table 4.7. ANC service was provided in 129 (95.6%) of surveyed health facilities in West Gojjam zone. Most of ANC components were available more 90 percent. The provision of bed nets for malaria prevention and presumptive deworming for pregnant women during ANC visits were 57(44.2%) and (62.8%) respectively.

Table 4.7 Availability of Antenatal care service components in HPs, HCs and PHs in West Gojjam Zone

Variable	Frequency	Percent
Routinely offers newborn related counselling	128	99.2
Routinely offers birth preparedness counselling services	128	99.2
Tetanus toxoid vaccination	127	98.4
Provide iron and/or folic acid supplementation	126	97.7
Routinely palpate the pregnant women abdomen	121	93.8
Routinely listen to foetal heart beat	121	93.8
Routinely measure women's weight	120	93
Routinely measure the blood pressure for monitoring of hypertensive disorder of pregnancy	117	90.7
Provide presumptive deworming	81	62.8
Provide bed nest for malaria prevention	57	44.2

Other ANC service components that are supposed to be provided at health centres and hospitals, such as haemoglobin, urine protein, urine sugar and syphilis screening tests, were available in 58 (73.4%), 60 (75.9%), 38 (48.1%) and 73 (92.4%) health facilities

respectively. The percentage mean score from the 22 components of ANC services shows that, 87.9 [95%CI: 84.883-90.874], 87.4 [95%CI: 84.507-90.317] and 82.8 [95%CI: 80.750-84.906] were available respectively in primary hospitals (PHs), urban health centres (UHCs), and rural health centres (RHCs). Considering, the availability of 15 expected components of ANC services in the health posts (HPs), the percentage mean score was 50.9 [95%CI: 44.051-57.747]. It shows that, the percentage mean score of ANC service components in HPs level was much lower than PHs and health centres (HCs). Moreover, the mean availability of the ANC service components, more available in PHs and HCs as compared with HPs.

4.3.1.2.2 Basic Emergency Obstetric and Newborn Care (BEmONC)

In general, all (79) PHs, urban and rural health centres provided delivery services. Even though HPs are not expected to provide delivery services, 11 (17.5%) of HPs offered clean and safe delivery services. In addition, monitoring and management of labour by using partograph was available in 74.7% of HCs and hospitals. The availability of the basic emergency obstetric and newborn care (BEmONC) service in the PHs and HCs was assessed by asking the basic seven signal functions including parenteral administration of antibiotics, oxytocics, and anticonvulsants; and applying manual removal of placenta, retained products, assisted vaginal delivery, and neonatal resuscitation. The administration of parenteral oxytocics was provided in 65 (84.4%) of health facilities at least once during the six months before the survey, followed by 63 (81.8%) and 54 (79.4%) of health facilities applied manual removal of placenta and carried-out assisted vaginal delivery respectively. However, among the seven basic signal functions, 40 (54.1%) of health facilities administered parenteral anticonvulsants (Table 4.8). The signal functions were less practiced in RHCs when compared to UHCs and PHs. In addition to the seven basic BEmONC signal functions, 60 (76.9%) of health facilities applied intravenous fluid administration and 53 (73.6%) administered injectable quinine or artemether for complicated malaria at least once during the six months before the survey.

Table 4.8 Performance of the basic emergency obstetric and newborn care signal functions among PHs and HCs offering normal delivery services, at least once during the six months before the survey

Variable	Frequency	Percent
Facilities that applied parenteral- antibiotics		
Primary Hospitals (N=3)	2	66.7
Urban health centers (N=12)	12	100
Rural health centers (N=61)	40	65.6
All health facilities (N=76)	54	71.1
Facilities that applied parenteral- Oxytocic		
Primary Hospitals (N=3)	3	100
Urban health centers(N=13)	12	92.3
Rural health centers(N=61)	50	82
All health facilities (N=77)	65	84.4
Facilities that applied parenteral- anticonvulsant		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	12	92.3
Rural health centers (N=58)	25	43.1
All health facilities (N=74)	40	54.1
Facilities that carried-out – assisted vaginal delivery		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	12	92.3
Rural health centers(N=52)	39	75
All health facilities (N=68)	54	79.4
Facilities that carried-out – manual removal of placenta (N=77)		
Primary hospitals (N=3)	3	100
Urban health centers(N=13)	13	100
Rural health centers (N=61)	47	77
All health facilities (N=77)	63	81.8
Facilities that carried-out – manual removal of retained products		
Primary hospitals (N=3)	3	100
Urban health centers N=13)	12	92.3
Rural health centers(N=56)	38	67.9
All health facilities (N=72)	53	73.6
Facilities that carried-out – neonatal resuscitation		
Primary hospitals (N=3)	3	100
Urban health centers(N=12)	11	91.7
Rural health centers (N=59)	38	64.4
All health facilities (N=74)	52	70.3

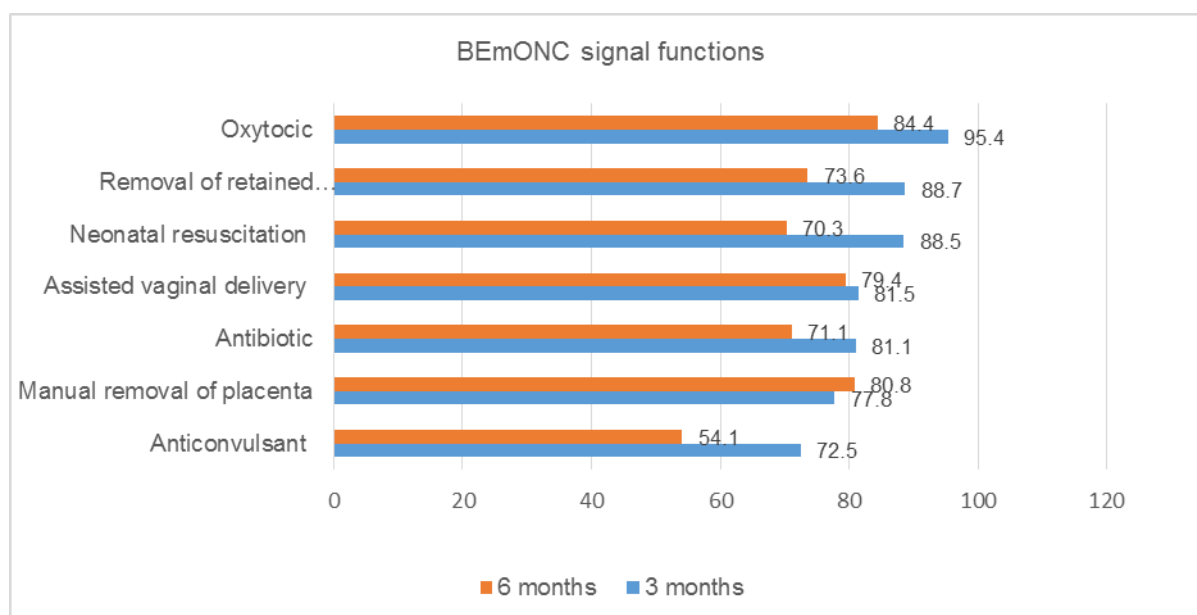


Figure 4.1 Percent distribution of BEmONC signal functions facilities that provided delivery services at least once during the three months and six months before survey in West Gojjam Zone

As shown in (Figure 4.1) the provision of BEmONC signal functions at least three months before the survey was also assessed. Among the HCs and PHs facilities that provided delivery services, 62 (95.4%) performed parenteral uterotonics and 40 (95.2%) performed removal of retained products. Consistently, within the three and six months before the survey, among the seven signal functions, the least performed basic signal function was parenteral anticonvulsants (54.1% and 72.2%) and the highest performed was parenteral uterotonics (84.4% and 95.4%).

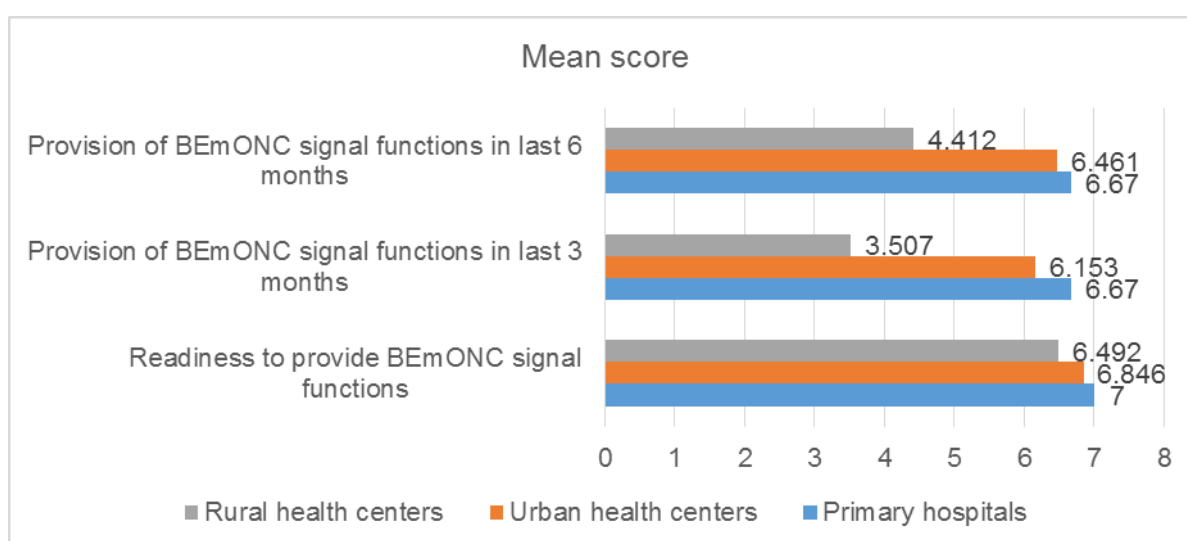


Figure 4.2 The mean score of health facilities readiness for BEmONC signal functions and provisions in the last three and six months before the survey

As illustrated in Figure 4.2, the mean was computed for the readiness of health facilities to provide BEmONC signal functions, and the provision of BEmONC signal functions before three and six months of the survey. In terms of the mean readiness of health facilities to provide BEmONC signal functions, it was found that PHs were ready to provide all seven signal functions; however, the readiness mean score for the UHCs and RHCs shows 6.8 [95%CI: 6.64-7.0] and 6.5 [95%CI: 6.224-6.799] respectively. Regarding the provision of the seven BEmONC signal functions in last three months before the survey, PHs had the highest score, 6.7 [95%CI: 6.007-7.325] and RHCs had lowest mean score, 3.5 [95%CI: 2.980-4.035]. This shows that RHCs provided only half of the signal functions in the last three months. The mean score of the UHCs was 6.2 [95%CI: 5.208-7.099], which is slightly lower than the mean score of PHs. The mean score in the provision of BEmONC signal functions in last six months was also computed; PHs had a mean score of 6.7 [95%CI: 6.007-7.325], 6.461 [95%CI: 5.698-7.224] and 4.4 [95%CI: 3.933-4.896] signal functions mean scores were respectively for UHCs and RHCs. The comparison of the mean scores in the three and six months shows that RHCs had a slight better experience of provision of the seven signal functions in the last six months than the three months before the survey. In three parameters including health facility readiness to provide BEmONC signal functions, and provisions of BEmONC signal functions in last three and six months, RHCs were only providing about 3-4 BEmONC signal functions, and not completely ready to provide all the seven signal functions. In contrast, PHs and UHCs were in a better position to provide BEmONC signal functions.

As a part of the immediate postpartum care in the management of third stage labour, controlled cord traction, oxytocin injection on the thigh within 1 minute after delivery and uterine massage after the delivery were always practiced in 73 (90%), 73 (90%) and 69 (87.3%) of assessed PHs, UHCs and RHCs. The mean score from the three expected actions for the active management of third stage labour show that PHs carried out all three actions; followed by the RHCs with the mean score of 2.7 [95%CI: 2.549-2.879]; and UHCs with the mean score of 2.7 [95%CI: 2.344-3.04]. Overall the respondents' response shows that the experience in the active management of third stage labour was found to be a common practice in all types of health facilities.

4.3.1.2.3 Availability of trained skilled birth attendances in the health facilities

To understand the availability of trained skilled birth attendants in health facilities, total numbers of health professionals who had direct exposure in attending delivery including all types of doctors, midwives and nurses, and health officers and their training status on BEmONC or CEMONC were collected from each health facility. Consequently, the percentage of trained skilled birth attendants' availability shows that urban and rural health centres had 25.2 [95%CI: 17.365-33.101] and 20.9 [95%CI: 17.365-33.101] percent of trained skilled birth attendants in their respective health facilities respectively. Despite 4.1 percent of skilled birth attendants were available in the hospitals, the CI intervals crossing the point of 0 [95%CI: -2.016-10.312].

4.3.1.3 Neonatal health care services

4.3.1.3.1 Emergency Newborn care (EmNeC)

Emergency newborn care (EmNeC) was assessed by asking the four signal functions including the neonatal resuscitation, kangaroo mother care for premature or very low birth weight, injectable antibiotics for neonatal sepsis, and corticosteroids in preterm labour. The highest score was for newborn resuscitation with bag and mask with 56 (71.8%) and followed by injectable antibiotics for newborn sepsis with 85 (61.6%) of the health facilities. However, corticosteroids for preterm labour was only practiced in 5 (6.5%) HCs and PHs. It is also the lowest score in all signal functions (Table 4.9). Likewise, only 6 (7.7%) of health facilities were administered intravenous fluids for the newborn and 41 (30%) of health facilities including HPs were teaching mothers to express breast milk and feed with small cup/spoon if the newborn is unable to feed. As per the report of 11 (18.3%) HPs, injectable antibiotics for the management of newborn sepsis was not practiced because of the lack of cases.

Table 4.9 Availability of Emergency Newborn care (EmNeC) signal functions among health facilities, at least once during the six months before the survey

Variable	Frequency	Percent
Newborn resuscitation with bag and mask		
Primary Hospitals (N=3)	3	100
Urban health centers (N=13)	10	77
Rural health centers (N=62)	43	69.4
All health facilities (N=78)	56	71.8
Injectable antibiotics for newborn sepsis- including health posts		
Primary Hospitals (N=3)	3	100
Urban health centers(N=13)	13	100
Rural health centers (N=62)	45	72.6
Health posts (N=60)	24	40
All health facilities (N=138)	85	61.6
Teaching mother skin-to-skin/KMC for premature and very small babies-including health posts		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	12	92.3
Rural health centers (N=61)	37	60.6
Health posts (N=60)	9	15
All health facilities(N=137)	61	44.5
Teaching mother to express breastmilk and feed with small cup or spoon if newborn is unable to breastfeed-including health posts (N=137)		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	11	84.6
Rural health centers (N=61)	15	25
Health posts (N=60)	12	20
All health facilities (N=137)	41	30
Corticosteroids/Dexamethasone to the mother if prematurity is anticipated		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	2	15.4
Rural health centers (N=62)	0	0
All health facilities (N=78)	5	6.5

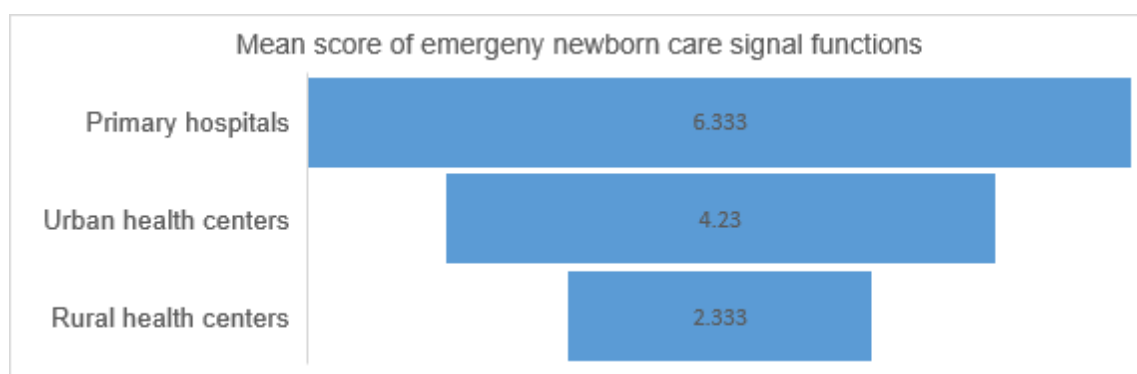


Figure 4.3 Provision of emergency newborn care signal functions in the last six months

As it shown in the Figure 4.3, in addition to the above five actions shown in the Table 4.9, intravenous fluids for newborns and newborn resuscitation with bag and mask with oxygen were also included and used to compute the mean provision of EmNEC signal functions in last six months. From the seven signal functions, PHs had a higher mean score, 6.3 [95%CI: 6.007-7.325] and RHCs had a lowest mean score, 2.3 [95%CI: 2.043-2.623] in the provision of EmNeC signal functions in the last six months before the survey. On the other hand, the UHCs mean score (4.2 [95%CI: 3.517-4.944]) was below the PHs and higher than the UHCs. It implies that, PHs were providing more than 6 EmNEC signal functions from the seven expected; in the contrary, UHCs and RHCs were providing slightly more than 4 and 2 signal functions respectively. The likely of getting EmNeC signal functions to save the lives of the sick young infants in the RHCs were critically low and was better provided in PHs.

4.3.1.3.2 Essential immediate newborn care

Health workers were asked about the experience of essential newborn care practices including breastfeeding, applying antibiotics in the eye, bath, cord care and weighing the baby. The application of chlorohexidine (CHX) in the umbilical cord and putting the baby in the breast within one hour of delivery practices were reported by 28 (35.4%) and 34 (43%) of health facilities respectively. However, the rest of essential and immediate newborn care services availability including putting the baby on the abdomen of the mother once the baby is delivered, delaying bathing baby for thermal protection, applying of antibiotics in the eyes and taking the weight of the baby were reported to be

more than 90% (Table 4.10). In addition, 4 (6.3%) of rural health centres were also applying gentian violet in the umbilical cord.

Table 4.10 Availability of the immediate essential newborn care services in health facilities

Variable	Frequency	Percent
The baby put in the mother abdomen once the baby is delivered		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	13	100
Rural health centers (N=63)	63	100
All health facilities (N=79)	79	100
First put the baby in the breast immediately after delivery		
Primary hospitals (N=3)	1	33.3
Urban health centers (N=13)	7	53.8
Rural health centers (N=63)	35	55.6
All health facilities (N=79)	43	54.4
First put the baby on the breast within one hour of delivery		
Primary hospitals (N=3)	2	66.7
Urban health centers (N=13)	6	46.2
Rural health centers (N=63)	26	41.3
All health facilities (N=79)	34	43
Apply antibiotics in the infant's eye		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	13	100
Rural health centers (N=63)	63	100
All health facilities (N=79)	79	100
Bath after 24 hours		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	13	100
Rural health centers (N=63)	57	90.4
All health facilities (N=79)	73	92.4
Nothing applied in the cord/dry cord care		
Primary hospitals (N=3)	1	33
Urban health centers (N=13)	9	69
Rural health centers (N=63)	37	58.7
All health facilities (N=79)	47	59.5
Apply chlorhexidine (CHX jel) the umbilical cord of the baby		
Primary hospitals (N=3)	2	66.7
Urban health centers (N=13)	4	30.7
Rural health centers (N=63)	22	34.9
All health facilities (N=79)	28	35.4
The weight of the baby is always monitored		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	12	92.3
Rural health centers (N=63)	61	96.8
All health facilities N=79)	76	96.2

In addition, the mean score was computed from the seven immediate actions for essential newborn care. From Table 4.10, nothing applied in the cord/dry cord care and or apply chlorhexidine (CHX jel) the umbilical cord of the baby was merged into one variable and in the same scenario, first put the baby on the breast immediately after delivery and first put the baby on the breast within one hour of delivery was considered both are correct and recoded into one variable.

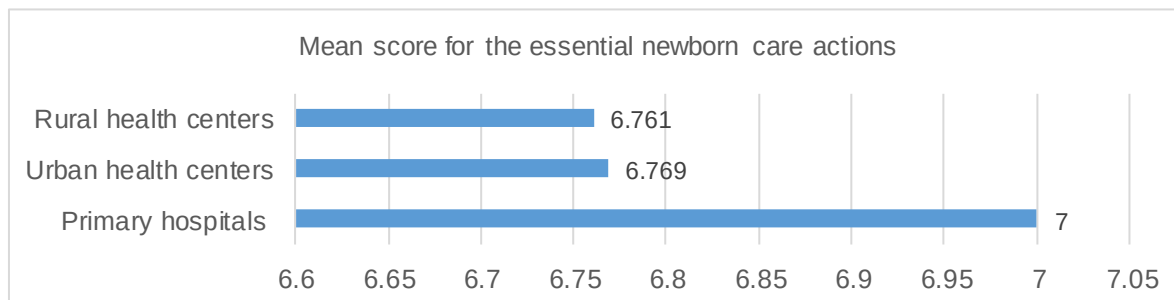


Figure 4.4 Mean score of immediate essential newborn care in health facilities

As per the expectations, the PHs were providing all the seven-immediate essential newborn actions (mean score 7), and similarly both urban and rural health centres were providing the essential mean score of 6.8 [95%CI: 6.527-7.011] and 6.8 [95%CI: 6.607-6.916] respectively from the seven expected actions. It implies that, the respondents of the health providers in the maternity ward confirmed that almost all essential newborn care actions were practiced for newborns immediately after birth as a routine care (Figure 4.4).

4.3.1.3.3 Immediate postpartum care

Among all health facilities, excluding HPs, offering immediate postpartum care as an immediate action for the management of the 3rd stage of labour, 73 (90%) of health facilities were always practicing controlled cord traction and providing oxytocin injection on thigh within 1 minute after the delivery of the baby. On the other hand, 87.3 percent of health facilities were always practicing uterine massage after the delivery of the baby.

4.3.1.3.4 Care for very small/low birth weight babies

As shown in the Table 4.11, from the six-lifesaving care for the very small or low birth weight babies, 110 (79.1%) of health facilities including HPs delayed first bath for the baby for at least 24 hours and followed keeping the baby in KMC in 102 (74.5%). The least performed care among the respondents from PHs and HCs was placing the baby in the radiant heater or warmer at 35 (45.5%).

Table 4.11 Reported care for the very small/low birth weight babies in the health facilities

Variable	Frequency	Percent
Observation of babies for at least one day		
Primary Hospitals (N=3)		
Yes	2	66.7
No	1	33.3
Urban health centers (N=13)		
Yes	9	69.2
No	4	30.8
Rural health centers (N=61)		
Yes	41	67.2
No	20	32.8
All health facilities (N=77)		
Yes	52	67.5
No	25	32.5
Kept the babies in the health facilities longer than usual		
Primary Hospitals (N=3)		
Yes	2	66.7
No	1	33.3
Urban health centers (N=13)		
Yes	8	61.5
No	5	38.5
Rural health centers (N=61)		
Yes	36	59
No	25	41
All health facilities (N=77)		
Yes	46	59.7
No	31	40.3
Placed the babies in the incubator or radiant heater		
Primary Hospitals (N=3)		
Yes	3	100
No	0	
Urban health centers (N=13)		
Yes	10	77
No	3	23
Rural health centers (N=61)		
Yes	22	36
No	39	64

All health facilities (N=77)		
Yes	35	45.5
No	42	54.5
Kept the baby in the KMC		
Primary Hospitals (N=3)		
Yes	3	100
No	0	
Urban health centers (N=13)		
Yes	11	84.6
No	2	15.4
Rural health centers (N=61)		
Yes	51	83.6
No	10	16.4
Health posts (N=60)		
Yes	37	61.7
No	23	38.3
All health facilities (N=137)		
Yes	102	74.5
No	35	25.5
Delayed first bath for a least 24 hours		
Primary Hospitals (N=3)		
Yes	3	100
No	0	
Urban health centers (N=13)		
Yes	10	77
No	3	23
Rural health centers (N=61)		
Yes	53	86.9
No	8	13.1
Health posts (N=62)		
Yes	44	71
No	18	29
All health facilities (N=139)		
Yes	110	79.1
No	29	28.9

The percentage mean score for the care of low birth weight babies was also analysed against the level of care. All the five listed actions in the above Table 4.11; and placed in an incubator and placed in radiant heater were considered as two different actions to compute the percentage mean score from the six actions for PHs and HCs from the six expected actions.

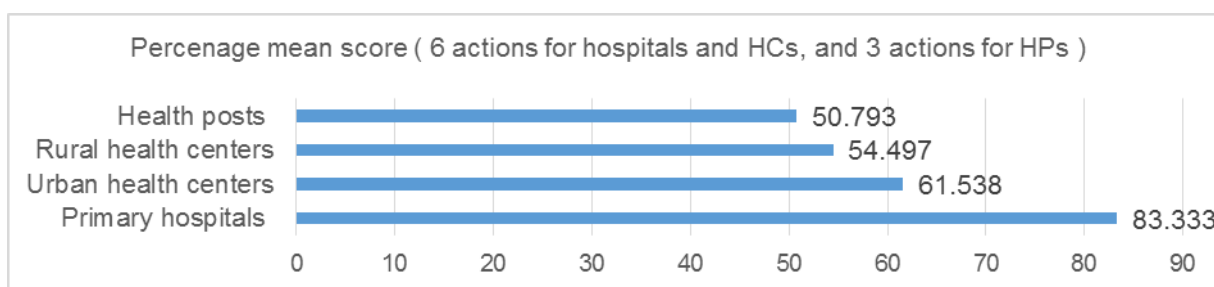


Figure 4.5 Percentage mean score for carrying of low birth weights babies

On the other hand, only three recommended actions including observation of babies for at least one day, kept the baby in the KMC and delayed first bath for a least 24 hours were used to compute the percentage mean score for the care of low birth weight babies in the HPs. Figure 4.5 shows that, 83.3 [95%CI: 50.384-116.28] of the PHs practiced the recommend actions for the care of low birth weight babies; on the contrary, only half of the HPs practiced actions for the care of low birth weight babies (50.8 [95%CI: 43.510-58.076]. Likewise, slightly more than half of the RHCs, 54.5 [95%CI: 48.569-60.4240] and 61.5 [95%CI: 47.388-75.688], UHCs provided actions for the care of low birth weight babies.

4.3.1.3.5 *Quality of essential newborn care: Actions for resuscitation, follow-up and thermal care for newborns*

Among the health workers (HWs) who were working in the maternity ward, a clinical case scenario was offered to understand the quality of newborn resuscitation when they are facing a similar scenario in their respective health facilities. HWs were asked about the type of services they perform if they are facing a woman in labour at their facility with the foetal heart rate being more than 160bpm, on examination, her cervix is fully dilated and the baby's head is on the perineum. Preparing the mother for immediate delivery and resuscitating the baby was spontaneously mentioned by 100 (80.6%) and 62 (50%) of HWs respectively. The scenario was continued as if the baby is delivered and with normal weight, but baby does not cry after delivery. The HWs were asked about the services provided if the baby is not crying.

From the above clinical scenario, 13 actions from the three domains including actions for resuscitation, follow-up care after resuscitation and thermal care were expected as a spontaneous response by the respondents. Each main domain had 5, 3 and 5 actions

respectively. Each main category had a total score of 10; and all the three domains had a total sum score of 30. Each response was given a different score out of a 10-point ranging from 1.16 up to 4.34 as per its importance for each domain. The questions and the score given for each action was used from the research done by Vesel, Manu, Lohela, Gabrysch, Okyere, Asbroek, Hill, Agyemang, Owusu-Agyei and Kirkwood (2013:3) in Ghana.

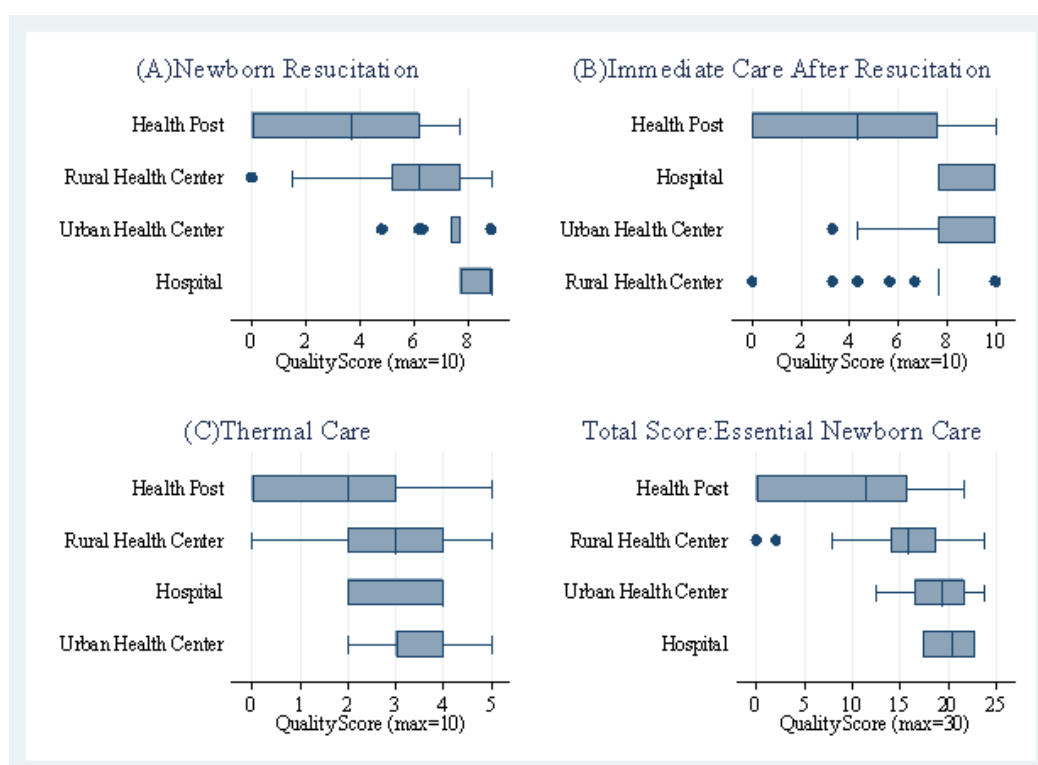


Figure 4.6 Essential newborn care scores by type of health facility

Remark: The lines in the box plots show the range of score, while the box captures the range of the middle 50%.

As shown in the Figure 4.6-A, in the first domain of live-saving newborn resuscitation, HPs had a mean score below 4 and RHCs scored slightly higher than 6. On other hand, PHs had achieved a higher score, above 8, followed by UHCs with a score less than 8. Likewise, for immediate actions after resuscitation of the newborn, HPs had the lowest mean score, slightly higher than 4 (Figure 4.6-B). All level of health facilities achieved the lowest score than the rest of the two domains, with the mean score less than 4 (Figure 4.6-C). Considering the five and three key resuscitations actions and follow-up care to save the lives of the newborns, and the five key actions to improve the quality of thermal care of the newborns, the mean score from the total 30 was computed for each health facility types. In line with this, among the four types of level of care, PHs had the highest mean score, 20.2 [95%CI: 17.076-23.377] and HPs had the lowest mean score,

9.9 [95%CI: 8.164-11.629]. Like PHs, 18.7 [95%CI: 16.783-20.658] and 15.9 [95%CI: 17.076-23.377] had the mean score for UHCs and RHCs respectively. It indicates that the mean score for quality of newborn care with the domains of newborn resuscitation, follow-up care after resuscitation and thermal care for newborns ranged below 10 for HPs and about 20 for PHs. This implies that the lower level health facilities including HPs and RHCs had had a lower quality score (Figure 4.6 - Total score).

4.3.1.3.6 Availability of essential equipment for post-delivery newborn care

The availability of basic newborn care equipment and supplies in health facilities was assessed. All kinds of neonates including born healthy, underweight or unwell requires essential newborn care to minimize the risk of illnesses and maximize their growth and development. Thus, basic equipment and supplies are needed in the health facility to carry-out appropriate emergency diagnosis or early therapeutic care and preventive interventions to reduce neonatal morbidity and mortality (FMOH, EPHI & AMDD 2016:208). Bag mask and nasal suction and/or aspirator were available in 96 (70.6%) of health facilities including HPs. Out of the 58 HPs, only 20 (34.5%) possessed the newborn bag and mask. However, oxygen concentrators/cylinders were only available in 13 (16.5%) PHs and HCs; and only 6 (7.6%) health facilities had functional oxygen concentrators/cylinders. In line with this, only 5 (7.9%) of the RHCs had oxygen concentrators/cylinders, and only 1 (1.6%) had a functional equipment (Table 4.12). Resuscitation devices for newborn asphyxia is among the 13 life-saving commodities (UN Every Woman Every Child 2012:8).

Table 4.12 Availability of essential equipment for newborn resuscitation during post-delivery newborn care services in health facilities

Variable	Frequency	Percent
Newborn bag and mask (two size of neonatal mask)		
Primary Hospitals (N=3)		
Observed	3	100
Not available	0	
Functional	3	100
Urban health centers (N=13)		
Observed	13	100
Not available	0	
Functional	13	100
Rural health centers (N=62)		
Observed	60	96.8
Not available	2	32.2
Functional	60	100
Health posts (N=58)		
Observed	20	34.5
Not available	38	65.5
Functional	11	19
Not functional	8	40
Don't know	1	
All health facilities (N=136)		
Observed	96	70.6
Not available	40	29.4
Functional	87	64
Not functional	8	8.4
Don't know	1	1
Resuscitation table with heat source		
Primary Hospitals (N=3)		
Observed	3	100
Not available	0	
Functional	3	100
Urban health centers (N=13)		
Observed	10	77
Not available	3	23
Functional	10	77
Rural health centers (N=62)		
Observed	35	56.5
Reported not seen	4	6.5
Not available	23	37
Functional	34	54.8
Not functional	1	2.9
All health facilities (N=78)		
Observed	48	61.5
Reported not seen	4	5.1
Not available	23	29.5
Functional	47	60.3
Not functional	1	2
Oxygen concentrator/cylinder		
Primary Hospitals (N=3)		
Observed	2	66.6

Not available	1	33.3
Functional	2	66.6
Urban health centers (N=13)		
Observed	6	46.2
Not available	7	53.8
Functional	3	23
Not functional	1	7.7
Don't know	2	15.4
Rural health centers (N=63)		
Observed	5	7.9
Reported not seen	5	7.9
Not available	53	84.1
Functional	1	1.6
All health facilities (N=79)		
Observed	13	16.5
Not available	61	77.2
Functional	6	7.6
Suction machine or nasal aspirator		
Primary Hospitals (N=3)		
Observed	3	100
Urban health centers (N=13)		
Observed	12	92.3
Reported not seen	1	7.7
Rural health centers (N=62)		
Observed	50	80.6
Reported not seen	2	3.2
Not available	10	16.2
Health posts (N=57)		
Observed	13	22.8
Not available	44	77.2
All health facilities (N=135)		
Observed	78	57.8
Reported not seen	3	2.2
Not available	54	40
Suction catheter		
Primary Hospitals (N=3)		
Observed	2	66.7
Not available	1	33.3
Urban health centers (N=13)		
Observed	4	30.8
Not available	9	69.2
Rural health centers (N=63)		
Observed	6	9.5
Reported not seen	5	7.9
Not available	52	82.5
All health facilities (N=79)		
Observed	12	15.2
Reported not seen	5	63.3
Not available	62	78.5

As shown in Table 4.13, regarding to keeping the thermal care of the newborn immediately after delivery, the availability of towels for drying babies and hats or caps for head covering was only available in 3.7% and 1.5% of health facilities including

health posts. Majority of assessed health facilities didn't possess the supplies for keeping the thermal care of the baby. Despite all PHs and UHCs having radiant warmers in their respective health facilities, radiant warmers were available in only 28 (44.4%) of RHCs and 23 (36.5%) had a functional equipment to provide the intended service. Similarly, an incubator was available in two out of the three assessed PHs.

Table 4.13 Availability of essential equipment for newborn thermal care during post-delivery newborn care services in health facilities

Variable	Frequency	Percent
Towel for drying babies		
Primary Hospitals (N=3)		
Observed	0	
Reported not seen	1	33.3
Not available	2	66.7
Urban health centers (N=13)		
Observed	0	
Not available	13	100
Rural health centers (N=62)		
Observed	5	8
Reported not seen	4	6.5
Not available	53	85.5
Health posts (N=58)		
Observed	0	
Reported not seen	1	1.7
Not available	57	98.3
All health facilities (N=136)		
Observed	5	3.7
Reported not seen	6	4.4
No available	125	91.9
Head covering the newborns		
Primary Hospitals (N=3)		
Observed	0	
Not available	3	100
Urban health centers (N=13)		
Observed	1	7.7
Reported not seen	1	7.7
Not available	11	84.6
Rural health centers (N=62)		
Observed	0	
Reported not seen	4	6.5
Not available	58	93.5
Health posts (N=58)		
Observed	1	1.7
Not available	57	98.3
All health facilities (N=136)		
Observed	2	1.5
Reported not seen	5	3.7
Not available	129	94.9

Radiant warmer/heater		
Primary Hospitals (N=3)		
Observed	3	100
Functional	3	100
Urban health centers (N=13)		
Observed	13	100
Functional	12	92.3
Not functional	1	7.7
Rural health centers (N=63)		
Observed	28	44.4
Reported not seen	1	1.6
Not available	34	54
Functional	23	36.5
Not functional	5	7.9
All health facilities (N=79)		
Observed	44	55.7
Reported not seen	1	1.3
Not available	34	43
Functional	38	48.1
Not functional	6	7.6

Likewise, functional thermometer, baby scale and blood pressure machine (sphygmomanometer) were available in 129 (94.9%), 126 (92.6%) and 111 (81.6%) of PHs, URHCs, RHCs and HPs respectively. Nevertheless, cup to measure breastmilk to care for very low birth weight and feeding problems for newborn was only available in 14 (10.3%) of health facilities including health posts (Table 4.14).

Table 4.14 Availability of essential equipment for routine newborn care during post-delivery newborn care services in health facilities

Variable	Frequency	Percent
Infant /baby weighing scale		
Primary Hospitals (N=3)		
Observed	3	100
Not available	0	
Functional	3	100
Urban health centers (N=13)		
Observed	13	100
Not available	0	
Functional	13	100
Rural health centers (N=62)		
Observed	57	91.9
Reported not seen	1	1.6
Not available	4	6.5
Functional	57	91.9
Health posts (N=58)		
Observed	55	94.8
Not available	3	5.2
Functional	53	91.4

Not functional	2	3.6
All health facilities (N=136)		
Observed	128	94.1
Reported not seen	1	0.7
Not available	7	5.2
Functional	126	92.6
Not functional	2	1.6
Timer (or watch with second hand, clock)		
Primary Hospitals (N=3)		
Observed	1	33.3
Not available	2	66.7
Functional	1	33.3
Urban health centers (N=13)		
Observed	5	38.5
Not available	8	61.5
Functional	5	38.5
Rural health centers (N=62)		
Observed	14	22.6
Reported not seen	6	9.7
Not available	42	67.7
Functional	10	16.1
Health posts (N=58)		
Observed	28	48.3
Not available	30	51.7
Functional	26	44.8
Not functional	2	7.1
All health facilities (N=136)		
Observed	48	35.3
Reported not seen	6	4.4
Not available	82	60.3
Functional	42	30.9
Not functional	6	12.5
Sink with soap or hand disinfectant or hand washing		
Primary Hospitals (N=3)		
Observed	2	66.7
Not available	1	33.3
Urban health centers (N=13)		
Observed	12	92.3
Not available	1	7.7
Rural health centers (N=62)		
Observed	28	45.2
Reported not seen	2	3.2
Not available	32	51.6
Health posts (N=58)		
Observed	4	6.9
Not available	54	93.1
All health facilities (N=136)		
Observed	46	33.8
Reported not seen	2	1.5
No available	88	64.7
Electric autoclave or dry heat sterilizer		
Primary Hospitals (N=3)		
Observed	3	100
Functional	3	100

Urban health centers (N=13)		
Observed	12	92.3
Not available	1	7.7
Functional	12	92.3
Rural health centers (N=62)		
Observed	33	53.2
Reported not seen	2	3.2
Not available	27	43.5
Functional	32	51.6
Health posts (N=58)		
Observed	7	12
Not available	51	88
Functional	5	8.6
All health facilities (N=136)		
Observed	55	40.4
Reported not seen	2	1.5
Not available	79	58
Functional	52	38.2
Not functional or don't know the status	3	5.5
Refrigerator/Freezer/Fridge for storage or cold box for storing tetanus toxoid		
Primary Hospitals (N=3)		
Observed	1	33.3
Not available	2	66.7
Functional	1	33.3
Urban health centers (N=13)		
Observed	12	92.3
Not available	1	7.7
Functional	12	92.3
Rural health centers (N=62)		
Observed	51	92.3
Reported not seen	1	1.6
Not available	10	16
Functional	47	75.8
Health posts (N=58)		
Observed	8	13.8
Not available	50	86.2
Functional	7	12
All health facilities (N=136)		
Observed	72	53
Reported not seen	1	0.7
Not available	63	46.3
Functional	67	49.3
Blood pressure machine/sphygmomanometer		
Primary Hospitals (N=3)		
Observed	3	100
Functional	3	100
Urban health centers (N=13)		
Observed	13	100
Functional	13	100
Rural health centers (N=62)		
Observed	61	98.4
Not available	1	1.6
Functional	61	98.4
Health posts (N=58)		

Observed	41	70.7
Not available	17	29.3
Functional	34	58.6
Not functional	7	12
All health facilities (N=136)		
Observed	118	86.8
Not available	18	13.2
Functional	111	81.6
Not functional	7	5.1
Cord ties		
Primary Hospitals (N=3)		
Observed	3	100
Urban health centers (N=13)		
Observed	13	13
Rural health centers (N=62)		
Observed	61	98.4
Not available	1	1.6
Health posts (N=58)		
Observed	28	48.3
Not available	30	51.7
All health facilities (N=136)		
Observed	105	77
Not available	31	23
Fetoscope		
Primary Hospitals (N=3)		
Observed	3	100
Urban health centers (N=13)		
Observed	13	13
Rural health centers (N=62)		
Observed	61	96.8
Not available	2	3.2
Health posts (N=58)		
Observed	47	81
Reported not seen	1	1.7
Not available	10	17.2
All health facilities (N=137)		
Observed	124	90.5
Not available	12	8.8
Surgical gloves		
Primary Hospitals (N=3)		
Observed	3	100
Urban health centers (N=13)		
Observed	12	92.3
Not available	1	7.7
Rural health centers (N=62)		
Observed	60	96.8
Not available	2	3.2
Health posts (N=58)		
Observed	40	69
Not available	18	31
All health facilities (N=136)		
Observed	115	84.6
Not available	21	15.4

Graduated cup to measure expressed breast milk		
Primary Hospitals (N=3)		
Observed	2	66.7
Not available	1	33.3
Urban health centers (N=13)		
Observed	1	7.7
Reported not seen	1	7.7
Not available	11	84.6
Rural health centers (N=62)		
Observed	9	14.5
Reported not seen	2	3.2
Not available	51	82.3
Health posts (N=58)		
Observed	2	3.4
Not available	56	96.6
All health facilities (N=136)		
Observed	14	10.3
Reported not seen	3	22
Not available	119	87.5
Thermometer		
Primary Hospitals (N=3)		
Observed	3	100
Functional	3	100
Urban health centers (N=13)		
Observed	13	100
Functional	12	92.3
Rural health centers (N=63)		
Observed	62	98.4
Reported not seen	1	1.6
Functional	62	98.4
Health posts (N=57)		
Observed	53	92.9
Functional	52	91.2
Don't know	1	1.8
All health facilities (N=136)		
Observed	131	96.3
Reported not seen	1	0.7
No available	4	2.9
Functional	129	94.9
Don't know	1	0.7

In addition to the above list of essential equipment and supplies for maternal and newborn health, seventeen and thirteen tracer functional essential equipment and supplies were selected for PHs, HCs, and HPs respectively to compute the mean percentage availability at each health facility. The following thirteen common essential equipment and supplies for all kinds of health facilities were selected including newborn bag and mask (two sizes of neonatal masks), resuscitation table with health sources, infant/baby weighing scale, sink with soap or hand disinfectant for hand washing, towel for drying babies, cord ties, cord clamp, blood pressure machine (sphygmomanometer),

fetoscope, surgical gloves, graduated cup to measure expressed breastmilk, suction machine or nasal aspirator, and thermometer. In addition, three equipment including oxygen concentrators or cylinder, radiant warmer and vacuum extractors for delivery were included into the tracer equipment and supplies for PHs and HCs.

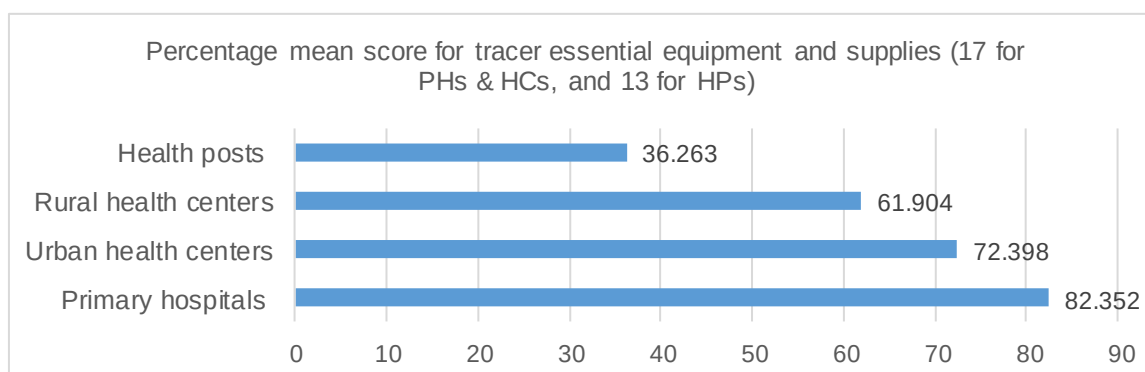


Figure 4.7 Percentage mean score for tracer essential equipment and supplies in health facilities

As shown in the Figure 4.7, the highest, 82.3 [95%CI: 80.076-93.256] mean percentage score of functional essential equipment and supplies were available in PHs; on the other hand, the lowest mean percentage score was documented for HPs at 36.3 [95%CI: 32.099-40.427]. This suggests that HPs were facing a shortage of essential equipment and supplies to provide key intended services for mothers and newborns. Similarly, only 61.9 [95%CI: 58.748-65.068] percentage score of essential equipment and supplies were available in the RHCs. Nevertheless, 72.4 [95%CI: 66.752-78.043] percentage mean score of essential equipment and supplies was available in UHCs. Based on the percentage availability mean score of the 17 and 13 essential equipment and supplies, a higher percentage of PHs and UHCs were well equipped in comparison with RHCs and HPs.

4.3.1.3.7 Availability of essential medicines for newborn and maternal health linked to newborn survival

The availability and access to essential medicines is basic to save the lives of newborns at primary health care units. As shown in Table 4.15, for the management of neonatal sepsis, at least one valid dose injectable ampicillin and injectable gentamicin (80mg/2ml) were available in 73 (93.6%) of health facilities excluding health posts. For the same purpose, injectable gentamicin (20 mg/2 ml), oral amoxicillin dispersible tablet

and syrup were available in 39 (28.5%), 100 (73%) and 91 (65.55) of PHs, UHCs, RHCs and HPs respectively. The injectable diazepam for the management of convulsions and injectable dexamethasone/corticosteroids to preventing breathing problems for newborns during preterm deliveries were available in 55 (69.6%) and 33 (41.8%) of health facilities excluding HPs (UN Every Woman Every Child 2012:8).

Table 4.15 Availability of essential medicines for neonatal services in health facilities

Variable	Frequency	Percent
Medicines for management of neonatal sepsis/infection- Intravenous/intramuscular ampicillin		
Primary Hospitals (N=3)	3	100
Urban health centers (N=13)	13	100
Rural health centers (N=62)	55	88.7
All health facilities (N=78)	73	93.6
Medicines for management of neonatal sepsis/infection- Intravenous/intramuscular Gentamicin 80mg/2ml		
Primary Hospitals (N=2)	2	100
Urban health centers (N=13)	13	100
Rural health centers (N=63)	58	93.5
Health posts (N=59)	2	
All health facilities (excluding Health posts) (N=78)	73	93.6
Medicines for management of neonatal sepsis/infection- intravenous/intramuscular Gentamicin 20mg/2ml		
Primary Hospitals (N=2)	1	50
Urban health centers (N=13)	2	15.4
Rural health centers (N=63)	12	19.4
Health posts (N=59)	24	40.7
All health facilities (N=137)	39	28.5
Medicines for management of neonatal sepsis/infection- Amoxicillin Dispersible (DT) tablet		
Primary Hospitals (N=2)	1	50
Urban health centers (N=13)	12	92.3
Rural health centers (N=62)	41	66.1
Health posts (N=60)	46	78
All health facilities (N=137)	100	73
Medicines for management of neonatal sepsis/infection- Amoxicillin syrup		
Primary Hospitals (N=3)	3	100
Urban health centers (N=13)	13	100
Rural health centers (N=63)	56	90.3
Health posts (N=60)	19	31.1
All health facilities (139)	91	65.5
Medicines for management of managing convulsions- intravenous/intramuscular diazepam		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	11	84.6
Rural health centers (N=63)	41	65
All health facilities (N=79)	55	69.6

Medicines for preventing breathing problems/in preterm deliveries- intramuscular dexamethasone		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	5	38.5
Rural health centers (N=63)	25	39.9
All health facilities (N=79)	33	41.8
Nevirapine for prevention of mother to child transmission of HIV		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	13	100
Rural health centers (N=63)	33	52.4
All health facilities (N=79)	49	62
Small syringes and needles for babies		
Primary hospitals (N=3)	3	100
Urban health centers (N=13)	12	92.3
Rural health centers (N=63)	58	92
Health posts (N=58)	41	70.7
All health facilities (N=137)	114	83.2

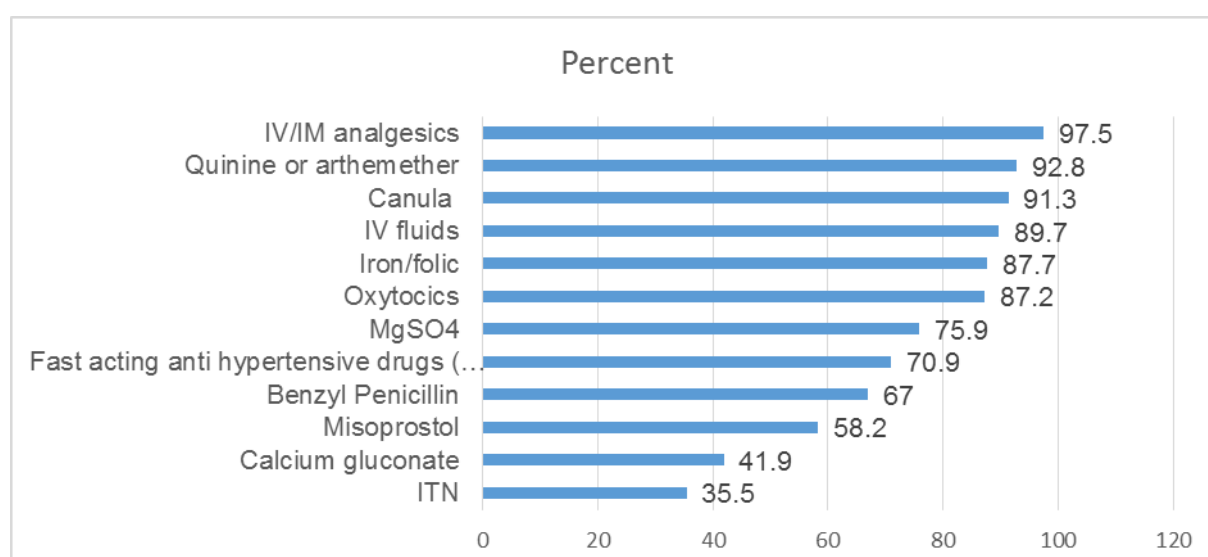


Figure 4.8 Percentage of facilities that had essential drugs for maternal health

As shown in Figure 4.8, the most widely available drugs were parenteral analgesics 77 (97.5%), quinine or artemether (92.8%) and cannula 63 (91.3%) at PHs, and urban and rural health centres. Out of the signal functions given through parenteral administration, 68 (87.2%) and 60 (75.9%) of health facilities had injectable oxytocics and magnesium sulphate (MgSO₄). The insecticide-treated net (ITN) for the distribution of pregnant women during ANC follow-up was only available in 35.5% of health facilities.

As per Ethiopia Services availability and readiness assessment report (EPHI, 2016;19), essential medicines are expected to be available within the context of functioning health systems always in adequate amounts, in the appropriate dosage forms, with assured

quality and adequate information, and at a price, the individual and the community can afford.

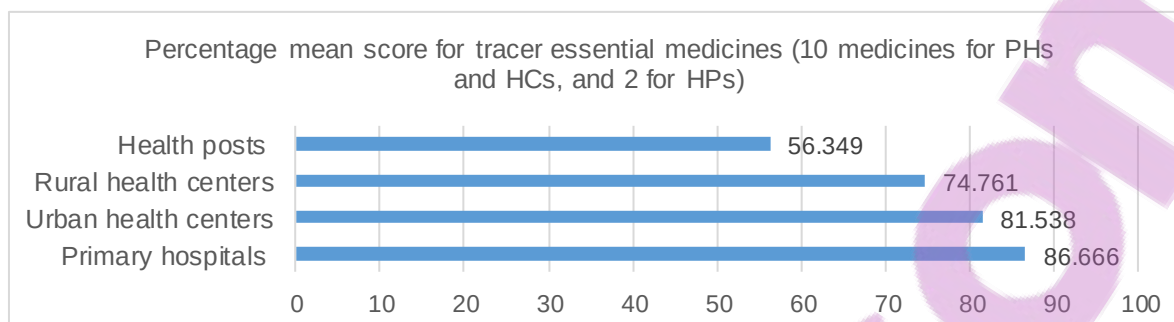


Figure 4.9 Percentage mean score for tracer essential medicines in health facilities to maternal and newborn health

To calculate the mean percentage availability of the essential medicines at PHs and HCs, the following ten tracer medicines were selected including injectable oxytocics, ampicillin, gentamicin (20mg/2ml or 80mg/2m), anticonvulsant (magnesium sulphate or diazepam), dexamethasone, and vitamin K (phytomethadione), intravenous (IV) fluids with infusion sets, amoxicillin (dispersible tablet or syrup), nevirapine, and small size syringe and needles. On the other hand, only three tracer essential medicines including amoxicillin, gentamicin injection and small syringe and needles were selected at health posts level to compute the mean percentage score. Thus, a mean percentage score of 86.7 [95%CI: 80.076-93.256], and 81.5 [95%CI: 78.497-84.579] of essential medicines were available at PHs and UHCs respectively. On the contrary, the RHCs were less equipped with essential medicines with a mean percentage score of 74.8 [95%CI: 70.137-79.386]. While a 70-percentage mean of HPs [95%CI: 61.661-79.079] were equipped with the tracer essential medicines (Figure 4.9).

4.3.1.3.8 Practice of infection prevention in health facilities

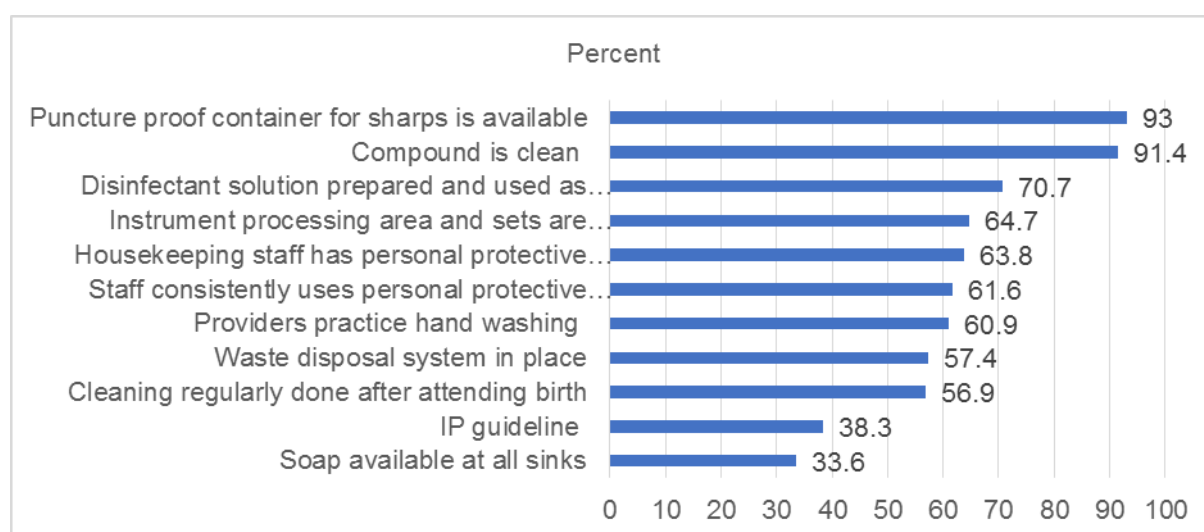


Figure 4.10 Percent of availability of standard precaution for infection prevention in health facilities that are directly related to maternal and newborn health

In 93 percent at all health facilities in West Gojjam Zone had puncture proof container for sharps, and the rest of standard infection prevention were available in the range of 70.7 to 56.9 percent (Figure 4.10). However, the infection prevention guideline and soap in all sinks were only available in 38.3 and 33.6 percent of health facilities. The mean availability from the 13 expected infection preventions actions and items in maternity unit, the highest mean score was achieved in PHs with mean of 12 [95%CI: 10.858-13.141]; and likewise, UHCs had scored 11.4 [95%CI:10.812-11.956] and 10.031[95%CI:9.469-10.593] was scored by RHCs. On the contrary, only less than 2 expected infection prevention items and practices were available in the HPs at 1.9 [95%CI: 1.355-2.358].

4.3.1.3.9 Diagnostic capacity of health facilities for maternal health related to newborn health

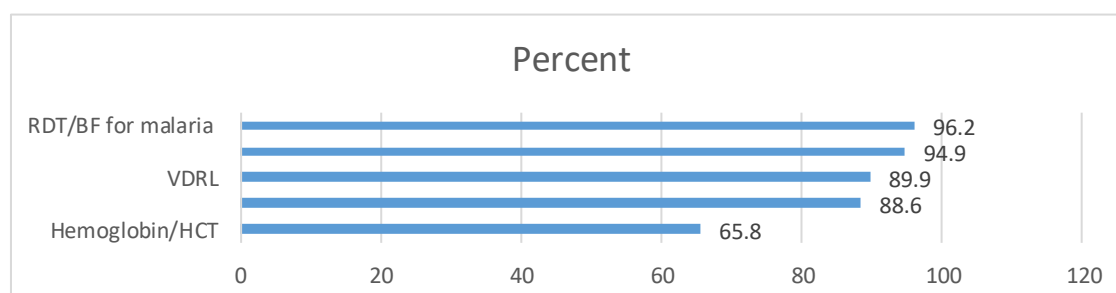


Figure 4.11 Percentage of facilities with diagnostic capacity for maternal and newborn health

In general, 96.2 percent of PHs and HCs had a capacity of doing blood examination for malaria in pregnant women. The rest of examination capacity was available in the range of 65.8 to 94.9 percent in health facilities (Figure 4.11). The mean availability of the expected laboratory tests including HIV test for prevention of mother to child transmission (PMTCT), all the six tests were available in PHs; UHCs and RHCs had also test more than 5, 5.6 [95%CI: 5.417-5.957] and 5.3 [95%CI: 4.944-5.627]

4.3.1.3.10 Summarized newborn care knowledge of health providers in under-five clinic in PHs and HCs, and HPs

This section tried to pull all ten different newborn care knowledge questions asked to health providers at each facility level to estimate their overall knowledge score on newborn care. The ten knowledge domains, including: signs and symptoms of newborn infections or sepsis (has 9 actions); initial steps to manage a newborn who had infection (9 actions); special care for low birth weights (has 6 actions); diagnosis of birth asphyxia (5 actions); sequential steps of neonatal resuscitation (has 8 actions); practice resuscitation thorough bag and mask or tube and mask (6 actions); follow-up after resuscitations (3, and 6 actions); signs of unwell or sick newborns (6 actions); and keeping small babies warm (3 actions). Each of the ten questions had given equal weights, standardized, and rescaled into 10 to range from a 0 to 10 scale. Health workers who were working in PHs were found to be at scale of 5 [95%CI: 3.023-6.976]; HWs in UHCs had a relatively higher knowledge scale from the rest of health facilities at a point of 5.4 [95%CI: 4.298-6.470] followed by RHCs with a knowledge scale of 5.3

[95%CI: 3.886-4.526]. Relatively below half of the knowledge scale were HEWs in HPs level, with the scale point of 4.2 [95%CI: 3.886-4.526]. The overall analysis shows that there was no significant difference in newborn care knowledge by HWs and HEWs.

4.3.1.3.11 Immediate care and breastfeeding advice for very low birthweight babies

To understand the immediate care and breastfeeding advice for very low birthweight babies, the following clinical scenario was offered to the HWs who were working in under-five clinics; a young seventeen years old women, she was pregnant for eight months and gave birth at home. An experienced HEW found the baby while she was doing a home visit. She assessed the weight of the baby and the measurement showed at 1400 gm. As a result, the HEW facilitated and issued referral to higher-level health facility. Therefore, the HWs were requested to promptly response the key action they are carrying out for this baby in the scenario.

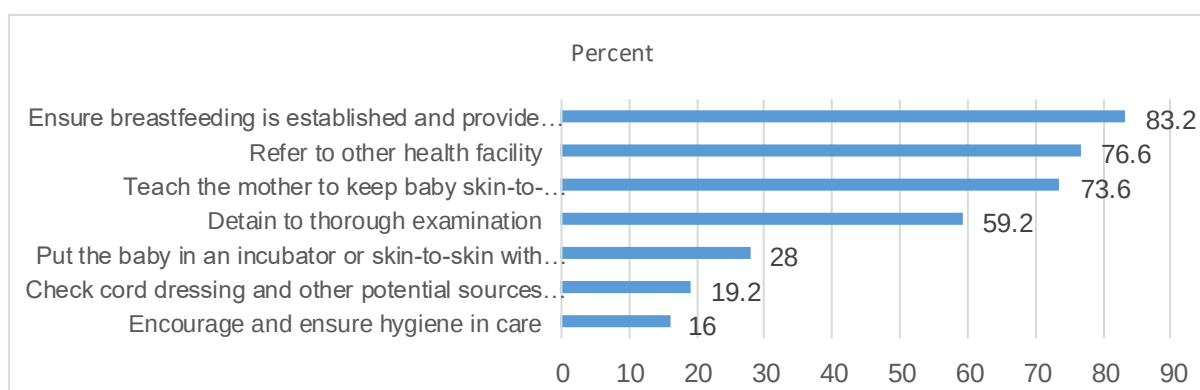


Figure 4.12 Percentage of health workers' response on immediate care for very low birthweight babies

Among the seven-key action listed, 83.2 percent of HWs mentioned ensuring breastfeeding is established and providing support if necessary, followed by referring the baby to another health facility and teaching the mother to keep baby skin-to-skin/KMC by 76.6 and 73.6 percent respectively. On the other hand, encouraging and ensuring hygiene care, checking cord dressing and other potential sources of infection, and putting the baby in an incubator or skin-to-skin with the mother were responded by 16, 19.2 and 28 percent of health workers respectively (Figure 4.12). In same clinical scenario, among the five-listed actions of breastfeeding for low birth weight babies, the highest score 70.5 percent was registered for the action of watching mother while she is

breastfeeding the baby and teaching the mother about the good positioning and attachment. The next highest, 61.2 percent score was to educate the mother and encourage her to practice exclusive breastfeeding for the first 6 months of the baby's life.

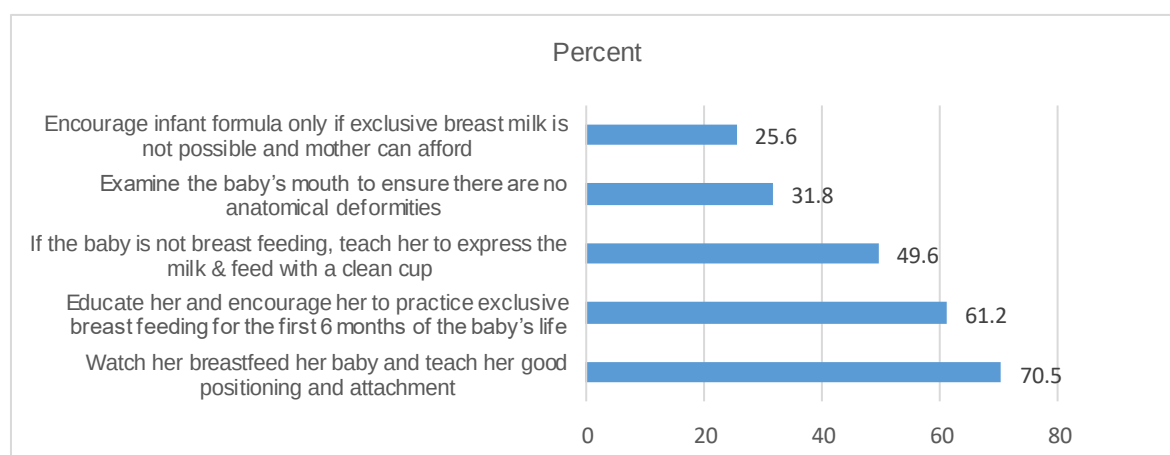


Figure 4.13 Percentage of health workers providing breastfeeding advice for very low birthweight babies

The rest of the action including examine the baby's mouth to ensure there are no anatomical deformities, if the baby is not breastfeeding, teach the mother to express the milk and feed with a clean cup, and encourage infant formula only if exclusive breast milk is no possible and mother can afford were scored 3 at 1.8, 49.6 and 25.6 percent respectively (Figure 4.13).

The questions and score given for each action was used also from Vesel et al (2013:3) research done in Ghana. There were six actions for the management of very low birth weight newborn. Ten total score was given for this question and to each action scored from 10 as follows; detain for thorough examination (1.50); ensure breastfeeding is established and provide support if necessary (2.05); put the baby in an incubator OR skin-to-skin with the mother (2.13); teach the mother to keep baby skin-to-skin/kangaroo mother care position (if in incubator, when taken out) (1.92); check cord dressing and other potential sources of infection (1.28); and encourage and ensure hygiene in care (1.12). In addition, to improve the breastfeeding practice, there were five actions listed and scored at a total of 10. Watch her breastfeed her baby and teach her good positioning and attachment (3.03); examine the baby's mouth to ensure there are no anatomical deformities (1.47); if baby is not breastfeeding, teach her to express the milk

and feed with a clean cup (2.50); encourage infant formula only if exclusive breast milk is not possible and mother can afford (1.00); and educate and encourage her to practice exclusive breastfeeding for the first 6 months of the baby's life (2.00). Consequently, the mean score from 20 actions corresponding to very low birth weight and improving the breastfeeding practices were computed by level of care.

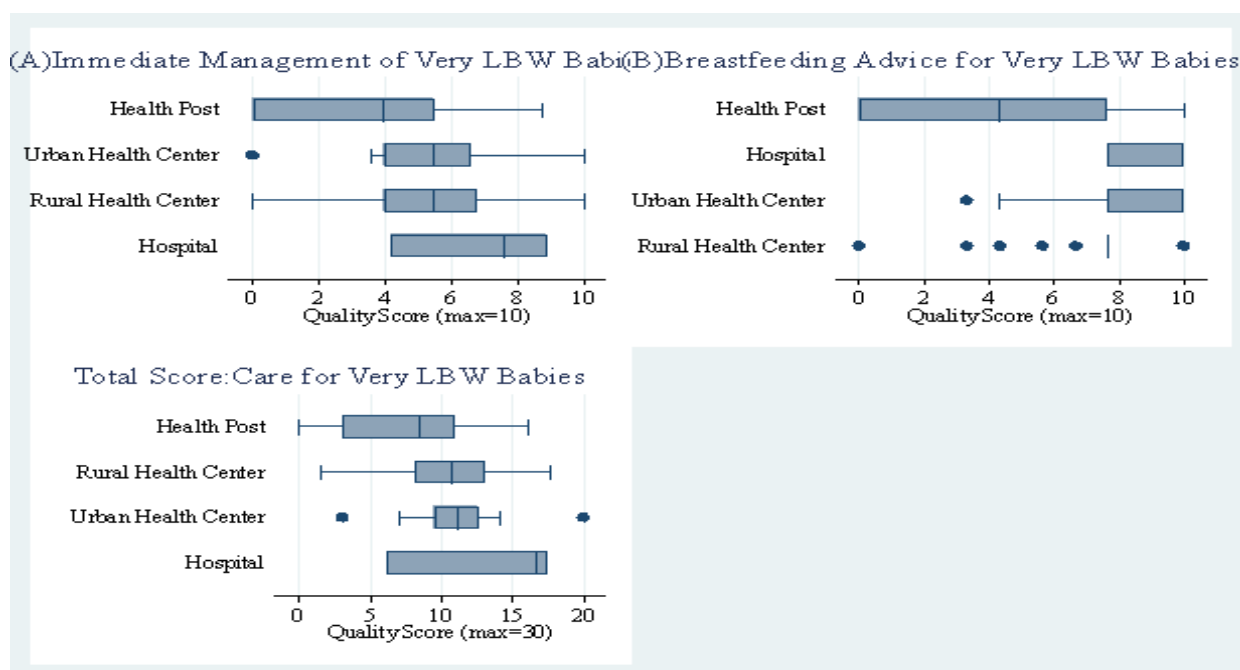


Figure 4.14 Care for low-birth-weight babies scores by type of health facilities

Remarks: The lines in the box plots show the range of scores, while the box captures the range of the middle 50%

Thus, the PHs attained the highest mean knowledge score, 13.4 [95%CI: 6.248-20.545]; and the second highest knowledge score was achieved by UHCs with 11.2 [95%CI: 8.957-13.365] mean score (Figure 4.14). Just a slightly higher than half of the mean score, 10.6 [95%CI: 9.621-11.479], was responded by HWs who were working in RHCs. The fourth level of care, HPs had achieved the least mean score which is below half of the mean knowledge score (7.389 [95%CI: 6.163-8.616]).

4.3.1.3.12 Status of health workers training on key newborn health management

Health workers who were working in maternal and newborn health units and under-five clinics who were managing sick young infants were requested to share the in-service training received related to newborn health in the past 12 months before the survey.

According to the response of the interviewed HWs in the PHs, HCs and HPs, they were trained on neonatal resuscitation using bag and mask; breastfeeding including early and exclusive; newborn infection management including injectable antibiotics; thermal care including immediate care drying and skin-to-skin care; sterile cord cutting and appropriate cord care; and kangaroo mother care for low weight or preterm babies were found to be below 40 percent.

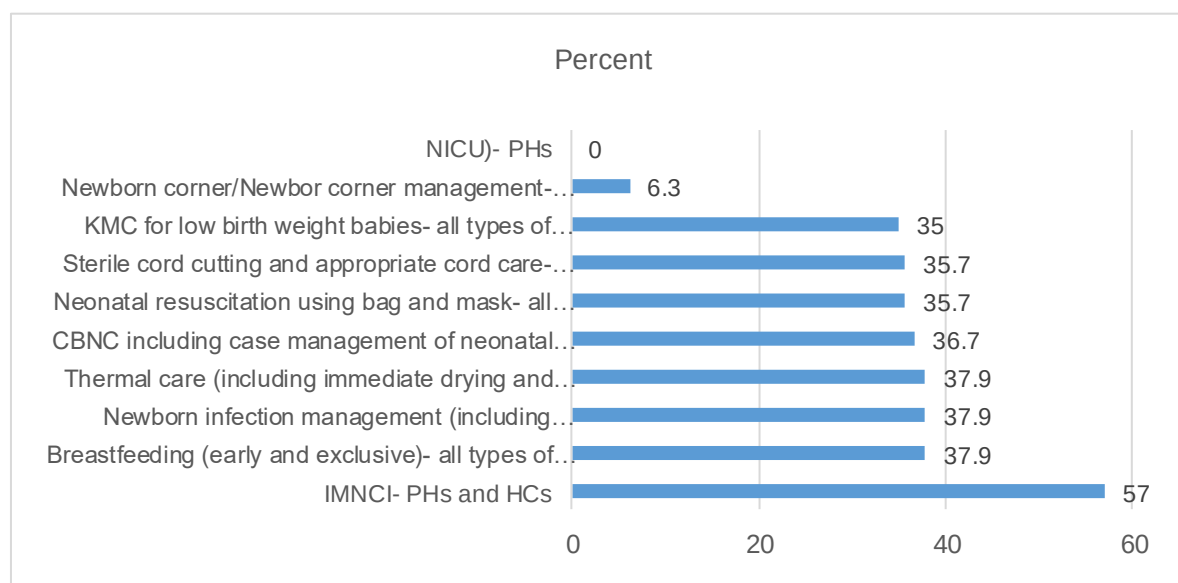


Figure 4.15 Percentage distribution of health providers' training on newborn health in past 12 months

In addition, integrated management of newborn and childhood illnesses (IMNCI), and newborn corner management trainings were requested to the respective PHs and HCs interviewees, the training status were found to be 57 percent and 6.3 percent respectively. Specifically, the community based newborn care (CBNC) including the management of neonatal sepsis, only 36.7 percent of HCs and HPs staff were trained. Among HWs interviewed at the three hospitals, none of them were trained on management of newborns in the newborn intensive care unit (Figure 4.15).

4.3.1.3.13 The auditing experience of maternal and early neonatal death, and still births in health facilities

Among the interviewed HWs in all types of health facilities including PHs, HCs and HPs, 118 (86.8%) responded that maternal death auditing was happening in their respective

health facilities; followed by still birth and early neonatal birth auditing, 74 (54.8%) and 51 (37.8%) respectively.

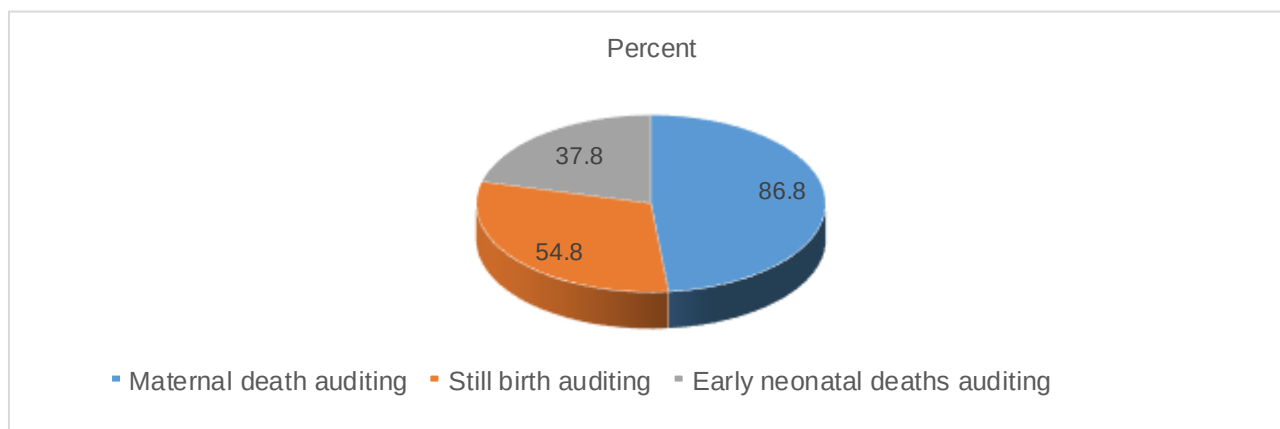


Figure 4.16 Status of maternal and early neonatal deaths, and still birth auditing in health facilities

As shown in Figure 4.16 and Table 4.16, only 37.8% of assessed PHs, UHCs, RHCs, and HPs were carried out early neonatal death auditing in their respective health facilities.

Table 4.16 Status of maternal and early neonatal deaths, and still birth auditing in health facilities

Variable	Frequency	Percent
Facility routinely conduct audit for maternal death		
Primary Hospitals (N=3)		
Yes	3	100
No	0	
Urban health centers (N=13)		
Yes	10	77
No	3	23
Rural health centers (N=62)		
Yes	43	69.4
No	19	30.6
Health posts (N=58)		
Yes	46	79.3
No	12	20.7
All health facilities (N=136)		
Yes	118	86.8
No	18	15.2
Facility routinely conduct audit for early neonatal death (N=135)		
Primary Hospitals (N=3)		

Yes	2	66.7
No	1	33.3
Urban health centers (N=13)		
Yes	7	53.8
No	6	46.2
Rural health centers (N=62)		
Yes	20	32.3
No	42	67.7
Health posts (N=57)		
Yes	22	38.6
No	34	59.6
Nonapplicable	1	
All health facilities		
Yes	51	37.8
No	83	64.8
Facility routinely conduct audit for still birth (N=135)		
Primary Hospitals (N=3)		
Yes	1	33.3
No	2	66.7
Urban health centers (N=13)		
Yes	10	77
No	3	23
Rural health centers (N=62)		
Yes	39	63
No	23	37
Health posts (N=57)		
Yes	24	42.1
No	28	49.1
Non-applicable	5	8.8
All health facilities		
Yes	74	54.8
No	56	41.5

4.3.1.3.14 *The timing of discharge for delivered mothers and their newborns from health facilities*

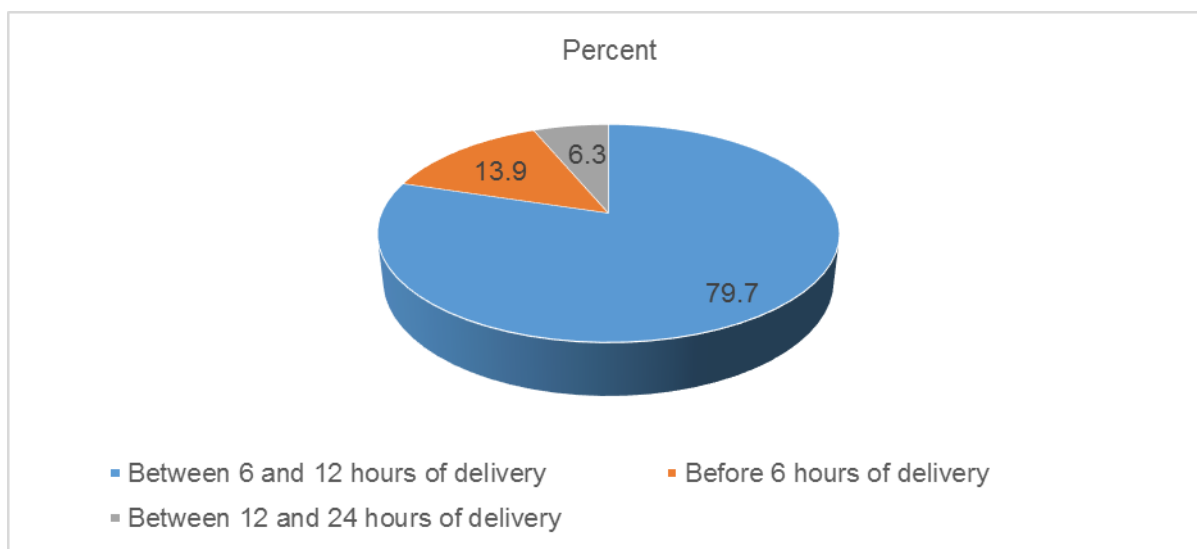


Figure 4.17 Percentage distribution of the timing of discharge of delivered mothers and their newborns from health facilities

Among 79 HCs and PHs, the majority of (79.7%) discharged mothers and their newborns from the health facilities between 6 and 12 hours of delivery. In addition, early discharge before 6 hours of delivery was accounted by 13.9%. However, only, 6.3% of health facilities were retaining delivered mothers and their babies in the respective health facilities between 12-24 hours of delivery (Figure 4.17).

4.3.1.3.15 *Newborn health related national service delivery standards, guides and job-aids in maternity units' ad under-five clinics*

The most commonly available and observed service delivery standard/job-aid in the PHs and HCs was IMNCI (94.9%) and BEmONC (55.7%). In addition, including the HPs, sick newborn referral guideline and standard referral slips for the sick newborns were available in 49.3% and 46.3% of health facilities respectively. Furthermore, only 19.3 percent of all types of health facilities established a system to receive feedback from referral health facilities about the referred cases for better diagnosis and management at higher health facilities. However, a separate service delivery, guideline or job-aids for the management of preterm labour was not found in a single health facility. In addition, availability of the essential guides including comprehensive

emergency obstetric care for hospitals (CEMOC) and BEmONC, guidelines or protocols on the management of pre-term labour, IMNCI, and guidelines or protocols on referral of sick newborns for hospitals and HCs; and in line with this, as a tracer guides, CBNC and guidelines or protocols on referral of sick newborns were selected to estimate the mean percentage availability of the guides both at PHs and HCs, and HPs respectively. Thus, 83.3 [95%CI: 50.384-116.282], 67.3 [95%CI: 55.589-79.025], 73.4 ([95%CI: 67.508-79.317] and 69.0 [95%CI: 60.551-77.543] percentage mean of guides was available in PHs, UHCs, RHCs and HPs respectively.

4.3.1.3.16 *Experience of receiving supportive supervision in the maternity units, and under-five clinics in PHs, HCs and HPs*

The practice of receiving supportive supervision 12 months before the interview was asked to HWs in the maternity units and under-five clinics and HEWs in the HPs. There were three options: 1) one month before the survey; 2) 3 months before the survey and; 3) more than three months before the survey. About 43.1% of maternity units and HPs reported that they had received supportive supervision related to maternal and newborn health services in the health facilities before three months of the survey; and 44 percent & 9.5 percent of health facilities reported that they had received supportive supervision one month before and more than 3 months before the survey respectively (Figure 4.18). The median of onsite monitoring visits to the maternity units was found to be 3 months.

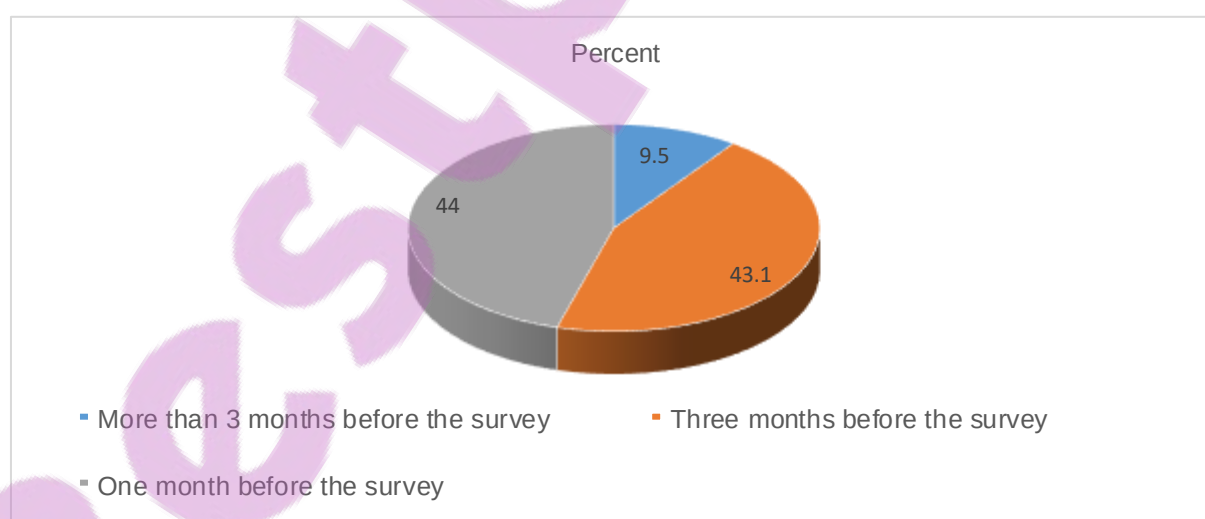


Figure 4.18 Percent of health facilities that received supportive supervision in the maternity units of PHs, HCs, and HPs for maternal and newborn health services

It was found that 101 (73.2%) of health facilities had received supportive supervision visits to improve the case management skill of sick young infants in past three months before the survey. In addition, it was found that 68 (49.3%) supervisors from health facilities carried-out direct case observation with health workers assigned in the under-five clinics or health posts. Within the past three months before the survey, most of the health posts, 50 (80.6%) had received the supportive supervision visits (Table 4.17).

Table 4.17 Status of supportive supervisions visits to health facilities to improve the case management of sick young infants

Variable	Frequency	Percent
Supportive supervision visits		
Primary Hospitals (N=2)		
Yes, in the past 3 months	2	100
Supervision includes direct case observation of sick newborns/newborn care	1	50
Urban health centers (N=12)		
Yes, in the past 3 months	9	75
Yes, in the past 4-6 months	2	16.7
Yes, in the past 7-12 months	1	8.3
Supervision includes direct case observation of sick newborns/newborn care	5	41.7
Rural health centers (N=62)		
Yes, in the past 3 months	40	64.5
Yes, in the past 4-6 months	16	25.8
Yes, in the past 7-12 months	4	6.4
Yes, more than 12 months ago,	1	1.6
No	1	1.6
Supervision includes direct case observation of sick newborns/newborn care	34	54.8
Health posts (N=62)		
Yes, in the past 3 months	50	80.6
Yes, in the past 4-6 months	9	14.5
Yes, in the past 7-12 months	1	1.6
Yes, more than 12 months ago,	1	1.6
No	1	1.6
Supervision includes direct case observation of sick newborns/newborn care	28	45.2
All health facilities (N=138)		
Yes, in the past 3 months	101	73.2
Yes, in the past 4-6 months	27	19.6
Yes, in the past 7-12 months	6	4.3
Yes, more than 12 months ago,	2	1.4
No	2	1.4
Supervision includes direct case observation of sick newborns/newborn care	68	49.3

4.3.1.3.17 Health facilities' referral experience for obstetric complication and sick newborns

Referrals for obstetric complications and sick newborns or newborn emergencies were a common experience in the assessed health facilities. 131 (95.6%) and 126 (91.3%) health facilities were referring obstetric complications and newborn complications to other health facilities when needed.

It is known that a motorized vehicle or ambulance and communication service are quite useful to facilitate the referral process. In line with this, 60 (76%) health facilities possessed a functional motorized vehicle or ambulance for emergency transport. However, from the overall health facilities assessed including health posts, a fewer number of health facilities, 51 (37%), were providing newborn emergency transport service through the motorized vehicle or ambulance. Meanwhile, 49 (35.5%) and 55 (40%) health facilities including health posts had access to a functioning landline telephone and cellular telephone (including a private cellular telephone) respectively (Table 4.18).

Table 4.18 Health facilities access to a functional emergency transport service

Variable	Frequency	Percent
Facility with a functional ambulance or other vehicle (N=79)		
Primary Hospitals (N=3)		
Yes	2	66.7
No	1	33.3
Urban health centers (N=13)		
Yes	13	100
No	0	
Rural health centers (N=63)		
Yes	45	71.4
No	18	28.6
All health facilities (N=79)		
Yes	60	76
No	19	24
Ambulance or vehicle providing service for sick newborn		
Primary Hospitals (N=3)		
Yes	2	66.7
No	1	33.3
Urban health centers (N=13)		
Yes	8	61.5
No	5	38.5
Rural health centers (N=63)		
Yes	29	46

No	34	54
Health posts (N=59)		
Yes	12	20
No	47	80
All health facilities (N=138)		
Yes	51	37
No	87	63
Access to functioning landline telephone in the health facility (N=138)		
Primary Hospitals (N=3)		
Yes	2	66.7
No	1	33.3
Urban health centers (N=13)		
Yes	11	84.6
No	2	15.4
Rural health centers (N=63)		
Yes	26	41.3
No	37	58.7
Health posts (N=59)		
Yes	10	17
No	49	83
All health facilities (N=138)		
Yes	49	35.5
No	89	64.5
Access to functioning cellular telephone including a private cell phone (N=138)		
Primary Hospitals (N=3)		
Yes	1	33.3
No	2	66.7
Urban health centers (N=13)		
Yes	9	69.2
No	4	30.8
Rural health centers (N=63)		
Yes	28	44.4
No	35	55.6
Health posts (N=59)		
Yes	17	28.8
No	42	71.2
All health facilities (N=138)		
Yes	55	40
No	83	60

Over all, the mean referral communication from the ten expected actions and prerequisites were computed. Thus, 81.5 [95%CI: 73.209-89.867] mean percentage of referral communications actions and prerequisites was available in UHCs; 66.7 [95%CI: 26.582-106.75] and 62.0 [95%CI: 57.159-66.967] in PHs and RHCs respectively. On the contrary, the mean referral communication at HPs level was very low, with a percentage mean of 31.3 [95%CI: 26.199-36.34].

4.3.1.3.18 Referral linkage of sick newborns in primary health care

All 3 (100%) PHs had experience referring sick newborns to specialized hospitals. At UHCs, the referral link to the sick newborn was dominated by referring to the PHs 7 (54%), followed by 3 (23%) each for specialized and secondary or zonal hospitals. However, 45 (95.5%) of HPs were referring sick newborns to HCs. In addition, 42 (70%) of the RHCs were referring the sick newborns to PHs, followed by 11 (18.3%), and 7 (11.7%) to specialized and secondary or zonal hospitals respectively.

Standardized rereferral slips were only available in 63 (46.3%) health facilities including HPs. In line with this, 12 (21%) and 36 (57.1%) HPs and RHCs had standardized referral slips. Similarly, fewer health facilities, 26 (19.3%), had only a system to receive feedback from a referral receiver health facility.

4.3.1.3.19 Availability of curative services in health facilities for sick newborns

The assessed health facilities including HPs responded that 99 (75%) and 33 (25%) of health facilities were offering sick newborn consultation services everyday including weekends respectively. Additionally, sick newborn consultation register was observed in 134 (97.8%) health facilities.

4.3.1.3.20 Basic amenities for providing maternal and newborn health services in health facilities

The availability of the two basic amenities including functioning clean water source or system and reliable electric system or power supply were scarcely available in maternity wards. As shown in the Table 4.19, only 38 (29.7%) and 30 (23.4%) of health facilities had access to clean water source and reliable electric supply always respectively. Availability of water and electric power was very low in RHCs when compared to PHs and UHCs; the lack of reliable water source and electric system were severely lacking at HPs. None of the HPs had a reliable water source and only 2 (4.1%) HPs had an electric source of power.

Table 4.19 Availability of basic amenities in health facilities that are useful in the delivery of health services for maternal and newborn health services

Variable	Frequency	Valid percent
Clean water source/system currently functioning in the labour/maternity ward		
Primary hospitals (N=3)		
Always available	2	66.7
Available sometimes	1	33.3
Not available	0	
Urban health centers (N=13)		
Always available	9	69.2
Available sometimes	3	23.1
Not available	1	7.7
Rural health centers (N=63)		
Always available	27	42.9
Available sometimes	11	17.5
Not available	25	39.7
Health posts (N=49)		
Always available	0	
Available sometimes	4	8.2
Not available	45	91.8
All health facilities (N=128)		
Always available	38	29.7
Available sometimes	19	14.8
Not available	71	55.5
Reliable electric system/power supply currently functioning in the labour /maternity ward		
Primary hospitals (N=3)		
Always available	2	66.7
Available sometimes	1	33.3
Not available	0	
Urban health centers (N=13)		
Always available	11	84.6
Available sometimes	1	7.7
Not available	1	7.7
Rural health centers (N=63)		
Always available	31	49.2
Available sometimes	21	33.3
Not available	11	17.7
Health posts (N=49)		
Always available	2	4.1
Available sometimes	7	14.3
Not available	40	81.6
All health facilities (N=128)		
Always available	46	36
Available sometimes	30	23.4
Not available	52	40.6

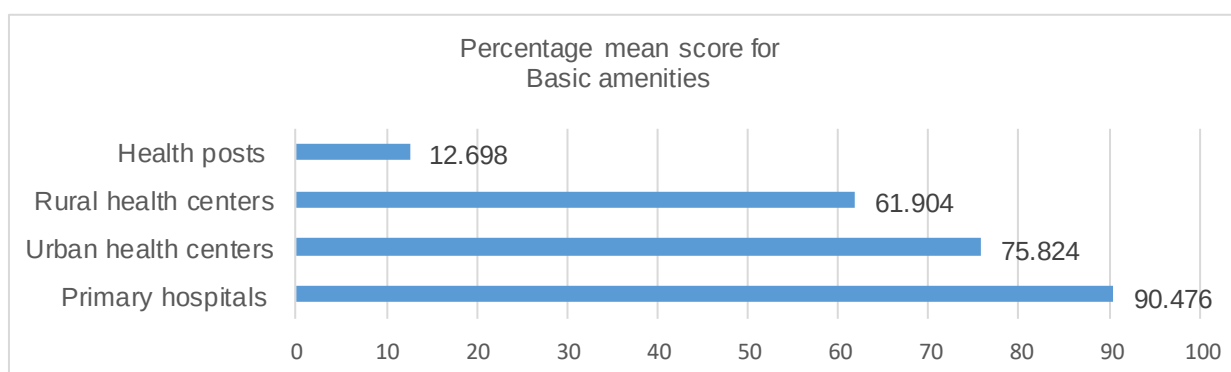


Figure 4.19 Availability of basic amenities in health facilities

The following seven inputs assessing availability of basic amenities included: 1) facility has a separate space for the mother and baby for early postnatal period; 2) availability of a reliable electric system; 3) availability of a reliable water system; 4) availability of toilet for the patient; 5) clean toilet; 6) availability water for wash hands; and 7) functional shower that is available for the mothers. The input “facility having a separate space for the mother and baby for early postnatal period” was excluded from the mean percentage calculation at the HP level. As the result, 90.5 [95%CI: 71.648-109.304] percentage mean score of basic amenities were available in PHs. In addition, 75.8 [95%CI: 64.570-87.077] and 61.9 [95%CI: 56.012-67.796] percentage mean score was available in urban and rural health centres respectively. However, only, 12.7 [95%CI: 8.844-16.551] percentage mean score of basic amenities was available in the HPs (Figure 4:19).

4.3.1.4 Registers reviewed for the management of sick young infants in primary health care

A total of 742 sick young infant cases (birth to 59 days of age) data were abstracted from 0-2-month sick young CBNC (Mamo, Hazel, Lemma, Guenther, Bekele & Demeke 2014: 122) and IMNCI registers in the primary health care units with the designed checklists (Mamo et al 2014:126). One single checklist was filled for each sick young infant to collect the required information for each case. A complete year data starting from January 2016 up to December 2016 was collected from each health facility. Since the routine health management information system was not included cases of sick young infants as the routine reportable cases in the health system in this data collection period (Mamo et al 2014:127); the investigator adapted data abstraction checklist to

collect the required information for each case from the registers. This data was used to assess the quality of care and estimate the service utilization of sick young infants in the primary health care units.

4.3.1.4.1 *Sociodemographic characteristics of sick young infants*

Among the 742-sick young infant cases, 38.3% of cases were represented by the age categories of 15-28 days.

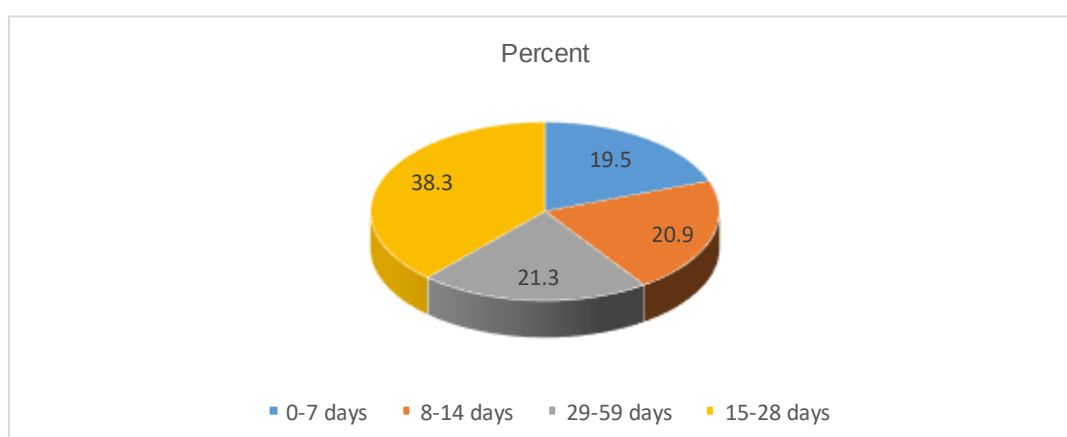


Figure 4.20 Percentage distribution of sick young infants' (birth – 59 days) age categories

In addition, the 0-7, 8-14, and 29-59 days of age categories were accounted for 19.5%, 20.9% and 21.3% respectively (Figure 4.20). Figure 4.20 further illustrates that distribution is almost similar across all the three age categories except for 15-28 days. Neonatal sepsis infection is very common and fatal to newborns; early recognition and diagnosis is critical to rapidly take adequate management actions such as treatment with antibiotics to treat the infection and administration of intravenous fluids for resuscitation (Cohen, Vincent, Adhikari, Machado, Angus, Calandra, Jaton, Giulieri, Delaloye, Opal, Tracey, Poll & Pelfrene 2015:585). Most of the sick young infant cases (61.9 percent) were abstracted from the health posts' CBNC registers followed by 27.2 percent from health centres' IMNCI registers and 1.8 percent from primary hospitals' IMNCI /similar register. This shows that the CBNC initiative including management of the possible serious bacterial infections (PSBI)/very severe diseases (VSD) where referral is not possible has equipped the capacity of the HEWs to manage PSBI/VSD

cases at the health post/community level (FMOH 2013:25 & Pearson, Degefie, Hiluf, Betemariam, Wall, Taylor & Asmasu 2014:9).

4.3.1.4.2 Sick young infants' classification given by health facilities

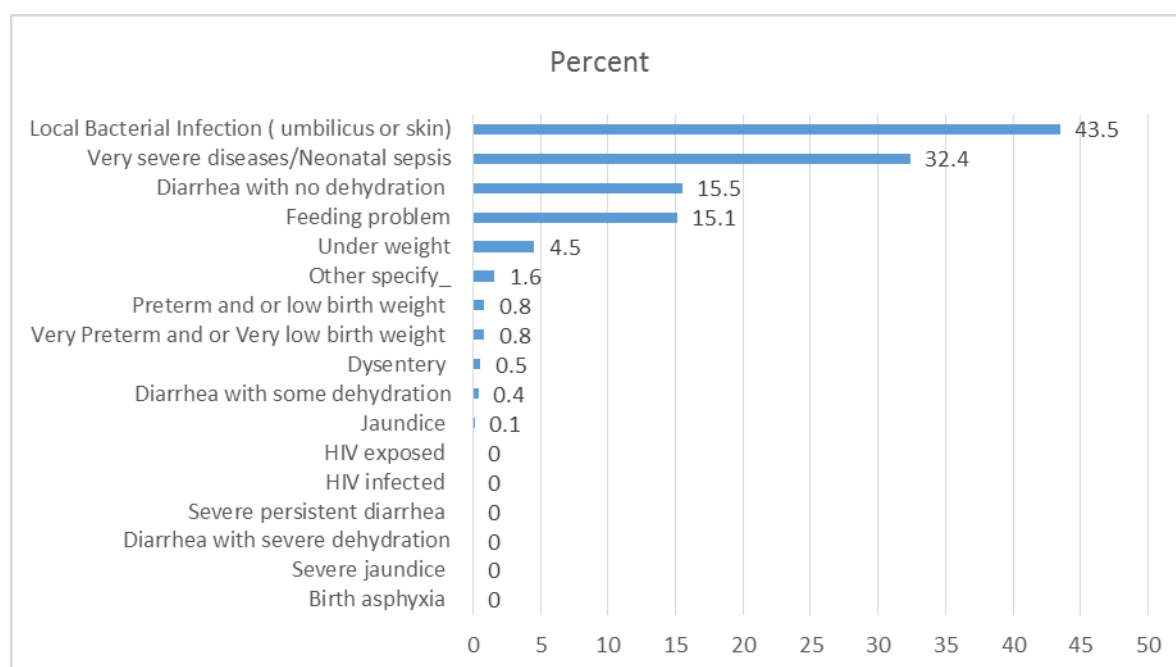


Figure 4.21 Percentage distribution of the classification of the sick young infants'

The data abstracted from the 0-2-month sick young infants' register showed that 43.5% of the classification were represented by local bacterial infection (infections originated from umbilicus or skin of the sick young infant), 32.4% were classified as having very severe diseases and 15.5% were classified as having diarrhoea with no dehydration (Figure 4.21). In general, 92.3% of sick young classification was related to the cause of infection.

4.3.1.4.3 The distribution of very severe disease and local bacterial infection cases

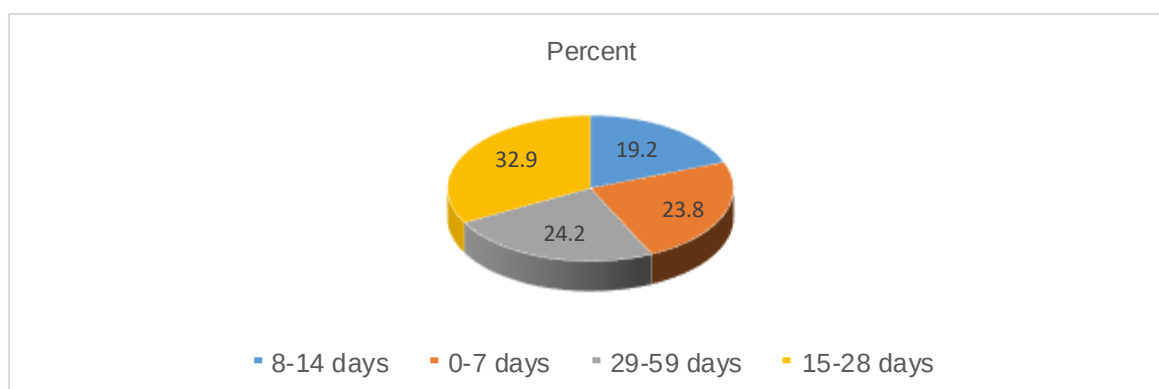


Figure 4.22 Percentage distribution of VSD cases across different age categories of the sick young infants

Among the 240 cases classified as having very severe diseases (VSD), 32.9% of the cases were accounted by 15-28 days' age categories; and the rest of the cases were distributed almost equally in the remaining three age categories (Figure 4.22). The data shows that the prevalence of VSD is equally important from birth to the age of 59 days of the young infant.

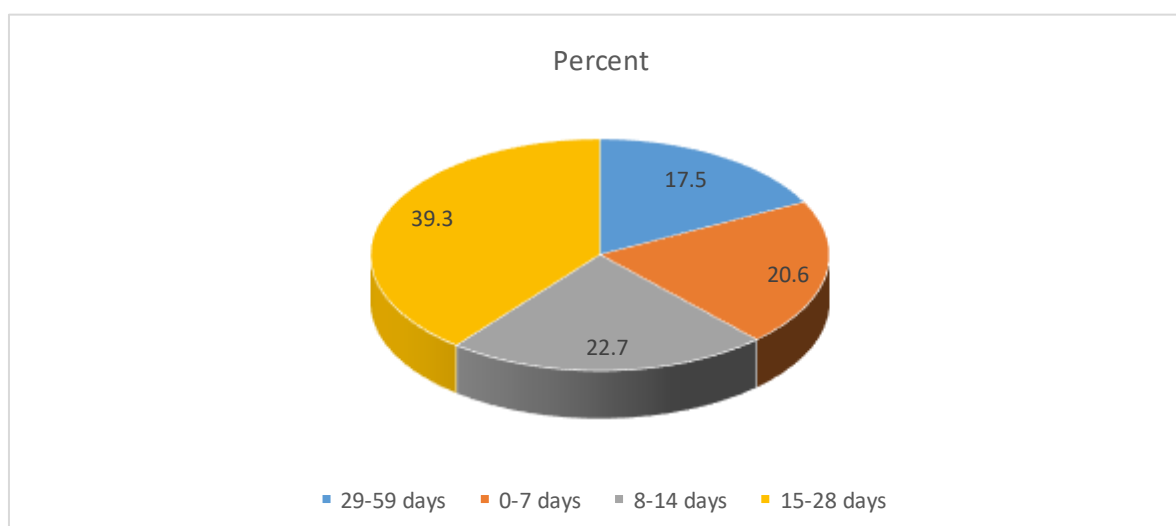


Figure 4.23 Percentage distribution of local bacterial infection cases across different age categories

Of the 326 cases classified as having local bacterial infections, about 39% of cases were from the age categories 15-28 days. The remaining three age categories ranged from 17.5% to 22.7% (Figure 4.23). Similarly, the occurrence of local bacterial infection from birth to 59 days was equally important

4.3.1.4.4 The plan given to treat sick young infants by primary health care facilities

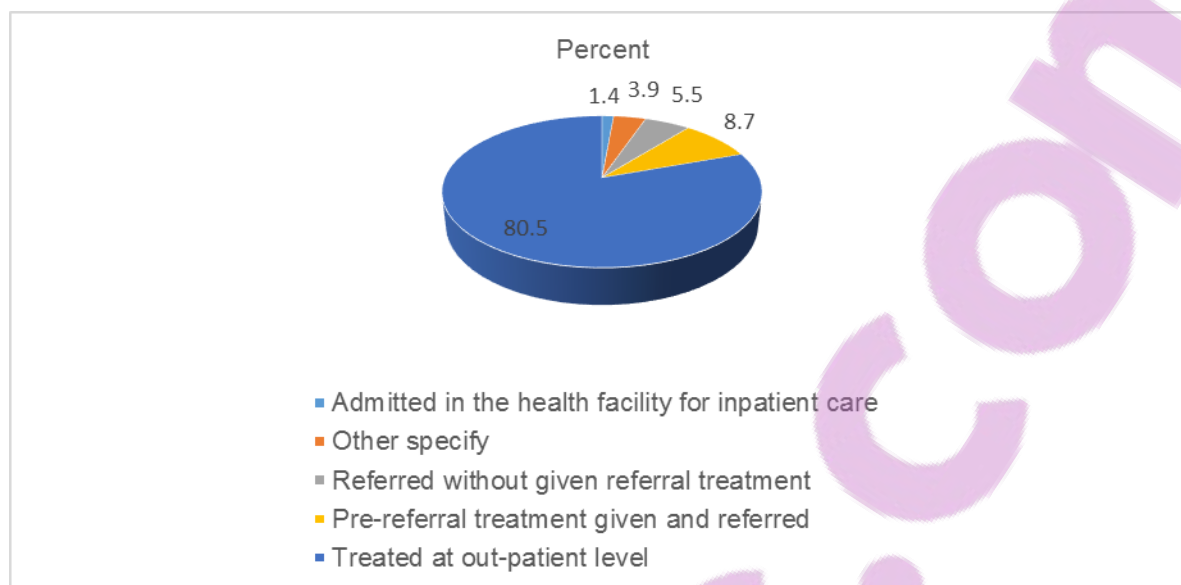


Figure 4.24 Percentage distribution of the plan given to treat the sick young infants'

Most sick young infants (80.5%) identified in the primary health care were treated at out-patient level. In addition, 14.2% of sick young infants referred to the higher health facility level (Figure 4.24).

4.3.1.4.5 The management plan given to treat very severe disease cases

As illustrated in Figure 4.25, most (58 percent) of the cases classified as having VSDs were treated at the outpatient level.

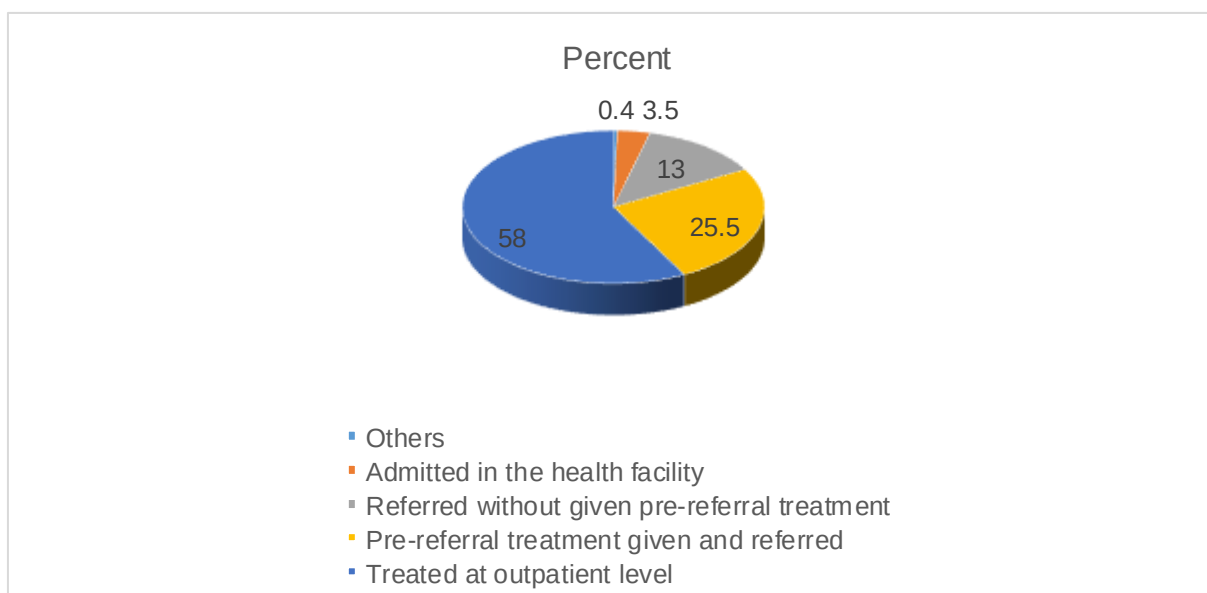


Figure 4.25 Percentage distribution of the management plan given to treat very severe disease cases

In addition, 38.5% of VSDs referral cases (25.5% of VSD cases were referred by giving pre-referral treatment; and 13 percent of VSD cases were referred without giving pre-referral treatment) were recommended and documented in the registers. Despite the referral treatment being recommended in community based newborn care (CBNC) and integrated management of newborn and childhood illnesses (IMNCI) job-aids, it was found that 13% out of the 30 VSD cases were referred to a higher health facility level without a pre-referral treatment being given, and 73.3% of those cases were from health posts. Among the 134 VSD cases treated at the outpatient level, 60.4% of the cases were treated by HEWs at HPs in the communities, followed by 39.6% at health centres (26.2% at RHCs, and 13.4% at UHCs). The CBNC initiative equipped the capacity of HEWs to treat VSD cases at the health post and initiate treatment at home during postnatal home visits in the community where referral was not possible.

4.3.1.4.6 Management plan given to treat local bacterial infections

In line with the recommendation of national integrated management of newborn and childhood illnesses (IMNCI) and community based newborn care (CBNC) protocols for HCs and HPs, all cases classified as having local bacterial infections were treated at outpatient levels in PHs, HCs and HPs. Indeed, more than half of (51.8%) the cases classified as having local bacterial infections were treated at the HP level, followed by

46.9% at HCs (34.7% of cases in RHCs, 12.2% of cases in UHCs). Only 1 percent of the cases were managed at the PH level.

4.3.1.4.7 *Type of antibiotics given and schedule followed in the treatment of very severe disease cases*

Among those classified as having very severe disease (VSD), 52.2% of cases received oral Amoxicillin dispersible tablet/syrup and Gentamycin injection for 7 days, 27.5% of cases received Ampicillin and Gentamycin injections for 7 days, and 20.3% cases received Ampicillin and Gentamycin injections as referral treatment.

4.3.1.4.8 *Sick young infant's treatment outcome*

Despite of having a good progress on reducing the under-five mortality, Ethiopia yet has the huge considerable proportion of neonatal illnesses and deaths due to gaps in delivering effective interventions (Ruducha, Mann, Singh, Gemebo, Tessema, Baschieri, Friberg, Zerfu, Yassin, Franca & Berman 2017:e1142). During the sick young infants register review, the treatment outcome of each sick young infant's status was checked and abstracted.

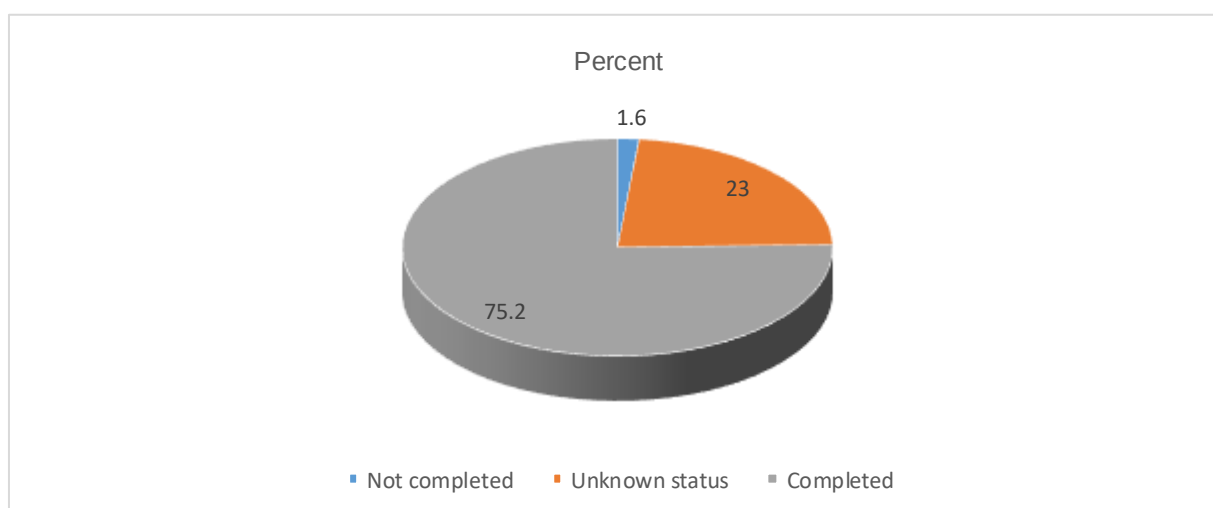


Figure 4.26 Percentage distribution of sick young infants' treatment outcome

Among the three options of treatment outcomes, 75.2% of the cases reported completion of treatment and 23% were unknown due to incomplete documentation in the register. The data found that 1.6% of the cases did not complete their prescribed

treatment (Figure 4.26). HWs and HEWs are expected to notify caregivers about the importance of follow-up visits and returning to the facility or creating a referral linkage with the community volunteers at the community level to know the status of the sick young if in case follow-up visits are missed.

4.3.1.4.9 Quality of case management of sick young infants

It is important for sick young infant cases managed by health workers and HEWs to be supervised by IMNCI and CBNC trained and certified health professionals on the spot. It is recommended to employed direct case observation when the healthcare provider is examining the sick child, followed by re-examination of the same case by trained and experienced professional, though it a better way to evaluate the case management performance of the healthcare providers, but it is not feasible in most of the times (Cardemil, Gilroy, Callaghan-Koru, Nsona & Bryce 2012:127; Mengistu, Karim, Eniyew, Yitarek, Eniyew, Tsegaye, Muluye, Tesfaye, Demeke & Marsh 2014:79). The assessment of healthcare providers performance on uncomplicated fever and diarrhoea cases showed that there was a nine percentage points estimate difference between the procedures that combines direct case observation and followed by re-examination of the case by trained and experienced health professionals in comparison with other three performance measures that employed only direct case observation, register review, and case scenarios. However, the higher and wider estimation difference was found in uncomplicated cough and fast breathing, and severe illness (Cardemil et al 2012:127). This is considered as a gold standard to evaluate the quality of case management. However, since sick young infant cases at HPs, HCs and PHs are extremely low, there is a recommendation of reviewing the consistency of the sick young infant register by the IMNCI and CBNC trained and certified health professionals or program managers instead. This is agreed to be the proxy indicator to evaluate the quality cases management of sick young infants and children in Ethiopia, as a proxy of service quality (Mamo et al 2014:122). Consequently, for this research data collection, the IMNCI and CBNC experts were employed to abstract the data in the registers and to check the consistency of each case management. In addition, the data collectors provided professional judgment by deciding whether the assessment given versus the classification, the classification given versus the management, and the management versus the stated follow-up visit agreed with the national IMNC and CBNC protocols recommendation or not.

Thus, 85.5% of the assessments and classifications reviewed in the sick young registers were reported to be consistent as per the assessment and classification given by the data collectors by reviewing the cases in the registers. In addition, experts (data collectors) agreed with 73.1% of the classification and treatment recommendations provided by the health providers in the assessed health facilities. With the same principle, 71.2% of the classification and stated follow-up date to return to health facility for follow-up visit were consistent with data collectors' labelling. Overall, by computing the average of the above three quality of the case management tasks, 76.6% of cases abstracted in the registers agreed with the data collectors' grading the quality of case management of the sick young infants.

Taking the consideration of the high proportion of local bacterial infections and VSD cases from the total classification seen, quality of case management was checked for the two classifications separately. There was consensus with data collectors in 83% of the assessment versus the classification and 86% of the classification versus the treatment for local bacterial infection cases. Likewise, the assessment versus the classification and the classification versus the treatment for the VSD cases were agreed on 82.7% and 54.1% of the cases. Despite the stringent requirement of fulfilling the dose, schedule and duration for each sick young infant treatment recorded in the sick young infants' registers, the agreement between the classifications versus the treatment for the VSD cases were found to be relatively low when compared with the average quality of case management tasks for all sick young infants and the same assessment indicator with the local bacterial infection classifications.

4.3.2 Results from the inferential statistics

4.3.2.1 *Quality of newborn care service provision*

The quality of newborn care (QNC) service as one of the outcome variable was constructed from the five variables index including the essential newborn care, care provided for low birth weight babies, monitoring postnatal care, signal functions for EmNeC, and newborn death audit. All five variables index included in QNC are not in the same scale, and it was given equal weights and recalibrated to the range between zero and 10, with the highest score indicating better QNC service at different level of

health facilities. Consequently, 8.7 [95%CI: 6.03-11.303], the highest mean QNC score was achieved by PHs followed by UHCs with a 6.4 mean [95%CI:5.168-7.601]. However, nearly half of the RHCs were providing QNC (5.7 [95%CI: 5.152-6.18], and below half of QNC was provided by HPs (4.5 [95%CI: 3.867-5.116]).

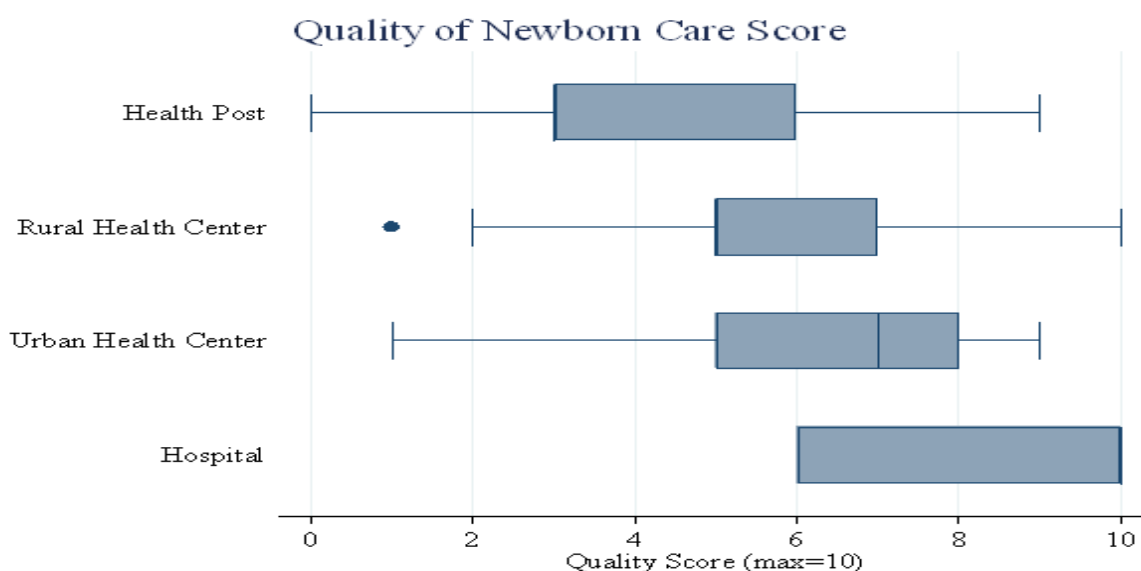


Figure 4.27 Quality of Newborn Care Score

This shows that the QNC given was high at the higher-level health facilities and lower in the lower level of health facilities (Figure 4.27).

As shown in Table 4.20, the multiple regression analysis shows that, from the below 11 listed and computed facility readiness indicators (independent variables), only availability of essential equipment is significantly associated with the QNC provision in the health facilities ($p < 0.05$).

Table 4.20 Association between facility readiness indicators and quality of newborn care provision

Independent variable	Coefficient	p-value	95% LCI	95% UCI
Total number of skilled birth attendants available in the health facilities	0.025	0.097	-0.005	0.055
Percent of health workers received newborn health training in the last one year	-0.003	0.659	-0.015	0.010
Percent availability of basic amenities in the health facilities	0.017	0.087	-0.003	0.036
Percent of essential equipment available in health facilities	0.037	0.047*	0.000	0.074
Percent of essential drugs available in health facilities	-0.007	0.571	-0.033	0.018
Number of Laboratory tests available in the health facilities	0.272	0.124	-0.077	0.620
Essential newborn care clinical scenario score	0.100	0.062	-0.005	0.205
Quality of care for very low birth weight babies' clinical scenario score	0.055	0.369	-0.067	0.177
Overall newborn care knowledge of health providers managing sick children and newborns (with score range zero to 10)	0.122	0.422	-0.179	0.423
Percent of referral communication	0.014	0.195	-0.007	0.035
Percent of health facilities received supportive supervision in the last 3 months	0.132	0.762	-0.736	1.000
cons	-2.646	0.111	-5.916	0.624

*P value <0.05

4.3.2.2 Quality of sick young infants' management

The quality of sick young infants' case management was computed by considering the successful performance of all three quality proxy indicators from all sick young infants' case management tasks of assessment and classification, classification and treatment, and classification and stated follow-up. It shows that about 55.6% of health facilities fulfil all three quality of case management tasks. Most health facilities were achieving more than 60% of the quality sick young infants case management (66.8% PHs, 61.5% RHCs and 61.9% HPs) except for RHCs, which had a score of 47.6%. However, 44.4% of health facilities were not meeting the quality of case management tasks for sick young infants. Moreover, the multiple regression analysis shows that (Table 4.21), from the below 11 listed and computed facility readiness indicators (independent variables), overall newborn care knowledge of health providers working in under-five clinic is significantly associated with the quality of sick young infants' management ($p < 0.05$).

Table 4.21 Association between facility readiness indicators and quality of sick young infants' case management

Independent variable	Coefficient	p-value	95% LCI	95% UCI
Total number of skilled birth attendants available in the health facilities	-0.001	0.798	-0.009	0.007
Percent of health workers received newborn health training in the last one year	-0.002	0.236	-0.006	0.001
Percent availability of basic amenities in the health facilities	0.001	0.660	-0.004	0.006
Percent of essential equipment available in the health facilities	0.000	0.964	-0.010	0.010
Percent of essential drugs available in health facilities	-0.005	0.130	-0.012	0.002
Number of Laboratory tests available in the health facilities	0.081	0.095	-0.014	0.177
Essential newborn care clinical scenario score	0.005	0.738	-0.024	0.034
Quality of care for very low birth weight babies' clinical scenario score	-0.021	0.211	-0.055	0.012
Overall newborn care knowledge of health providers managing sick children and newborns (with score range zero to 10)	0.109	0.010*	0.027	0.192
Percent of referral communication	-0.009	0.002*	-0.015	-0.003
Percent of health facilities received supportive supervision in the last 3 months	0.085	0.478	-0.153	0.324
cons	0.630	0.167	-0.269	1.529

*P value <0.05

4.3.2.3 Service utilization of sick young infants in one-year period

The pooled estimate of possible serious bacterial infections incidence risk in neonates was 7.6% in Sub-Saharan Africa, South Asia, and Latin America (Seale et al 2014:731). In addition, in the selected zone of Ethiopia, as per the report of their mothers, 12% of neonates had symptoms of an illness and among these, only 41% of women sought formal medical care (Berhanu & Avan 2014:9, 72).

The seven signs for infants under 2 months of age including, history of difficulty feeding and convulsions, movement shown when the young infant is stimulated, 60 or above breaths per minute when the respiratory rate is counted for one-minute, severe chest indrawing, temperature of 37.5°C or more or below 35.5°C), each sign or symptom, (sensitivity 85%) and (specificity 75%) and (sensitivity 74%, specificity 79%) were the same for 0-6 days and 7-59 days respectively. For sick young infants, timely

identification of very severe illnesses is crucial to facilitate the referral to higher health facilities; and one identified symptom or sign could be enough to assess and classify the severe illnesses for young infants (aged birth-2 months) (The Young Infants Clinical Signs Study Group 2008:135).

Thus, utilization of care among sick young infants were defined as the proportion of sick young infants who sought care in the health facilities in a one-year period from the total expected sick young infants or possible serious bacterial infections (PSBI). In addition, the total expected sick young infants or PSBI was calculated as total live births in the woredas considering the total population of each HPs in the woredas in that period multiplied by 7.6% (the incidence rate of PSBI). Surprisingly, the sick young infants service utilization of the existing facilities in zone was only 6.3 percent from the expected sick young infants' population; it was ranged from 0.8 up to 11.9 percent. It implies that the service utilization of sick young infants was critically low.

4.3.2.4 Effectiveness of the neonatal health care services

The effectiveness of the neonatal health care services in the primary health care units' composite index score was defined and measured by a composite index of quality of newborn care service provision, quality of sick young infants' case management, and service utilization of sick young infants in the health facilities. All variables were given equal weights and recalibrated into a range between zero and 10 (Tiruneh, Karim, Avan, Zemichael, Wereta, Mickremasinghe, Keweti, Kebede & Betemariam 2018:4-5) with a higher score showing a better effectiveness of neonatal health care services. Cronbach's alphas were also calculated to assess the internal reliability of the 11-health facility readiness items in measuring the underlying construct of the effectiveness of the neonatal health care services. It is expressed as a number between 0 and 1; and internal consistency describes the extent to which all the items in a test measure the same concept or construct (Tavakol & Dennick 2011:53). The cronbach's alpha for the 11 facility readiness items was 0.5 which less than 0.7 from the acceptable value of alpha value (Tavakol & Dennick 2011:54).

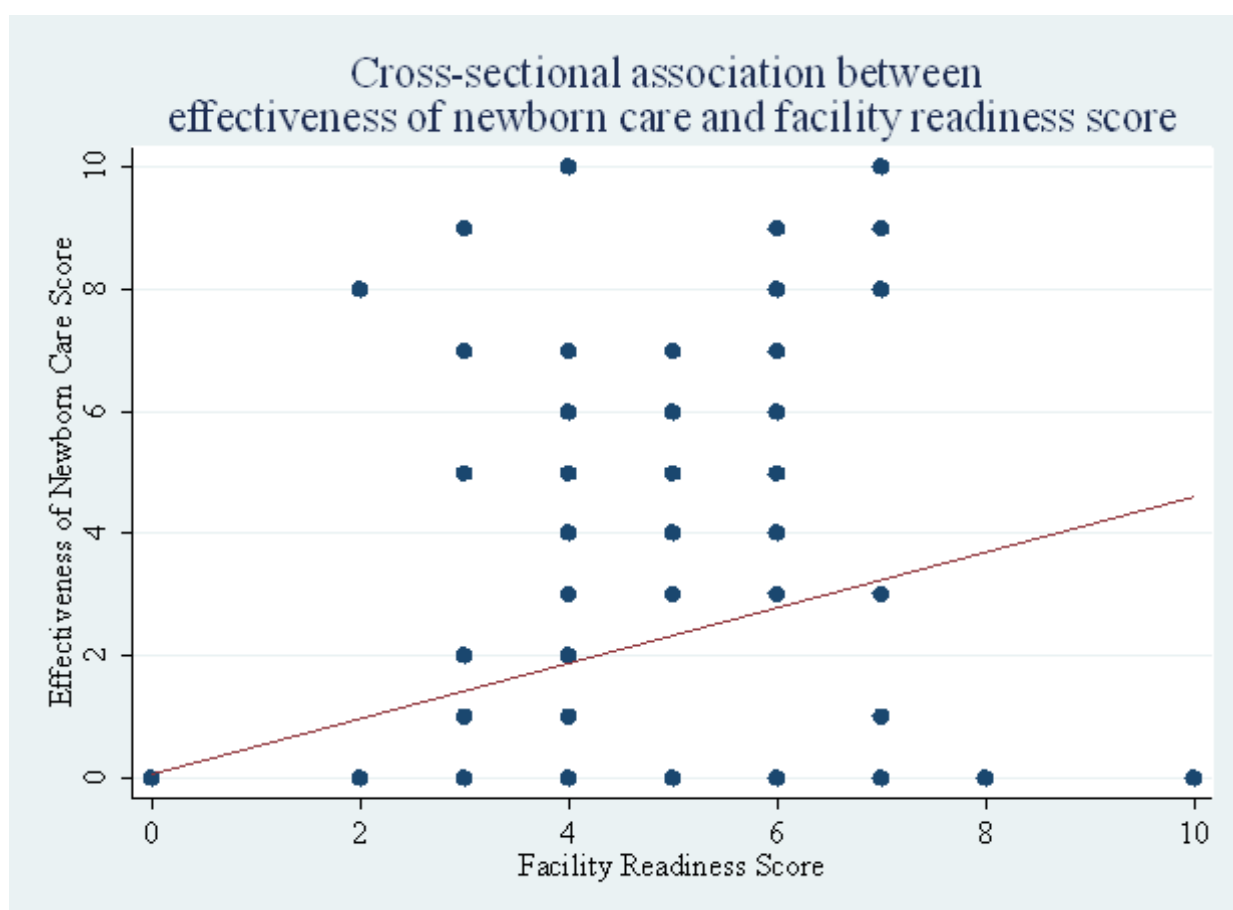


Figure 4.28 The cross-sectional association between effectiveness of newborn care and facility readiness score

Over all, the effectiveness of the newborn care services in the primary health care which ranged between zero and ten, for every unit increase of the facility readiness score, there was a corresponding average of 0.45 percentage points [95%CI: 0.134-0.768] increase in the effectiveness of the newborn care services. This implies that the effectiveness of the neonatal health care services has a statistically significant association with the health facilities readiness score ($p < 0.05$) (Figure 4.28).

In terms of the mean readiness of health facilities to provide BEmONC signal functions, it was found that PHs were ready to provide all seven signal functions; however, the readiness mean score for the UHCs and RHCs shows 6.8 [95%CI: 6.64-7.0] and 6.5 [95%CI: 6.224-6.799] respectively. Regarding the provision of the seven BEmONC signal functions in last three months before the survey, PHs had the highest score, 6.7 [95%CI: 6.007-7.325] and RHCs had lowest mean score, 3.5 [95%CI: 2.980-4.035]

4.4 OVERVIEW OF RESEARCH FINDINGS

4.4.1 Quality of newborn care services

4.4.1.1 *Performance of basic emergency obstetric and newborn care (BEmONC) signal functions*

In the signal functions, a package of care for women and newborns during pregnancy, delivery and the time after delivery or when a woman or her newborn experiences serious complication is provided (FMOH, EPHI & AMDD 2016:33). According to the Emergency obstetric and newborn care (EmONC) assessment report, percentage of facilities that performed each EmONC signal functions in the last 3 months were reported. In this report, in Amhara region, where this study was carried out, among health facilities that provided delivery services, 94 percent performed parenteral uterotonics and 84 percent performed parenteral antibiotics in the last three months prior to the survey. Manual removal of placenta was performed in the 68 percent health facilities. Among the basic signal functions, the least performed basic signal functions were parenteral anticonvulsants (29 percent), assisted vaginal delivery (45 percent) and removal of retained products (49 percent) (FMOH, EPHI & AMDD 2016:328). In the Ethiopia service provision assessment plus survey (ESPA) result (EPHI, FMOH & ICF International 2014:41), parenteral anticonvulsants were provided in 23 percent of health facilities in last three months before the survey. In line with these evidences, in this study, 95.4 percent and 81.1 percent of health facilities performed parenteral uterotonics and parenteral antibiotics in the last three months prior to the survey. In addition, the least performed basic signal function was parenteral anticonvulsants (72.2 percent). However, in this study, the performance of removal of the retained products (88.7 percent), assisted vaginal delivery (81.1 percent), and manual removal of the placenta (77.8 percent) were reported in higher performance than the Amhara regional performance in 2016 as reported in EmONC assessment report.

There was an enormous difference between hospitals/maternal child health speciality centres and health centres regarding the provision of EmONC signal functions (FMOH, EPHI & AMDD 2016:80). This study also highlights similar findings that PHs had the highest mean score of 6.7 out of the seven basic signal functions than the RHCs (3.5 mean score). In addition, the Ethiopian service availability and readiness assessment

report (SARA) show that the mean availability of obstetric signal functions was 51 percent of health facilities in Amhara region (EPHI, FMOH & WHO 2016:34). This study also reported that, RHCs performed only half of the signal functions (mean score 3.5) and however, the PHs and UHCs performance (mean score 6.7 and 6.2) from the seven signal functions were higher than the Amhara regional SARA report. The higher-level of health facilities is in the better situation for the readiness and performance of BEmONC signal functions.

4.4.1.2 *Emergency newborn care services (EmNeC)*

In the similar study done by FMOH, EPHI and AMDD in Ethiopia, the performance of the seven EmNeC signal functions including newborn resuscitation with bag and mask, antenatal corticosteroids, antibiotics for pPROM (preterm premature rupture of membranes), antibiotics for neonatal sepsis, KMC for small babies, safe administration of oxygen and IV (intravenous) fluids performance of health facilities in last three months prior to the survey were assessed and reported. Among health facilities that were assessed in the Amhara region, 76 percent performed newborn resuscitation with bag and mask, and 51 percent performed KMC for small babies in the last three months prior to the survey. Antibiotics for neonatal sepsis and antibiotics for pPROM were performed in the 39 and 42 percent health facilities. Among the EmNeC signal functions, the least performed signal functions were antenatal corticosteroids (7 percent), IV fluids (11 percent) and safe administration of oxygen (12 percent). Overall, among assessed facilities, only 3 percent of health facilities in Amhara region were fully providing EmNeC, which is consistent with the Ethiopian national average (FMOH, EPHI & AMDD 2016:81, 330-331).

The Ethiopian 2016 SARA report also assessed EmNeC services using five signal functions including the neonatal resuscitation, KMC for premature or very small babies, antibiotics for preterm or prolonged PROM, injectable antibiotics for neonatal sepsis, and corticosteroids in preterm labour. The SARA report revealed that the neonatal resuscitation was available in 59 percent of health facilities in Amhara region, followed by KMC for premature/very small babies, antibiotics for preterm or prolonged PROM, and injectable antibiotics for neonatal sepsis were available in 45, 33 and 30 percent of health facilities in the Amhara region respectively. In addition, the mean availability of

EmNeC signal functions was 30 percent of health facilities in Amhara region, which is also similar with the Ethiopian national average (EPHI, FMOH & WHO 2016:33-34).

This study also assessed the EmNeC signal functions in the last six months including the neonatal resuscitation, KMC for premature or very low birth weight, injectable antibiotics for neonatal sepsis, corticosteroids in preterm labour and administration of IV fluids. In agreement with the evidences, the highest score was for newborn resuscitation with bag and mask with 71.8 percent and followed by injectable antibiotics for newborn sepsis with 61.6 percent of the health facilities. In line with the existing evidence, this study also shows, corticosteroids for preterm labour was only performed in 6.5 percent health facilities (HCs and PHs). It is also the lowest score in all EmNeC signal functions. Likewise, only 7.7 percent of health facilities administered intravenous fluids for the newborns. From the seven signal functions computed to estimate the mean EmNeC score, PHs had a higher mean score, 6.3 and RHCs had a lowest mean score, 2.3 in the provision of EmNeC signal functions in the last six months before the survey. On the other hand, the UHCs mean score 4.2 was below the PHs and higher than the UHCs. It implies that, PHs were providing more than 6 EmNeC signal functions from the seven expected; in the contrary, UHCs and RHCs were providing slightly more than 4 and 2 signal functions respectively. The likelihood of getting EmNeC signal functions to save the lives of the sick young infants in the RHCs were critically low and was better provided in PHs. This also supported by existing evidences, only 3 percent of health facilities in Amhara region were providing fully EmNeC signal functions, and there was no fully EmNeC facilities in rural areas and no health centres were providing fully EmNEC at national level (FMOH, EPHI & AMDD 2016:81 & 83 and 330-331), and the mean availability of EmNeC signal functions was 30 percent of health facilities in Amhara region (EPHI, FMOH & WHO 2016:34). This is also supported by the research result of Winter, Yourkavitch, Wang and Mallick (2017:1), hospitals and facilities in urban areas were in the better position in both service availability and readiness; however, the readiness and availability of essential newborn care services in the rural areas facilities were reported as a substantial equity gaps for people accessing lower-level health.

4.4.1.3 *Quality of essential newborn care: Actions for resuscitation, follow-up and thermal care for newborns*

Research results by Vesel et al (2013:6) highlights that lower level facilities achieved only low-to-moderate scores for newborn resuscitation, immediate care after resuscitation and thermal care for the newborns and provided overall low quality of essential newborn care. Consistently with the evidence, this study shows that the mean score for quality of newborn care with the domains of newborn resuscitation, follow-up care after resuscitation and thermal care for newborns ranged below 10 for HPs, 15.9 for RHCs, 18.7 for UHCs and about 20 for PHs. This implies that the lower level health facilities including HPs and RHCs had a lower quality essential newborn care.

4.4.1.4 *Availability of essential equipment for post-delivery newborn care*

The Ethiopian EmONC assessment (FMOH, EPHI & AMDD 2016:208-209) revealed that baby weighing scale was available in 98 percent among all types of health facilities. However, only 23 percent of all facilities has caps or hats to prevent newborn heat loss. In addition, neonatal resuscitating tables, mucus extractors or simple suctions, neonatal resuscitation bag and mask of both size were available in more than 70 percent of all facilities. The assessment is also reported that, most supplies and equipment utilized for small and sick newborns including radiant warmer, incubator, designated space or beds for KMC were not widely available and only fewer than half of the facilities reported their availability. In addition, most of these items were not available in the health centres.

Similarly, neonatal bag and mask and infant weighing scale were found in 73 and 95 percent of health facilities at national level. From the 14 tracer items in the equipment domain were available above 52 percent except vacuum aspirator/ D and C (EPHI, FMOH & WHO 2016: 35-36). Neonatal bag and mask, and infant weighing scale were found in 46 percent and 90 percent of health facilities in Amhara region (EPHI, FMOH & WHO 2016:37).

In consistent with the evidences, in this study, bag mask and nasal suction and/or aspirator were available in 70.6 percent of health facilities including HPs. Regarding to keeping the thermal care of the newborn immediately after delivery, the availability of towels for drying babies and hats or caps for head covering were only available in 3.7

percent and 1.5 percent of health facilities including HPs; which is lower than EmONC assessment report. In general, based on the percentage availability mean score of the 17 tracers (for PHs, UHCs and RHCs), and 13 tracers (for HPs) essential equipment and supplies for the maternal and newborn health, the highest, 82.3 mean percentage score of functional essential equipment and supplies were available in PHs; followed by 72.4 in UHCs and 61.9 in RHCs on the other hand, the lowest mean percentage score was documented for HPs at 36.3. This suggests that HPs and RHCs were facing a shortage of essential equipment and supplies to provide key intended services for mothers and newborns; whereas PHs and UHCs were well equipped in comparison with RHCs and HPs.

4.4.1.5 Availability of essential medicines for newborn and maternal health linked to newborn survival

Injectable uterotonic and antibiotics were found in 85 percent of health facilities in Amhara region; in the contrary, magnesium sulphate injectable was found only in 17 percent of health facilities in Amhara region (EPHI, FMOH & WHO 2016:37). EmONC assessment result shows that key essential drugs for BEmONC signal functions and emergencies including antibiotics, oxytocics and prostaglandins and anticonvulsant were found in 99, 94 and 87 percent of health facilities at national level. Dexamethasone was also available in 47 percent of health facilities (FMOH, EPHI & AMDD 2016:2000).

In this study, in agreement with the evidences, injectable ampicillin and gentamicin were found in 93.6 percent of PHs and health centres. Oxytocics and magnesium sulphate were available in 87.7 and 75.9 percent of health facilities. In the other hand, injectable gentamicin (20 mg/2 ml) was available in 28.5 percent, oral amoxicillin dispersible tablet in 73 percent and oral amoxicillin syrup was available in 65.5 percent of health facilities including HPs. The injectable diazepam for the management of convulsions and injectable dexamethasone/corticosteroids to prevent breathing problems for newborns during preterm deliveries were available in 69.6 percent and 41.8 percent of health facilities excluding HPs. From the ten tracers, essential medicines, the mean percentage score of 86.7 and 81.5 were available at PHs and UHCs respectively. On the contrary, the RHCs were less equipped with essential medicines with a mean

percentage score of 74.8. While a 70-percentage mean of HPs were equipped with from three tracers' essential medicines.

4.4.1.6 *Newborn care knowledge of health providers in under-five clinic in PHs and HCs, and HPs*

Nurses, midwives, and nursing assistants were considered to have adequate knowledge in prenatal care (53.6 percent), newborn care (46.5 percent), management of neonatal infections (7.1 percent) and identifying/stabilizing low birth weight babies (56.3 percent) (Ayiasi, Criel, Orach, Nabiwemba & Kolsteren 2014:14, 65). In addition, less than a third of providers were able to demonstrate ventilation skills correctly by using NeoNatalie anatomic model (De Graft-Johnso, Vesel, Rosen, Rawlins, Abwao, Mazia, Bozsa, Mwebesa, Khadka, Kamunya, Getachew, Tibaijuka, Rakotovao & Tekleberhan 2017:1).

In this study to measure the newborn care knowledge of the health providers, the ten domains of questions were rescaled to range from a 0 to 10 scale. Health workers who were working in PHs were found to be at scale of 5; HWs in UHCs were at 5.4; followed by RHCs with a knowledge scale of 5.3. Relatively below half of the knowledge scale were HEWs in HPs level, with the scale point of 4.2. The overall analysis shows that there was no much difference in newborn care knowledge by HWs and HEWs at different level of care.

4.4.1.7 *Immediate care and breastfeeding advice for very low birthweight babies*

In Vesel et al (2013:6) study shows that, the quality of care for very low birth weight babies at hospitals ranged between moderate and high-quality scores; however, most of the lower level health facilities scored low in regarding to the quality of care for very low birthweight babies. Similarly, in this study, from the 20 actions corresponding to very low birth weight and improving the breastfeeding practices, the PHs attained the highest mean score, 13.4 and followed by UHCs and RHCs with 11.2 and 10.6 mean score respectively. In contrary, HPs had achieved the least mean score which is below half of the mean score (7.4). This implies that the quality care for immediate care and

breastfeeding advice for very low birthweight babies was found to be moderate at PHs, UHCs and RHCs; and low at lower health facilities, HPs level.

4.4.1.8 *Status of health workers training on key newborn health management*

Regarding the trained staff on newborn health care services, 55 percent of health facilities in Amhara region had trained staff in newborn resuscitation in the past two years (EPHI, FMOH & WHO 2016:37). In other study in four regions of Ethiopia, results showed that, among the interviewed HC staffs, only a quarter to a fifth had received IMNCI case management during the last 12 months. Despite the training was provided more than 12 months before in most cases, training in iCCM provided for 83 percent of HEWs and 65 percent of HEWs were also trained in CBNC (Okwaraji, Berhanu & Persson 2017:27). In this study, the IMNCI training in past 12 months was found to be 57 percent, which is higher than the other study results. Most of the newborn related training in the past 12 months ranged between 35 percent to 37.9 percent and particularly 36.7 percent of HCs and HPs staff were trained in CBNC including the management of neonatal sepsis. Since the cut-off point used for the training was different and this study also includes the HC staffs as a target for CBNC; thus, the status of CBNC training was lower in this study in comparison with the study result by Okwaraji, Berhanu and Persson (2017:28). Considering the critical importance of having the training for newborn intensive care units at hospital and newborn corner at HC levels, only 6.3 percent of health workers at HCs were trained on newborn corner skills and management, among HWs interviewed at the three hospitals, none of them were trained on management of newborns in the newborn intensive care unit.

4.4.1.9 *The timing of discharge for delivered mothers and their newborns from health facilities*

Even though WHO (2017:16; 2014:3) advises that if the vaginal birth without any complication is happening at health facility, both mother and her baby should stay in the health facility at least one day and get routine care from health providers. However, the following determinant factors, first time antenatal care seekers after 3 months of gestation, delivery in government hospital, mother or relatives' decision to seek discharge from hospital, and lack of insistence from doctor or staff for the mandatory 48 hours stay were cited in India by Nipte, Dhayarkar, Pawar, Venkatsubramanian and

Mehendale (2015:s26). In the other research in one woreda of Ethiopia, results indicated that, maternal knowledge on postnatal danger signs, previous experience of obstetric complication, antenatal care visit, place of delivery, and socio-cultural practices during puerperium were factors that are influencing the postnatal care services utilization (Belachew, Taye & Belachew 2016:1). In the other study in Tanzania, ANC attendance, place of delivery, and any incidence of newborn were some of the reasons for PNC completion (Kanté, Chung, Larsen, Exavery, Tani & Phillips 2015:1).

In contrary of WHO recommendation of the healthy mothers and newborns should receive care in the facility for at least 24 hours after birth, the majority (79.7 percent of health facilities) discharged mothers and their newborns from the health facilities between 6 and 12 hours of delivery; early discharge before 6 hours of delivery was accounted by 13.9 percent. However, only, 6.3 percent of health facilities were retaining delivered mothers and their babies in the respective health facilities between 12-24 hours of delivery.

4.4.1.10 Newborn health related national service delivery standards, guides and job-aids in maternity units' and under-five clinics

The most commonly available guidelines in all facilities in Ethiopia at national level were IMNCI (72 percent) and neonatal resuscitation (65 percent). In addition, integrated management for pregnancy, childbirth, postpartum, and newborn care and care for preterm or for low birth weight babies including KMC guidelines were available at 57 percent and 48 percent of health facilities. However, only 26 percent of health facilities had referral and counter referral guidelines (FMOH, EPHI & AMDD 2016: 205 & 383). In the Ethiopian SARA report, 26 percent and 31 percent of health facilities in the Amhara region had guidelines for essential childbirth care and essential newborn care respectively (EPHI, FMOH & WHO 2016:37). Quality of CBNC programme assessment midline evaluation report showed that, IMNCI and CBNC/iCCM chart booklet were observed in over 95% of HCs and 99 percent of HPs (Berhanu & Avan 2017:43-44).

In this study, in line with the evidence, the most commonly available and observed service delivery standard/job-aid in the PHs and HCs was IMNCI (94.9%) and BEmONC (55.7%). In addition, including the HPs, sick newborn referral guideline and standard referral slips for the sick newborns were available in 49.3 percent and 46.3 percent of

health facilities respectively, which is higher than the EmONC assessment report. From the selected tracer, 83.3, 67.3, 73.4 and 69 percentage mean of guides was available in PHs, UHCs, RHCs and HPs respectively.

4.4.1.11 Experience of receiving supportive supervision in the maternity units, and under-five clinics in PHs, HCs and HPs

In last six months before the survey, 84 percent of HEWs received integrated supportive supervision visits, and in the last one month, only 48 percent HEWs received supportive supervision visit (Berhanu & Avan 2017:31). Similarly, 50-60 percent of health workers including Medical Doctors, Health Officers, Nurses and Midwives had received supervision in the last three months (FMOH, EPHI & AMDD 2016: 187-188). In this study, in agreement with the evidence, 43.1 percent of interviewed health workers and HEWs in maternity units and HPs, reported that they had received supportive supervision visits related to maternal and newborn health services; whereas, 73.2 percent of health facilities had received supportive supervision visits to improve the case management skill of sick young infants in the past three months before the survey.

4.4.1.12 Health facilities' referral experience for obstetric complication and sick newborns

In Amhara region, only 17 percent of all facilities reported that they had at least one type of functioning motorized ambulance on-site (FMOH, EPHI & AMDD 2016: 262). In this study, 76 percent of health facilities possessed a functional motorized vehicle or ambulances for emergency transport; which is much higher than the existing evidence. Despite the availability of a functional motorized vehicle or ambulances, this study shows that, only 37 percent of health facilities, including HPs were providing newborn emergency transport services.

4.4.1.13 Basic amenities for providing maternal and newborn health services in health facilities

In 69 and 66 percent of HCs and HPs, water was available on the day of survey; moreover; electricity was available on the day of survey in 72 percent and 10 percent of HCs and HPs (Berhanu & Avan 2017:18). In the other hand this study shows that, only

29.7 percent and 23.4 percent of health facilities had access to clean water source and reliable electric supply at all times respectively. Availability of water and electric power was very low in RHCs when compared to PHs and UHCs; the lack of reliable water source and electric system were severely lacking at HPs.

4.4.2 Quality of sick young infants' case management and utilization of services at health facilities

In the sick young infants register review both at 113 HCs and 53 HPs, from the total of 1,067 0-2 months-old infants, 50 percent of the cases were 2-4 weeks of age, followed by 31 percent from 5-8 weeks and 19 percent were from 0-1 week (Okwaraji, Berhanu & Persson 2017:21). In this study, similar age distribution of the sick young infants was shown, among the 742-sick young infant cases, 38.3 percent of cases were represented by the age categories of 15-28 days; the 0-7, 8-14, and 29-59 days of age categories were accounted for 19.5 percent, 20.9 percent and 21.3 percent respectively.

In the similar study, the disease classification of sick young infants, 39 percent of was represented by local bacterial infections, followed by very severe diseases (32 percent) and diarrhoea/dehydration (20 percent) (Okwaraji et al 2017:21). In consistent with this study, results shown that, 43.5 percent of the classification were represented by local bacterial infection (infections originated from umbilicus or skin of the sick young infant), 32.4 percent were classified as having very severe diseases and 15.5 percent were classified as having diarrhoea with no dehydration.

Among those with VSD cases, 51 percent of them received gentamicin, and 28 percent received amoxicillin, and 5 percent received other types of antibiotics (Okwaraji et al 2017:21). Whereas this study shown that, 52.2 percent of VSD cases received oral amoxicillin dispersible tablet/syrup and gentamycin injection for 7 days, 27.5 percent of cases received ampicillin and gentamycin injections for 7 days, and 20.3 percent cases received ampicillin and gentamycin injections as referral treatment.

In regarding to the treatment of local bacterial infections, 86 percent of cases were treated by amoxicillin (Okwaraji et al 2017:21). In line with the evidences, in this study, all cases classified as having local bacterial infections were treated at outpatient level. Among, those with VSD cases, 34 percent of cases were referred (Okwaraji et al

2017:21). Consistently, this study also shown that 38.5 percent of VSD cases were referred; and 25.5 percent of VSD cases were referred by giving pre-referral treatment; and 13 percent of VSD cases were referred without giving pre-referral treatment).

Regarding the treatment outcome of VSD cases, nearly half of sick young infants were reported to have their health improved; whereas similar percent, 47 their outcome was unknown (Okwaraji et al 2017:21). However, in this study, 75.2 percent of the cases reported completion of treatment and 23 percent were unknown due to incomplete documentation in the register.

4.5 CONCLUSION

In this chapter the quantitative findings of the study have been presented. The quality of neonatal healthcare provision is low to moderate; and the service utilization of sick young infants is very low. The availability of essential equipment has impact on the quality of neonatal care provision in the health facilities. In addition, more than forty percent of health facilities were not meeting the quality of case management tasks for sick young infants, and the newborn care knowledge of health providers has impact on the quality of sick young infants' management.

Overall, the health facilitates readiness is contributing on the effectiveness of the neonatal healthcare services; so that the rural health centres and health posts should be prioritized to improve the effective neonatal care.

CHAPTER 5

QUALITATIVE ANALYSIS, PRESENTATION AND DESCRIPTION OF THE RESEARCH FINDINGS

5.1 INTRODUCTION

In this chapter, the main findings from data generated by the focus group discussions are presented, interpreted, discussed and summarized. This research was employed focus group discussions for health workers (HWs) and health extension workers (HEWs) to explore factors affecting the neonatal healthcare services in the primary health care units of Ethiopia. Finally, the chapter will be synthesised and will provide the key findings from the qualitative data.

5.2 DATA MANAGEMENT AND ANALYSIS

5.2.1 Participants

This research used focus group discussions (FGDs) for HWs and HEWs to explore factors affecting the neonatal health care services in the primary health care units of Ethiopia. These health providers were an expert group who have been providing the neonatal health care services in the health centres (HCs) and health posts (HPs) in the research focused zone and similarly all over the country. The approach is planned to get data from a group of participants after a purposive selection (Ochieng, Wilson, Derrick & Mukherjee 2018:20). Three woredas namely Bahir Dar Zuria, Mecha and South Achefer were selected purposely for the focus group discussion. In these woredas, three HCs and four HPs were selected to commence the FGDs. The FGDs were held separately for the HCs and HPs staff. The focus group is known by limited number of individuals and shared some common characteristics; and it is a reasonable size to facilitate the semi-structured or open-ended interview. In the interview process, the interaction of each members is further stimulating the thinking of the participants and enrich the contributions of each interviewees in the group (William & Weare 2013:48).

Overall, twenty-six participants were interviewed through focus group discussions in seven rounds of discussions. Since themes were saturated, it was not required to continue the discussion with the new group. Among the seven FGDs, three of them were held with health providers who were working in the respective HCs (Table 5.1); and the rest of the four were conducted with HPs staff at lower level health facilities (Table 5.2). Creswell (2014: 239) highlighted that six to eight interviewees engages in each focus group interviews. Since the discussion was held with selected expert groups in the health facilities, the number of participants ranged from 3 to 6 of in each FGDs. Taking into consideration of the verbatim as part of the analysis report, of participants in this FGDs were identified as per their group and participant number given during each FGDs (Tables 5.1 and Table 5.2).

Table 5.1 Focus group discussion (FGD) participants among health workers (HWs) in health centres (HCs) in West Gojjam Zone, Ethiopia.

Focus group	No participants	Identification of participants in their group	Unique identification number for each participant
Group 1	4	Group1- Participant 1-4	G1/P1-4
Group 2	3	Group2- Participant 1-3	G2/P1-3
Group 4	4	Group 4- Participant 1-4	G4/P1-4
Total	11		

Table 5.2: Focus group discussion (FGD) participants among health extension workers (HEWs) in health posts (HPs) in West Gojjam Zone, Ethiopia.

Focus group	No participants	Identification of participants in their group	Unique identification number for each participant
Group 3	6	Group 3- Participant 1-6	G3/P1-6
Group 5	3	Group 5- Participant 1-3	G5/P1-3
Group 6	3	Group 6- Participant 1-3	G6/1-3
Group 7	3	Group 7- Participant 1-3	G7/P1-3
Total	15		

5.2.2 Instruments

The semi-structured interview guide, first developed in English and translated into Amharic, which is the local and federal language of the country. The interview guide was pre-tested in health posts and health centres that did not participate in the study,

three days prior to the study to make appropriate correction based on the pre-test findings. In addition to the literature review, the preliminary finding of the qualitative study was very instrumental to identify the key themes and question. Accordingly, the order of the questions was repositioned; some of the questions which had similar concept was merged together; and some of the questions were shortened for a better clarity.

Consistently, semi-structured interviews were held with open-ended questions to explore a more detail response from each participant (Pope & Mays 2006:12) and Maltby et al (2010:56). One experienced assistant moderator with the principal investigator administered the semi-structured interview schedule for FGDs.

5.2.3 Data collection

One experienced assistant moderator was trained on the objectives, FGD interview guides and note taking. Consequently, he facilitated the overall arrangement including the appointment of the participants. The principal investigator took the responsibility of moderation to facilitate the discussion, prompting members to speak, and encouraging all the members to participate. In the FGDs, the assistant moderator took extensive notes and furthermore, the moderator was taking notes to capture for any potential emergent responses (Onwuegbuzie, Dickinson, Leech & Zoran 2009:8). In addition to note taking, audiotape recorder was used to record the interviews to capture most of the information (Silverman 2016:84; Creswell 2014:242). After each session of FGDs, the audio-recorded information and notes recorded by the note taker were checked for their consistency.

At the beginning each FGD, written consent was obtained from each participant including audio recording of their responses. The FGD were carried-out with HWs and HEWs until the information got saturated. Of course, on average, each FGDs was completed around one hour and fifteen minutes.

5.2.4 Data analysis

In this research, audiotape records and transcripts from each FGD were used as data sources for analysis. All audiotape records of FGDs were transcribed into Amharic

written language. It is known that, FGDs is one of the technique that produce data in collective space (Kinalski, Paula, Padoin, Neves, Kleinubing & Cortes 2017:424). Thus, it is about 44 pages of Amharic transcription for this research; and it was directly translated into English by the linguistic expert. During the transcription process, curiosity should be provided to perfectly represent all the views, feelings and exposure that was reflected in the interview process (Polit & Beck 2010: 465). In this research, a thematic analysis is adapted which has six different stages, such as familiarizing the researcher with the data, generating initial codes, searching for themes, reviewing the themes, defining and naming the themes and producing the report (Braun & Clarke 2006:87)

In thematic analysis, data is analysed by themes, which is highly inductive, as themes emerge from the data collected (Dawson 2007:120), which is more in-depth method of understanding and representing qualitative data (Maltby et al 2010:146). Hence, this study adopted thematic analysis to explore factors affecting neonatal health care services.

Since the researcher was facilitated the focus group discussion, the analysis was started during in the phase of data collection. Before the detail analysis started, even though the investigator is the prime moderator for the FGDs, listening to audio records, repeatedly reading of the transcripts and summary notes were the major primary task of the investigator to be able to understand and familiarize with the data and get a sense from the interviews. Overall, the qualitative analysis was done by hand.

5.2.5 Presentation and discussion of the findings

The FGDs key finding is presented and discussed based on the identified major themes including neonatal interventions provided, experiences of the health centers and health posts on neonatal health care services, adequacy of neonatal health care services, opportunities for neonatal health care service provision, neonatal service quality, performance of health care providers, referral linkage, reasons for not seeking neonatal care services, factors affecting neonatal healthcare, and strategies for effective healthcare for neonatal health care services (Table 5.3 and Table 5.4).

Table 5.3 Major themes and sub-themes of HC staff participants' responses in West Gojjam Zone, Ethiopia.

Major themes	Sub-themes
Neonatal interventions provided	Management of pregnancy
	Immediate and essential neonatal care services
	Neonatal care services provision at different level of care in the health system
	Case management services for sick young infants (birth-2 months)
Experiences of the health centers on neonatal health care services	Level of care for neonatal health care services
	Preference of care seeking for newborns
Adequacy of neonatal health care services	Early PNC for the mothers and newborns after delivery in the HFs
	Experience of Chlorhexidine jel (4%) application for cord care
	Management of preterm labour
	Management of birth asphyxia
	Kangaroo mother care
	Management of possible serious bacterial infections (PSBI) for sick young infants
	Performance of health care providers
Quality of neonatal healthcare services	Availability of material resources
	Competency of HCs staffs in the quality of neonatal health care services
Referral linkage	Linkage for early PNC home visit
	Referral communication for sick young infants' referral
	Transportation for sick young infants' referral
	Feedback mechanisms for referral cases
Reasons for not seeking neonatal care services	Lack of awareness on danger signs
	Cultural practices
	Health posts are not often open for services
Factors affecting the neonatal healthcare services at HC level	Lack of priority for neonatal healthcare services
	Sub-optimal programme monitoring visits
	Lack of awareness on the availability services
Strategies for effective healthcare for neonatal health care services	Capacity building of HWs

Table 5.4 Major themes and sub-themes of HEWs participants' responses in West Gojjam Zone, Ethiopia.

Major themes	Sub-themes
Neonatal interventions provided	Neonatal intervention across the continuum of care
	Facilitating ambulance services for transportation of pregnant women during labour
	Early PNC home visits
	Counselling on thermal care, breastfeeding and immunization services
	Case management of sick young infants
Experiences of the health posts on neonatal health care services	Experience of early PNC home visits
	Level of care
Adequacy of neonatal health care services	Practicing of early PNC home visits
	Chlorhexidine jel (4%) application for cord care
	Management of possible serious bacterial infections (PSBI)
Opportunities for neonatal health care service provision	Treatment of sick young infants at the community level
Quality of neonatal health care services	Readiness for PNC home visits
	Sub-optimal adherence on PNC home visit guideline
	Less attention to home visits for PNC
Performance of HEWs on neonatal health care services	Coverage of the sick young infants' case management task
Referral linkage	Referral communication
	Transportation services
	Receiving feedbacks
Non-health seeking behaviour	Misconceptions on causes of illnesses in sick young infants
	Cultural practices
Factors affecting the neonatal healthcare services at HPs level	Shortage of essential medicines and supplies
	Adhere on job-aids
	Interruptions of services
	Lack of attention and priority
	Being bored
	Demotivation and dissatisfaction
	Poor infrastructure of HPs
	Poor-to- suboptimal programme monitoring
Strategies for effective neonatal health care services at HPs level	Low community awareness
	Reducing workload
	Motivating the HEWs to inspire in their profession

5.3 RESEARCH RESULTS

5.3.1 Major themes and sub-themes from HWs in the HC staff FGDs participants

As it has been described in the data management and analysis of this chapter, three FGDs were held with 11 HWs at three HCs. Thus, the major themes and sub-themes which are synthesised from the discussion with HWs are presented and discussed in this section.

5.3.1.1 Neonatal interventions provided

5.3.1.1.1 Management of pregnancy

In cognizant with newborns and young infants promotive and preventive healthcare services (WHO 2017a:3) the HWs FGD participants were asked about the provision of neonatal health care services across the continuum of care. According to WHO (2017b:9), pregnant women is advised to have at least 8 visits to health facilities to acquire a better care her and newborn, and to reduce during the perinatal period. In line with the recommendation, the HCs discussants agreed that, in addition to the provision of ANC services at HC level, pregnant women were also informed on danger signs that occurred during pregnancy and labour. During the ANC follow-up, pregnant women are getting the following services: tetanus toxoid vaccination (TT), iron folate supplementation, laboratory examination services such as haematocrit (HCT) test, blood group, venereal disease research laboratory (VDRL), provider initiative counselling and testing (P ICT) for human immunodeficiency virus (HIV) testing, urine analysis and stool examination. In addition, blood pressure and weight of the pregnant women is measured, the foetal heart beat also auscultated.

G4/P1: “She [pregnant women] received TT vaccination, all laboratory examination services including HCT, blood group, VDRL, urine analysis and stool examination. ...blood pressure is measured and PITC is also done. Iron and TT is given to her. Then, planning with her where to give birth [facility delivery], about transportation [during labour] and counselling her to come [any time to the HC] if any danger sign is shown.”

Meeting with pregnant women during ANC follow-up is also used as an entry point for discussion and planning about where to give birth, and emergency preparedness and birth readiness. Moreover, most of the HCs staff agreed that, the midwives from the HCs are regularly visiting and providing technical support to their catchment HPs. In addition, the HC is also supporting the HPs in the HC catchments on the early identification of pregnant women and increase the coverage of professional assisted delivery in the HCs or hospitals.

G4/P1: “We [HC staff] are going to the “got” village level which has many mothers...in cases of this practice many mothers become aware of the advantage of giving birth at health facilities.”

Most of the HCs staffs agreed that, all pregnant women are not accessing ambulance services in the transportation from their home to HCs or hospitals to facilitate professional assisted delivery.

G4/P1: “Transportation service is depending on the situation; sometimes by ambulance, sometimes with bajaj [three-wheeler], being carried on traditional ambulance [litter /beds] or they come on foot also.”

The issue is after the delivery, they are expected to use their own available transportation to return to their homes.

G4/P1: “After delivery in the health facility, they return back home with their own means of transportation.”

With regard to provision of the emergency transportation services and interventions to the pregnant women to improving the outcomes of the pregnancy; the research evidence has shown that due to the availability of feasible transportation services for pregnant women, health professional assisted birth with a better obstetric care has increased, and which was contributed for the reduction of maternal, and neonatal deaths in the countries which are categorized as low income and middle income. Health professional competency in early identification of complications, timely action for referral, and overall preparation of the referral receiving health facility to provide the

required care and services are the basic contextual factors in addition to having the emergency transportation (Ehiri, Alaofè, Asaolu, Chebet, Esu & Meremikwu 2018:7).

5.3.1.1.2 Immediate and essential neonatal care services

Most of the HCs discussion participants also agreed that the labour process is also followed with partograph. The immediate and essential newborn care services is provided for the newborn such as resuscitation of the newborn if she/he develops birth asphyxia, application of tetracycline in the eyes of the newborn, vitamin k injection in the thigh of the newborn, initiate breast feeding and chlorhexidine application in the cord of the newborn.

G4/P1: “Applying TTC [in the eyes of the newborn], giving Vitamin K [injection in the thigh], polio [oral polio vaccination], chlorhexidine [application the newborn cord]. ...there is also appointment for 45 days [for immunization], and the mother can come as conditional.”

The weight of the newborns are measured, if the newborn has very low birthweight or premature, the HC puts the newborn into the radiant warmer and initiate referral to hospitals. Following the delivery, the mother and the newborn will stay in the HC for sometimes for early postnatal care (PNC). Immunization services is also provided to newborn during birth or in few days for Bacillus Calmette–Guérin (BCG) and oral polio (polio zero dose) and at 45 days of birth for routine immunization services.

G4/P3: “If they [newborns] become low birthweight we [HC staff] put them in radiant, and refer them if kangaroo mother (KMC) is needed.”

Despite the efforts exerted by HCs to improve the access to and quality of ANC services to the pregnant women, HCs staff agreed that, still home birth without health professional assisted is practiced.

According to the study done in one town of Ethiopia, close to 75 percent of mothers were not providing the essential newborn care; among the others, those mothers counselled with essential newborn care services during at birth had a better chance of

practicing essential newborn care services for their newborns (Berhe, Medhaniye, Kahsay, Birhane & Abay 2017:2).

Thus, newborns might not get the necessary immediate and essential newborn care services following delivery at home.

5.3.1.1.3 Neonatal care services provision at different level of care in the health system

The opportunities for neonatal health care services provision were also discussed with the HCs focus group participants. In this discussion, all the HCs participants notably agreed that the neonatal health care services are provided at different level of care in the health system including at HPs level which are near to the community members, HCs and hospitals. Thought it is not strong enough, each level of care across the health system are also networked with the referral linkage. Moreover, each level of care has its own treatment guidelines.

G2/P2: “HEWs at HPs go home to home to give health care service and register them [neonates], they [HEWs] send them to HC if they become sick, sometimes they send directly to the hospital and to our section.”

As part of the PNC home visits, HEWs are supposed to conduct active case detection of sick neonate for early detection, management and possible referral services.

G2/P1: “There are trained professionals on community based newborn care [to treat sick young infants’ at the HPs level], IMNCI [to treat sick young infants’ at HCs].”

Regarding to the management of sick young infants, both the HEWs at community and HWs at HCs are equipped and capable to provide the required care at their respective level of care as per their job-aids.

5.3.1.1.4 Case management services for sick neonates and sick young infants (birth-2 months)

All the HCs FGD participants agreed that, case management services are provided for sick neonates up to the age of the 2 months according to the integrated management of newborn and childhood illnesses (IMNCI). For this age groups, the HCs have a separate register to manage under 2 months' infants. Depending on the level of severity of illnesses for the sick young infants, sick young infants are either treated at HCs level or referred to hospital for further diagnosis and management.

G2/P1: "In this HC, there is health care service for under 2 months' infants'. There is trained health care professional; there is registration book separately for this service. There are questions for mothers about danger signs may be occur on infants, and they are assessed accordingly and written differently and treated. The treatment is divided in to three: We give medicine treatment to them, we give counseling service and we refer those with serious problems to higher health care facility."

All HCs FGD participants are aware that, HEWs are also trained to asses and treat sick young infant's at community level. HEWs are supposed to refer sick young infants to HC if they cannot treat at the level of the HPs. The HCs also receive the referral and treat them according to the level of HCs or refer to hospitals if the problem is beyond the capacity of the HCs.

G1/P2: "HEWs also check infant's health condition and refer to HC if they can't treat them. And we [HC staffs] also treat them and refer to hospitals if the problem is beyond our capacity."

5.3.1.2 Experiences of the health centers on neonatal health care services

5.3.1.2.1 Level of care for neonatal health care services

The HC participants had a mixed feeling regarding the level of care on neonatal health care service provision including the treatment service for the sick young infants. Some of the participants believed that in most of the time the young infants' service provision

is started at HP level and linked with the referral system if the newborn condition requires further investigation and management. They also notified that the neonatal services are provide at HC level in addition to receiving referral newborn cases from the catchment HPs.

G1/P3: “Young infants’ health care is primarily given at HPs. They [HEWs] do with the standard of the HP service provision; and then refer to HC if the problem is a type of that can’t be solved at that stage. Then the HC gives service. The HC also refers it if the problem is again beyond the standard of it.”

It was noted that, most of the neonatal health care services starting from pregnancy, attending delivery, essential newborn care and management of sick neonate services is provided at HC level; and HCs are also receiving referrals from their respective area catchment of HPs.

5.3.1.2.2 *Preference of care seeking for newborns*

In the FGDs, the community members and families’ preferences of the health facilities at the priority for the newborn care services was also discussed with the HC staffs. The HC participants’ opinion showed that the preferred level of care for sick infants by the community members are HCs in comparison with HPs. There is an experience of by-passing the nearby HP to seek care into in the relatively remote HC from their villages. Similarly, as per the Ethiopian Demography and Heath Survey report (CSA Ethiopia & ICF 2016:165) government HCs are the most preferred sources for care of acute respiratory infection for 2 months up to 5 years’ children.

G1/P4: “Mothers take their infants to the health institution with better health facilities. So mostly to HCs. But we are informing them they can get treatment in HPs. Households’ belief that as if there is a shortage of medicine in HPs. I believe, that is good if they [newborns] get service at the HPs because HEWs are nearer to them [the community].”

In the discussion, it was pinpointed that, the by-passing of the HPs and the preference of care seeking at HCs could be the families and the community members might not be aware of the clinical services provided at HP level; or some of the families and the

communities might consider that the service provided to the sick newborns at HP level is poor.

G1/P3: “Many parents want to take their young infants to get treatment at HCs; because, there is lack of understanding among the community.”

In this case, the community members might not aware the available curative services in the HP which is a walking distance to their village, or they might send a message to the HEWs to get the services at home for their sick neonates.

G2/P3: “They prefer HC. Most of the time they do not go to HPs, because there is no good young infants’ treatment at HPs. And they also refer if parents take infants to HPs”.

As per the opinion of the HCs staff, the community might not develop confidence on the curative care services provided by HEWs at community level. This also supported by the research done in Nigeria, at a time when the representative of the communities felt that the service provision in primary healthcare services are in inadequate quality and the services available are not adequate for their demand; so that they will not be encouraged to visit health facilities (Adam & Awunor 2014:117).

In addition, the HC staffs valued that, traditional healers are still considered as the choice of preference to seek care for their sick newborns in some portion of the community's. As per the experience of the HCs staff, in some occasions, the families are also visiting the HCs after the newborns have developed some complications after the traditional healers did some procedures in the newborns.

G2/P2: “Most of them [families] come to HC when mothers see symptoms of disease in their young infant, ...sometimes they take them to traditional healers’ homes and there are occasions when they come to us being cut their uvula/tonsils; they come to HC after their infants are unable to breast feeding.”

The finding of this research is also supported by evidence from central and southern Ethiopia on the newborn care seeking practices, it has shown that, there was a practice of home based remedies and seek care for their sick newborns either from traditional

healers from the community or by visiting health facilities (Amare, Degefie & Mulligan 2012:3).

5.3.1.3 Adequacy of neonatal health care services

5.3.1.3.1 Early PNC for the mothers and newborns after delivery in the HFs

After an uncomplicated vaginal birth in a health facility, the routine care for the mother and her baby should be continued in health facility by health professionals at least one day after birth (WHO 2017a:4). In addition, WHO recommended that if birth occurred at home, the mother and baby should get four contacts, the first and immediate contact should be done within the first day after birth, the second contact within the period of 48 hours and 72 hours or at day three, the third within 7 days and 14 days, and the last one at 45 days after birth (WHO 2017a:4).

Regardless of the WHO and national recommendations (FMHO 2015b:6) on the timing of discharge from the health facility, all the HC discussion participants agreed that, with different reasons, they were experiencing early discharge than the stated recommendations. Among the frequently mentioned reasons for early discharge were lack of enough space and beds in their respective health facilities.

G2/P3: "Early discharge takes place because of absence of enough space. There is problem of having the necessary rooms... we [HC staffs] discharge them within six hours after birth. We give them necessary service within 6 hours after birth then discharge them. There is also understanding problem among the community, they think that as if there is no problem after mothers give birth, and they ask immediately for discharge after birth".

Even though, the HCs staff aware of the mother and baby should stay at least 24 hours after birth in the HC after a normal delivery; however, due to the maternity ward of the HC is overstretched by mother who are in labour, so that the HC is not able to practice early PNC services for all delivered mothers and babies for 24 hours before they are discharged. This is also a great missed opportunity for the mother and the newborn to get the early PNC in the critical periods.

G2/P2: "...shortage of beds in that section [PNC unit] so that the period of their stay is short... the other problem is related to mothers and their parents too ... they do not want to stay in PNC room."

In addition of having the limited space at maternity ward, rooms are also lacking with adequate beds for postpartum mothers and babies. The available beds is prioritized for labouring mothers.

Most importantly, once the mother gave birth the family members and the accompanies consider that there is no problem after birth and they want to go to their home and practice some traditional celebration at home with their families and neighbours. This has also a limitation from the health care provides side, and they are not also providing the required counselling to the family members and the accompanies on the complication both the mother and newborn are facing following the early discharge after delivery.

G4/P1: "All of them want to be back home to meet their families at home. Even sometimes there were cases husbands of mothers who gave birth left them and went home...they are unable to get the service since they left the HC by their own. But we are counselling and trying them to stay here and finally if they refused not to stay, we inform them to come again if any illness or danger sign occurs."

5.3.1.3.2 *Experience of chlorhexidine jel (4%) application for cord care*

The WHO recommendation indicates that for birth attended in health facilities, the cord has to be dried without applying nothing; but in the places where there are a higher newborn deaths, more than 30 neonatal mortality rate from the 1000 live births and the births occurred at home, a daily chlorhexidine (4%) application to the newborns umbilical cord stump for the consultative 7days is recommended; however, in Ethiopian context, regardless of the place of delivery, a-daily chlorhexidine (4%) application for one week is recommended (FMOH 2013:10).

In line with the experience in the use of chlorhexidine (4%), "Yimserach jel" the local brand name, was discussed with HWs. Thus, "Yimserach jel" was mainly available in

the HCs. As per the recommendation, the application has started in HC after delivery and the mother take away the remaining to apply at home.

G4/P1: “It is available. We [HC staffs] apply once and demonstrate to them then they apply the remaining 6 days.”

The response of the HCs staff is consistent with the national recommendation. The application of chlorhexidine (4%), “Yimserach jel on the umbilical cord stump of the newborn initiated immediately after birth and daily application for the following six days at home.

5.3.1.3.3 Management of preterm labour

During the pregnancy period, the administration of antenatal corticosteroid only applied if the pregnant women is found be at risk of preterm birth with the period of twenty-four to thirty-four of gestation. Before the administration the corticosteroid, the following prerequisite shall be fulfilled, accuracy of gestational age; the birth is about to happen; the mother is diagnosed as free of any infection, if the health facility to provide a comprehensive care at labour and delivery and the required care for the preterm (WHO 2017b:10; WHO 2015b:13).

However, all the HCs discussants agreed that, they are not equipped to provide the administration of intramuscular dexamethasone or other corticosteroids for pregnant woman at risk of preterm birth; and guideline is not available in their respective health facilities. Consequently, if the HC is experiencing the preterm labour, referring the pregnant woman at risk of preterm to the higher-level facility is the usual practice.

G2/P3: “No service [for preterm labour]. There is some concept during in some training, but not practically available. And dexamethasone service is not available. We refer to higher facility if preterm labour occurred.”

G4/P1: “Management of preterm labour guideline is not available, we [HC staff] haven’t trained yet.”

As per the WHO recommendation, if the age of the pregnancy is not precisely known, as a routine management, antenatal corticosteroid administration is not advisable because of the additional risk (WHO 2017b:10; WHO 2015b: 13). Thus, to probably identify the pregnant women requires antenatal corticosteroid, their gestational age should be accurately assessed by ultrasound in the early weeks of pregnancy (WHO 2015b: 13). However, HCs in Ethiopia, either they are not equipped with ultrasound or they don't have the skilled professional to use the ultrasound and confirm the gestational age in the first trimester. If the age of the mother pregnancy is anticipated to be a likelihood of more than thirty-four weeks, the corticosteroid might cause a risk to foetus and so that it is better not administered this medicine (WHO 2015b:13). With this instance, in this study, referring the pregnant woman at risk of preterm from HCs to the higher-level facility is consistent with the WHO recommendation.

5.3.1.3.4 *Management of birth asphyxia*

At a time of labour and delivery, most babies need a routine immediate essential care services (FDREMOH 2016:65 & WHO 2013a: 46). The normal breathing rate for a newborn baby is between 30 to 60 breaths per minute (FDREMOH 2016:67). However, if the newly-born baby is not crying or breathing well after, the newborn shall be quickly dried, stimulated and resuscitated with bag and mask, to help the baby to breathe in one minute, "golden minute" (AAP 2010:16; WHO 2017a:8). It was advised that if the baby is not breathing or gasping, ventilation with bag and mask is the most important and effective way to opens the lungs of the baby with air (AAP 2010:20). Delay in ventilation may result in preventable death or brain damage (AAP 2010:17).

The HCs group discussion participants revealed that they have relatively adequate knowledge and received training on the management of birth asphyxia to save the lives of newborns immediately after birth. Some of the participants also mentioned the steps of birth asphyxia management as follows:

G2/P1: "We [HC staff] are practicing birth asphyxia as follows; first we clean mouth, make positioning, we can use radiant warmer if necessary, we use sucker and give oxygen if necessary. We make sucking both mouth and nose until free of secretion. Then air [oxygen] is given. If breathing problem occurred and gasped or less than 30

[breath per minute] we help them. If the material is not available, we make mouth to mouth and many were saved by doing this.”

The process of resuscitation for the asphyxiated babies is corrected. However, the focus group discussant didn't mention how to ensure whether the bag and mask is properly fit on the mouth and nose of the baby, how many buff will be given in one minute and the monitoring and evaluation component of the ventilation process. In addition, resuscitation with mouth to mouth is not recommended currently.

According to the American Academy of Pediatrics (2011:15); from the estimated ten to twenty percent of babies not breathing at birth, if the newborns are protected from hypothermia, and receiving a gentle cleaning of the air way and stimulation during drying, at this stage most of the newborns breath spontaneously. Only a smallest proportion of newborns from three to six percent is supposed to receive resuscitation through proper size of bag and mask. However, newborns who are estimated to be less than one percent, required an advanced care and resuscitation including chest compressions and medications.

Nevertheless, some critical issues were identified during the discussion with the HCs staffs regarding to the management of birth asphyxia. The narrow room and space in the delivery room which is compromising the resuscitation process; shortage of supplies for resuscitation; inappropriate use of supplies and technical problems; and limited competency since the HCs staffs are not often practicing the skills of birth asphyxia due to the low prevalence of asphyxia, are some of the factors mentioned by the HCs staffs which is affecting the management of birth asphyxia.

The finding of this study is also supported by the qualitative study done among midwives in rural Tanzania by Moshiri, Ersdalc, Mdoe, Kidanto & Mbekenga (2018:1), the readiness's of the ventilation supplies in delivery room, working as a team and repeated training to improve the competency skills found to be the trigger factors for the health care providers to provide and practice of the resuscitation services to the newborns to save their lives. In similar study, it was noted that, the poor resuscitation performance is often resulted because of midwives' anxiety and fear due to stress of ventilating a non-breathing baby. In addition, if the health care providers lacks skills or face any challenges to assesses newborns with birth asphyxia, the required

interventions to ensure the breathing of the newborns were not provided on time (Moshiro et al 2018:1).

G2/P3: "...such as shortage of material supply, misappropriate use of some plastic materials, technical problems...poor skills of the HWs, it is advisable if practical training is given because many newborn mortality is due to birth asphyxia. Resuscitation is core practice and should get attention and training is mandatory. But newborns with severe cases may not be survived."

Ethiopia has demonstrated in the reduction of deaths among children under five years of age, yet the country is challenged with a substantial number of newborns illnesses and deaths with causes that can be prevented, with effective coverage of high impact interventions and by improving collaboration among different sectors (Ruducha et al 2017: e1142). In line with this study findings, availability of national newborn guidelines, job-aids with enough quantity, the interval of the training received by healthcare providers and the level of healthcare facilities had association with the health workers provision of neonatal health care services (Berhe et al 2017:1).

G4/P1: "The class is very small to resuscitate the baby and no table for resuscitation...there is no resuscitation section/room...but it is easy to resuscitate if it is occurring...all of us [HC staff in the maternity ward] have been trained, ...the case [newborn with birth asphyxia] is not present in the previous 6 months."

5.3.1.3.5 *Kangaroo mother care*

Kangaroo mother care (KMC) is an intervention for newborns whose weight is measured two kilogram or less. It is an important intervention that is aiming to ensure the thermal care for both preterm or found to be low birth weight newborns. The action shall be started in the health facilities and the newborn should stay in the KMC for 24 hours (WHO 2017a:10, WHO 2013a:59 & FDREMH 2016:88-90). All infants with gestational less than 35 weeks or a birth weight less than two kilogram should be admitted to a special care unit; who are highly susceptible with the problem of hypothermia, encounter with a difficult of breastfeeding, infection, apnoea, some difficulties in respiration and other (FDREMH 2016: 88 & WHO 2013a:59).

However, most of the HC participants revealed that, KMC is only initiated in cases of referral of very /low preterm or low birth weight newborns to hospitals.

G2/P3: “We [HC staff] do not practice it [KMC] here; and refer to the hospital...there is no such practice [KMC]. Then, at hospital there is KMC practice and discharge...”

G4/P1: “We [HC staff] initiate KMC and then refer them to the higher facility.”

According to a multi-country study in Africa to assess the lessons from KMC services that was provided at health facilities; training and orientation, supportive supervision, integrating kangaroo mother care into quality improvement, continuity of care, high-level buy in and support for KMC implementation, and client-oriented care were the important factors identified in the quality implementation of KMC services (Bergh, Kerber, Abwao, de-Graft Johnson, Aliganyira, Davy, Gamache, Kante, Ligowe, Luhanga, Mukarugwiro, Ngabo, Rawlins, Sayinzoga, Sengendo, Sylla, Taylor, van Rooyen & Zoungrana 2014:1).

Otherwise admission of KMC in the HC is not a common practice as per the discussion findings with the HC staff. In addition, initiating KMC at HC and linking to the HP is not a common practice as well. One participant mentioned that having inadequate room and beds are main hindering factors to initiate and admit cases for KMC in the HC. Most of the HC staffs regrettably confessed that, the HCs are not ready to provide the required KMC services since the existing rooms are already overstretched and poorly equipped with beds and the required supplies.

G2/P1: The section [in the maternity ward] and the beds are very few in numbers. Only 1 bed available for post-natal care; and this is one limitation for KMC service provision.”

G2/P2: “When infants are with underweight but not preterm we [HC staff] counsel them [mother] how to make KMC at home after demonstrating here.”

As per a systematic review to assess the bottlenecks and facilitators on the implementation of KMC services across in the health system; both healthcare workers and their health facilities were found to be the important contributors for the adaptation of

KMC interventions (Chan, Bergelson, Smith, Skotnes & Wall 2017:1466). Likewise, in this study, the HCs are not ready to provide the KMC services with complaining of lack of furnished space and adequate on-job trainings and failed to practice often initiating of KMC at HC and linking to the HP, which doesn't incur any cost.

5.3.1.3.6 Management of possible serious bacterial infections in sick young infants (PSBI)

If the sick infants below the age of 2 months (birth-2 months) are not timely assessed, classified and managed; they could be die within short period of time since the onset of the illnesses (WHO 2018b: 21). At birth or after birth within 2 months' period, these newborns usually come-up with some severe illnesses where their symptoms and or sings might not be specific for some disease conditions (FDREMOH 2016:77; WHO 2013a:52). Timely assessment of serious bacterial infection on the newborns is quite important to initiate the treatment in the health facilities to have a better outcome and avoid complications due to the causes of the infection (WHO 2018b:21). Consequently, at a times when the families of the sick young infants (SYIs) (birth-2 months) are not accepting the referral issued for the higher-level health facility management for very severe diseases, the treatment of the SYIs ought to be provided in the health facilities at the outpatient level with trained healthcare providers (WHO 2017a:10; WHO 2015a:21).

Most of the HC participants revealed that, they are managing possible serious bacterial infections (PSBI) when it occurs in young infants adhering with the national service delivery guidelines at their respective health facilities. The essential medicine used for managing PSBI are also mostly available in the HCs. Despite the HCs being relatively equipped in terms of skills and essential medicines and supplies, the number of sick young infants who were managed at the HCs in the last 4-6 months prior to this discussion was very low.

G1/P1: "In HC we are giving service according to IMNCI for 0-2 months ... if the health problem is beyond our capacity, for example, very severe disease or severe pneumonia we refer them. If mothers do not accept the referral we treat here in HC by consulting with them [the family]."

5.3.1.3.7 *Performance of health care providers*

In the focus group discussion with HCs staffs it was agreed that the performance of the health care providers is affected by capacity building training, supportive supervision, availability of human resources for health, reference books, essential medicines and supplies. The moral motivation is also affecting the performance healthcare providers. Otherwise, the discussants agreed that the health services structure is becoming near to the community.

G1/P3: “No one can conclude all professionals give the same quality of service.”

In most of the rural communities, having early PNC visits at HCs and hospitals level is not common. Thus, the HCs staffs are expecting the early PNC shall be provided by HEWs though home visits. However, most of the HCs complained that, the home visit for PNC is not getting the attention of the HEWs. The HEWs are also overwhelmed by other activities including non-health related activities given by the local kebele administrators. Moreover, the HC staffs experienced that, even though the HEWs are doing the home visits, the documentation of the home visit is not well kept.

G2/P1: “There is a problem of giving attention for their duty [Early PNC], in addition to this sometimes kebele administrators called them for non-health service activities. So, there is no full PNC package service. For example, at the time when I [HC staff] went to follow-up to the HP, there is no registered data, only some assessment data I could see there. They are sending them [sick young infant] to the Primary Hospital, so generally attention is minimal.”

5.3.1.4 *Quality of neonatal healthcare service provision*

The healthcare providers in the health facilities should focus on the provision of quality of health services for all cases so that the intend outcome would be better (WHO 2016:14).

Regarding the quality and adequacy of the neonatal health care provision at HC level, due to suboptimal availability of trained human resources, and essential medicines and supplies, most of the HC participants agreed that, the service provided particularly for

the sick young infant is not high as expected quality standards. Nevertheless, some of the HC participants argued that, the HCs is trying their best to provide the quality of health care services for the newborns.

High-quality health systems could prevent 1 million newborns from deaths, however if the quality of services provided is poor, that is a huge obstacle for the reductions of neonatal mortality in comparison with inadequate accesses for the service (Kruk, Gage, Arsenault, Jordan, Leslie, Roder-DeWan, Adeyi, Barker, Daelmans, Doubova, English, Elorrio, Guanais, Gureje, Hirschhorn, Jiang, Kelley, Lemango, Liljestrand, Malata, Marchant, Matsoso, Meara, Mohanan, Ndiaye, Norheim, Reddy, Rowe, Salomon, Thapa, Twum-Danso & Pate 2018:1). In agreement with the issue mentioned on the quality of care; due to suboptimal availability of trained human resources, and essential medicines and supplies, the participants of this study agreed that, the service provided to the sick young infant is not high as expected quality standards.

G1/P3: "It [quality of services to newborns] is not enough according to my understanding; because there is a shortage of material inputs, shortage of skilled man power and shortage of medicine on the stock-out are among the shortcomings. Having trained man power and improvement of supply are important."

This study finding is also supported by the assessment done in the public healthcare facilities in Bangladesh to understand the quality of healthcare services for newborns and their mothers. The available human resources for health is not adequate and even they absent from work, lacks hands-on clinical skills, poor interpersonal communication with patients, the care provided at during follow-up visit is poor, stock-out of essential supplies and medicines were found to be the bottlenecks to provide the quality of health care provision especially at lower level of service delivery (Chowdhury et al 2009:53)

5.3.1.4.1 Availability of material resources

The availability of essential supplies, medicine and job-aids are essential to provide the quality of health care services for the young infants the health care facilities. The participants agreed that, the availability of essential medicines, supplies and job-aids

were getting better from the previous time; however, health facilities were still experiencing stock-out of essential supplies, medicine and job-aids in sometimes.

G2/P2: “Yes, adequate medicine and job-aids are present, only last time there was shortage. Within 2 years of my experience in this HC there was shortage of Ampicillin for some three months. But other medicines such as, zinc, ORS, Amoxicillin, Ciprofloxacin are available.”

Lack of room or space in the health centres is also one factor identified by the group discussants to provide the KMC for the low birthweight and or preterm babies.

G4/P1: “It is advantageous if KMC section has one room independently ... there is no defined room for KMC service. There is no on-job training regarding this service. And there is shortage of reading materials.”

G2/P3: “Because of small class it hinders us [HC] to provide KMC service; there is supply problem.”

This also in line with the existing evidences; the deficit in supplies and logistics were reported as barrier with regard to the provision of quality services for newborns and their mothers’ public healthcare facilities the in Bangladesh (Chowdhury, Hossain & Halim 2009:53).

5.3.1.4.2 Competency of HCs staffs in the quality of neonatal health care services

In this study, the participants were also asked about their opinion on the performance of health care providers regarding to the quality of neonatal health care service provision in the primary health care units. They agreed that, most of the HCs tried to provide the quality of health care services as per the standards, however, it was compromised by lack of trained health providers and reference books in the health facilities all the time.

G1/P1: “...here service provided [at HC] is as per the guideline, there are trained health providers and supplies, there is good service...training only is not sufficient, timely monitoring and supervision is necessary.”

For example, the focus group discussants agreed that, the competency of the health workers is good and the health facility is equipped with supplies to provide the quality of services as per the national guideline; however, to improve the competency, regular on site monitoring and supervisions visit is necessary in addition to having in-service trainings. In addition, the service provided during weekend is not like in the weekdays, since the appropriate trained health professional might not be available in the health facilities.

G2/P2: "I think there is no gap to give treatment for infants at HC. They get good treatment based on the guideline. We make follow-up about their improvement, they have appointment for check-up and we inform them to bring their infants on that appointment day. If they are on oral medication we orient how to give medicine with care, we demonstrate and make mothers to repeat that way. This is what we are doing during the presence of trained professional in the HC. But if they come on weekends they can't get similar treatment as usual."

In contrary, some of the of HCs staffs claimed that the quality of neonatal health care services at HC level is sub-optimal and the quality of the newborn health care services is not always maintained at all the times. Lack of trained health human resources, references books to update the current knowledge and practice, and motivation are some key factors affecting the quality of service provision.

G1/P2: "There is shortage of trained man power, we can't conclude there is quality service delivery."

This study is also substantiated by the study done to understand the views of healthcare professionals and their patients on the quality of care provided for newborns and their mothers in 14 government owned healthcare facilities. It showed that inadequate healthcare providers and supplies; shortage of laboratory diagnostic tests; not adhering with job-aids or service delivery standards; staff are not trained; and inadequate mentorship or supportive supervision from hospital clinicians were some to bottlenecks that were affecting the quality of healthcare provision for newborns and their mothers (Islam, Rahman, Halim, Eriksson, Rahman & Dalal 2015:1).

G1/P3: “No one can conclude all professionals give the same quality service. To give quality service there should be moral motivation of workers. The health service structure is good; because HPs and HCs are becoming near to the community. But there are shortage of reference books and other health facilities.

In the focus group discussion, it was noted that, the health services structure in the primary health care is good with the existence of HPs at community level, HCs and hospital; however, the motivation of health workforce is lacking and HCs are not equipped with reference books to update the knowledge of the health professionals.

G1/P1: “I [HC staff] was trained to give health care services for under-5 years of children. When I am not at spot [HC], this treatment is being given by professionals for other health services [untrained]; so, the treatment they give is not according to IMNCI. Because of this reason, the health service is below the expected standard.”

In discussion, the HCs staff also externalizing some of the sub-standard quality care services for newborns at HPs and hospitals. For example, some of the HCs staffs accusing the HEWs who are working at HPs; as some of HEWs are referring the newborn with providing the referral treatment at their HPs with the available medicine.

Particularly two focus group discussants, they were questioning the quality of service provided to the sick young infants’ in their direct referral receiving primary hospital. In their professional judgment, even though, the facility is the referral receiving hospital from their HCs, the hospital is not providing the expected services particularly for the referred sick young infants. They were also recommending that; this hospital staff shall get proper training and mentoring.

G2/P2: “We [HC staff] refer to the primary hospital but the service is not as Felege Hiwot hospital [Regional specialized hospital]. They give treatment for sick young infants when danger sign was shown and after we gave pre-referral injectable antibiotic treatment; and they change in to oral medication and sent back to home... then they [the family] come back to us [HC] and we refer them to Felege Hiwot Specialized Hospital. When they go to Felege Hiwot Specialized hospital, they get appropriate treatment and come back to their home being cured from their disease. ...there is some misunderstanding between us [HC] a d

Primary Hospital, they complain of feedback that HC professionals gave antibiotic treatment before they reached hospital. ...it is good if training is given, and updated with new technologies and information. Most of our workers do not trained onsite and this may create misdiagnosis problem.”

FGD participants from the HCs repeatedly mentioned that inadequate trained health professionals, is one of the key supply side that is affecting neonatal health care service provision at HC level.

G2/P2: “Lack of trained manpower [health professionals] in the facility...”

This is in line with the existing evidences, that, the inadequacy in human resource and absenteeism; and inadequate technical competencies, were reported as barrier in regard to quality of care especially at lower level of service delivery (Chowdhury et al 2009:53).

G4/P2: “For children under 5 years of age service there is no health worker [in the HC] who took updated training. Only 1 individual had trained and others are as they are, with old training.”

Some of the focus group discussants also identified that lack of adequate trained staff on IMNCI is affecting the services provision for sick young infants in the HCs.

5.3.1.5 Referral linkage

5.3.1.5.1 Linkage for early PNC home visit

All the HCs participants agreed that there is no a strong mechanism established at HCs level to inform the HEWs at HPs level about the birth happening at HCs level for their early home visits for PNC. In fact, some of the participants were mentioning that, the HCs staffs were sending a green color notification card to the HEWs at HPs to continue the PNC and other essential services for the newborn and the mother.

G2/P3: “There is a problem of reaching to HEWs... some husbands take the green notification card [from the HC during discharge] and ignore to give to HEWs. The card contains time of birth, infants’ weight. HEWs can’t get this information if the card did not reach them. When we ask HEWs to check whether they got those cards they replied that as they do not have any information, and we give them information again for the 2nd time.”

Even though the HCs staff are expecting that home visits for PNC is expected to be done by HEWs at community level, however, in the focus group discussion, most of the HC staff believed that, all mothers are not getting the required home visit for PNC to save the lives of newborn and mothers.

G2/P2: “What we [HC staff] expect from HEWs are that to register the newborn and check infants breast feeding condition. But when we ask them [HEWs], are you doing this activity? they replied, we did not accomplish this... they express that they can’t cover the vast population in their catchment area.”

5.3.1.5.2 Referral communication for sick young infants’ referral

In order to save the lives of the sick young infants and children who are requiring referral to a higher health facility, transport services should be available all the time (WHO 2018b:57). In line recommendations, the HC participants were asked about the experience and means of transportation services for sick newborns; types of referral communication for the sick young infants’ referral to the higher health facilities; and provision of feedback in the paths ways of the referral linkage health facilities.

In the discussion, it was noted that, most of the HCs had an experience of issuing referral of the sick young infants into the referral receiving health facilities. However, regarding to the referral communication among health facilities at different level of care particularly using the referral slip and receiving and giving feedbacks on the referral; the participants agreed that there is an experience of using referral slips as a referral communication mechanism, but it is not often practiced, and sometimes they are not adhering with the standard referral slip due to shortage of printed copies of referral slips. Surprisingly, in the discussion, the HC staff were complained about the poor adherence of HEWs on using referral slip during the referral of sick young infants into the HCs.

G2/P1: “There is no referral slips issued by HEWs [following referral of a sick young infants].”

This is believed that the referral completion might be compromised since, the caretakers might feel urgency and necessity of the referral.

As per the review done to understand the referral status of newborns from community up to health facility level across African and Asian countries; the success of the referral or completion rates were highly associated with offering of referral slips and provision of advice on the urgency of the referral to the care providers by the referring healthcare facilities (Kozuki, Guenther, Vaz, Moran, Soofi, Kayemba, Peterson, Bhutta, Khanal, Tielsch, Doherty, Nsibande, Lawn & Wall 2015:10). Similarly, in other study, families or care takers who have received a referral slip from a health facilities had a higher chance of reaching to the referral health facilities to seek care in rural Afghanistan (Newbrander, Ickx, Werner & Mujadidi 2012:1).

G2/P2: “What she [HEW] assesses can’t be known; simply she says I have sent them to you orally, but we can say mothers come directly without referral slip from HEW.”

5.3.1.5.3 Transportation for sick young infants’ referral

As part of the referral protocols, the availability and use of ambulance for referral of sick young infants are also discussed. As a common consensus, mostly pregnant women are prioritized to get the transportation services of the ambulance from their home to HCs or hospitals while their labour is initiated or during their expected time of delivery. Otherwise, most of the participants agreed that, using ambulance for the transportation of sick young infants is not common at all. In addition, the awareness creation is not done where the remote rural community is eligible to requesting the available ambulances for sick young who need the attention of higher-level professional at hospital level. This is also affecting the acceptance and compliance of the referral by the families of the newborns.

G2/P2: “For young infants at emergency[sick] situations, there is no quick action taken [on using ambulance transportation] and administrators [woreda] do not give attention, ...the community has no awareness to ask ambulance services for sick newborn transportation. So, they [family with sick young infants] come by transportation...even mothers didn't get ambulance service after she gave birth in health facility to return to home; they use other means of transportation.”

The importance of having the transportation services for sick newborns is documented by different literature for timely care seeking, to improve the outcome of sick newborn management and reduction of neonatal mortality. The unnecessary delay for care seeking particularly for not timely transporting sick newborns to hospitals was found to be one contributing factor for the deaths of newborns in Nigeria (Ekwochi, Ndu, Osuorah, Onah, Obuoha, Odetunde, Nwokoye, Obumneme-Anyim, Okeke & Amadi 2015:e171). In other study, well trained and equipped transport system are key factors for improving the outcome of sick newborns management (Thenmozhi & Sathya 2017:1817). Similarly, in India, it is emphasized that improved transport could be a solution for reduction of stagnant neonatal mortality in India (Roy, Gupta & Sehgal 2016:566).

5.3.1.5.4 *Feedback mechanisms for referral cases*

In addition, the experience of receiving and giving feedback on the referral cases were discussed with the HC staffs. The finding of the discussion showed that, the provision and receiving of feedback about the referred cases from the referring and receiving health facilities is not a common practice. Most of the time, neither the HCs are receiving feedback from the hospitals nor providing feedback to the HPs in their catchment. No major bottleneck was identified except giving attention to the importance of giving and receiving feedback to improve the quality of care and strengthen the referral linkage among the health facilities.

G1/P1: “We [HC staff] are no providing feedback about young infants with HPs. We are discussing with HPs when there is shortage of medicine or at vaccination time.”

Regarding to the provision of feedback, the referral receiving health facility, after managing under-five sick children at their respective health facility, the healthcare provider at health facility sends a written message to the community health workers (CHWs) by stipulating the status of the referral and the remaining follow-up tasks that the CHWs shall provide at community level (CORE Group, Save the Children, BASICS & MCHIP 2010: 49). The two-way referral with proper feedback is assumed to be one of mechanisms to improve the quality of case management tasks and facilitate the referral linkage among health facilities. In the meantime, the referral initiating facilities will be able to know the status of the refereed cases and the required follow-care at community level.

G2/P2: "...there is no feedback we [HC staff] give to HEWs. We send them to referral hospital they come back being treated well. We send them with referral, but there is no feedback we get from them [hospital]. Sometimes they communicate by phone and tell us some things, such as IMNCI should not be with referral paper rather detailed history is requested for the referral."

5.3.1.6 *Reasons for not seeking neonatal care services*

5.3.1.6.1 *Lack of awareness on danger signs*

Lack of awareness by the caregivers about the danger signs of the sick young infants, and considering local infection is not an illness or not frequently checking the newborns conditions were some of the challenges mentioned by the group participants as a contributing factor for the low service utilization of the sick newborns. Even sometimes, the mother is not coming with the baby when the baby gets sick and seeking care to the health facilities.

G2/P2: "There is problems from the community to bring young infants to health facility even at times when danger signs are seen and newborns are unable to breastfeeding ...if local infection (umbilicus infection) present, some parents not consider it as illness; they bring them after complication. This may be occurred in two cases: parents may not check infants every time or they may not give attention. So, what we see sometimes is that, for example if infants are brought for diarrhea case and when you check umbilicus you may find pus."

In the study done in the central and southern Ethiopia regarding to newborn care seeking practices; their localized perceptions on the newborns illnesses and lack of knowledge to identify danger signs in the newborns are among the reasons given to delay for seeking of care for newborn illnesses in the health facilities (Amare et al 2012:3).

G4/P2: “There is some gaps; even the neonate is being brought by other individual [mother reaming at home] and this by itself is a problem, because to check the neonate breastfeeding condition, its position and we can’t get full information from other family members where the mother is not available with the baby.”

Sometimes the HCs staff encountering that, due the traditional belief, in the first few days after birth, the mother might not come out from her home. This is one of the reason for delaying the care seeking behaviour for the sick newborns; or if the family is deciding to seek care for the newborn, the mother might not be joining the visit to the health facilities, which is considered as a challenge by HC staff to assess and classify the newborn without the presence of the mother.

5.3.1.6.2 *Cultural practices*

The HCs participants also noted that, still some of the community members are preferring the care seeking from the traditional healers mainly for the complaint of tonsillitis and for cutting of the newborns uvula.

G2/P2: “Yes, most of them take newborns primarily to local healer, and he cut their uvula. This is very harmful practice to change through counselling and training.”

G4/P2: “They take them to traditional healer for tonsillitis. And others are unwilling to bring their neonate for treatment to the health centre.”

The effect of cultural practices on the care seeking for the newborns in this study is also supported by the existing evidence. As per the review done to understand the referral status from the community up to the health facility level in both Africa and Asian countries; it was noted that the preference of families or caregivers to get treatment for

their sick newborns with some danger signs to the traditional healers could also affect the referral completion (Kozuki et al 2015:10). In other study done in Ethiopia, households apply home therapies and seeking traditional healers are among the practice for sick newborns (Amare et al 2012:3).

5.3.1.6.3 Health posts are not often open for services

In most of the discussion with the HC staffs, the readiness of the HPs was mentioned as one factor contributing for the low service utilization of sick young infants. The HC staffs are complaining that, the HPs are not open most of the time and so that the communities will not get the services whenever they needed.

G2/P1: “Regarding HEWs, one HP should be open full day; but in reality, this is not functional here. If they stay [in the HP], they provide service and develop their skill daily,...now they become forgetting their skills and the community can’t get quality service.”

G2/P2: “The place of HP is near to town and it is one problem, they stay less time in HP and go for other community related works.”

If the HPs are not open most of the time and provide curative services, the caretakers might not get the services for sick newborns whenever they need. This study finding is also supported by the study done to understand the Ethiopian health extension workers experience on assigning their time to accomplish different tasks in each day; the evidence has shown that, according to HEWs note recorded on their time management, 16 percent of HEWs’ time each week is allocated for curative health activities (Mangham-Jefferies, Mathewos, Russell & Bekele 2014:1).

5.3.1.7 Factors affecting the neonatal healthcare services at HC level

The study findings have shown that there are different factors that play an important role in deterring the use of available neonatal health care services, and affecting the effectiveness of neonatal health care services. FGD discussants revealed that lack of adequate number of trained health human power, adherence on using the job-aids, community perception of neonatal health care service, weak referral linkage, lack of

space to demonstrate and use KMC service at health facility, stock-out of essential medicines and supplies, and weak monitoring and evaluation system are the key determinants on effectiveness of neonatal care service at PHCU level.

Most of the above-mentioned supply side factors are also consistent with the factors identified by the provision of neonatal health care provision in Nepal. Among the listed health system challenges includes human resource management, and insufficient procurement and lack of essential medicines and supplies are affecting the service delivery of newborns (Khatrri, Mishra, Khanal, Gelal & Neupane 2016:1).

5.3.1.7.1 Lack of priority for neonatal health care services

As part of the discussion with HCs staffs to explore factors affecting the effectiveness of the neonatal health services; most of them were referring that, since HEWs are mainly provided different tasks at different level including by their respective kebele administrator with a short deliverable time; HEWs might not give a due attention and priority for the newborn care services.

G4/P4: “Most of the time they [HEWs] are performing timely activities they are required to do with the task given by the administrators. They may not give attention for neonate treatment.”

Similarly, in the study done to understand the working conditions of HEWs in Ethiopia; time management, scheduling of activities and their connections with community members were among the challenges identified in the implementation process of Health extension programme (Teklehaimanot, Kitaw, G/Yohannes, Girma, Seyoum, Desta & Ye-Ebiyo 2007:246).

5.3.1.7.2 Sub-optimal programme monitoring visits

A regular and ongoing basis of collection and analysis of the progress of programme activities in line with the plan is being carried out or not is necessary (Gage, Ali, & Suzuki 2005:6). Thus, the status of the neonatal services programme monitoring was discussed and it showed that; the current weak programme monitoring is affecting the effectiveness of neonatal health care service at PHCU level. The national

implementation guideline for integrated community case management of childhood illnesses and newborn care (iCCM) emphasise the importance of quality and program intensive supervisions to attain the highest quality of care by service provider; and followed by problems solving feedbacks after having supervision with checklist are required as part of programme implementation (FMOH 2017a:43-45). In the FGDs, it was revealed that, there is no a functional system that established for program monitoring visit including the supportive supervision from HCs to HPs.

G2/P1: "There is a weak monitoring and evaluation system. For example, when I [HC staff] go for monitoring, I see ICCM/ CBNC because I have trained, but others [untrained health workers] may not consider it."

Supervision is one of the strategy to ensure the quality of case management for under-five children at community level; and it is also a platform to collect data and monitoring quality of the case management tasks. Thus, quality monitoring should be a routine activity, and it should be initiated after the competency- based training of the community health workers (CHWs). It also reinforces the CHWs' training, boost their confidence, and increase their morale to improve the service delivery; and facilitate the identification of challenges at onsite and put a joint solution in place before it is getting worse (CORE Group, Save the Children, BASICS & MCHIP 2010:166, 172).

In addition to having irregular supportive supervision practice, there is inconsistent provision of supervision feedback by HC supervisors to HPs. Even, in the erratic practice of feedbacking from HC staff to HEWs, the content of the feedback is mainly focusing on prenatal care, postnatal care, family planning service, vaccination and status and functionality of the health developmental armies. The feedback is not inclusive of the quality and coverage of sick young infants' case management. Moreover, the performance of the sick young infants' management at HPs is not often reported.

G4/P4: "Weekly there is feedback to HEWs and self-evaluation is carried out monthly for the HC."

G4/P2: "I [HC staff] haven't given feedback nor received feedback."

However, the link between the HCs and HPs shall be strong enough to provide the primary health care services including case management of under-five children including the sick young infants. Provision of feedback after visiting the HPs with checklist is expected to improve the quality of services. The community case management needs an improved health system including a strong links to existing HCs and HPs for ongoing support and provision supportive supervision of HEWs; and facilitate the link for referrals of the severe illnesses (CORE Group, Save the Children, BASICS & MCHIP 2010:18).

G4/P1: “Feedbacks are mainly on prenatal care, postnatal care, HEP package, family planning, vaccination, function of health development army.”

In addition, the ongoing supportive supervision shall be carried out to improve the performance of the supervisees, and it shouldn't be done only for the sake of monitoring the community health workers. The supervision should be supported with well-prepared supportive tools like checklist to facilitate the supervision process and collect some key information for a join planning (WHO 2018a:47).

5.3.1.7.3 Lack of awareness on the availability of services

In this discussion with the HC staffs, it was revealed that in most of the participants, the communities might not know the availability of services for sick young infants at HP level which is near by their village.

G4/P2: “Low understanding of the community on the issue [the curative service for under-2 months children in the HPs].”

If the communities are not aware of the availability of curative services at community, they might not demand the services whenever needed. It is noted that, the awareness in the availability of treatment services for childhood illnesses by community health workers is expected to generate demand for community case management for under-five children (CORE Group, Save the Children, BASICS & MCHIP 2010:197)

5.3.1.8 Strategy for effective healthcare at HCs level

5.3.1.8.1 Capacity building of HWs:

In addition to ongoing efforts to improve the knowledge and skills of the HC staffs were reported, however the need of continuous refresher training and updating on the new development in neonatal health care services were noted by the participants.

G2/P2: “By giving onsite training for some professionals, some workers are able to update their skill.”

G4/P3: “It is better if there is an internet centre where professionals can develop their knowledge and get timely information. There is shortage of integrated health related education, shortage of material supply etc.”

5.3.2 Major themes and sub-themes from the HEWs FGDs participants

As per the description given in the data management and analysis of this qualitative chapter, the FGDs were carried out among 15 HEWs within four different groups. Thus, the findings of the major themes and sub-themes which are synthesized from the discussion with HEWs is discussed in this section.

5.3.2.1 Neonatal interventions provided

5.3.2.1.1 Neonatal intervention across the continuum of care

HEWs' who are working in the HPs, the first level of care in the Ethiopian health system were confirmed that, they were mainly engaged in the identification of pregnant women at their respective community; followed by provision of the ANC services at HP level. In addition to providing the services, they are also referring the pregnant women to the nearby HCs for the highly level investigation and laboratory test. In the discussion with HEWs, they are exerting their consolidated efforts to able to identify and register the pregnant women in the early months of pregnancy to initiate the ANC services at HPs and facilitate the referral link with HCs for additional and better services the pregnant women in their respective kebeles. Moreover, early identification of pregnant women is

also supported by Women Development Armies (WDAs) which are networked into one group includes a member of 30 women and further sub grouped into a smaller network where one network includes 6 members of women at the village level. In the ANC follow-ups visit, pregnant women are also receiving interventions which are useful for the life of foetus in the womb such as tetanus toxoid injection, supplementation of iron folate for the prevention of anaemia, measuring blood pressure to detect pregnancy induced hypertension, and birth planning and emergency preparedness.

G7/P2: “We [HEWs] tell her danger signs may occur during pregnancy such as: things related to anaemia and blood pressure, we counsel them to get follow-up service and refer them if the problem is somewhat complex...we counsel her to make adequate rest, prepare a relative who can transfuse blood if it is necessary, because there is a pregnant woman waiting home in the HC, we also advise her to stay there when the expectant mother enter her 9th month”.

HEWs FGDs participants agreed that, they are not providing clean and safe delivery services at HPs level. Their major job is encouraging and follow-up of pregnant women to give birth at HCs or Hospitals level. In fact, they are also ready to provide the clean and safe deliver care if the labour is imminent.

G7/P3: “There is no birth at the HP this year, but there was one case labour occurred on the ambulance and gave birth on the way before they reached to the HCs.”

5.3.2.1.2 Facilitating ambulance services for transportation of pregnant women during labour

Most of the HEWs agreed that, HEWs are trying their best in connecting the pregnant women as soon as labour is initiated or anticipated to get the ambulance services for their transportation from their home to HCs or hospitals to facilitate professional assisted delivery. Because of this facilitation, HEWs believed that, the coverage of professional assisted delivery in the HCs or hospitals is significantly increased when it compared with the previous years.

G3/P1: “During the pregnant women conference we give them [pregnant women] the ambulances phone address to call when labour occurred.”

Despite all the efforts, HEWs knows that, still few mothers are giving births at home without the support of the healthcare provider.

Identification of cost effective transportation interventions was facilitated for births to occur in health facilities with health professionals' assistance in low income countries as well as in the middle-income countries (Ehiri et al 2018:7). Thus, facilitation of a free ambulance transportation services for all mothers who are in labour is a good practice and improves professional assisted delivery in health facilities.

G3/P2: "To the contrary there are few mothers who do not consider our [HEWs] counselling and discussion during the pregnant women conferences, and finally give birth at home without any help from health workers."

5.3.2.1.3 *Early PNC home visits*

Within 7 days after birth, the necessary care should be provided for newborns and their mothers by visiting their home (WHO 2017a:5). The HEWs should carry-out postnatal home visits on day 1st, 3rd, and 7th, while health development armies (HDAs) accompany them to provide health promotion and education service. However, newborns that were classified with preterm and or low birth weight shall receive additional visit on the 15th day (FMOH 2013:24). However, the experience of provision of early PNC was varied among the HEWs participants. HEWs agreed that, in addition of the delay of the visit, even some of the women didn't get the PNC visit at all.

According to the HEWs participants, they agreed that, from the total birth in their respective kebeles, with wider range between 40 percent to 85 percent of estimated women after delivery were getting PNC home visits. Yet, the day of the first visit among HEWs are also varied.

G6/P1: "2 out of 5 mothers receive PNC visit per week, during campaign, we get all of them."

G7/P1: "It depends on the distance, we will go soon when the birth place is nearby but if the birth was at HC and their home is far I go being delayed. There are 105 births occurred in this year and 103 were got home visit for PNC."

In addition, HEWs agreed that, some homes either did not receive or receive a delayed PNC home visit by HEWs. As a result, these newborns will not get the key lifesaving interventions and essential newborns care, particularly the burden would be huge for those mothers who gave birth at home.

G7/P3: "There were 109 births and we made home visit for PNC between 3-7 days, there were mothers who didn't get the home visit for PNC."

Since most of the newborns are dying in the first 48 hours after birth, the PNC home visit shall be done within the first days. However, only few newborns are receiving the PNC home visit by HEWs within the recommended periods.

The status of postnatal care (PNC) coverage in Bangladesh, Ethiopia, Ghana, India, Indonesia, Malawi, Myanmar, Nepal, Pakistan, Rwanda, Sri Lanka and Uganda, shown that, the provision of postnatal care within 48 hours (two days) of after birth following home birth is below 10 percent in most of the countries and there is no any country that performs above 20 percent (McPherson & Hodgins 2018:1).

In other qualitative study done to understand the obstacles and enablers to improve the PNC coverage in Amhara and SNNP, physical, information and work issues are affecting the coverage. For example, in this study, some inaccessible areas that did not receive visits; competing activities reducing HEWs availability for visits, frequent visits occurred in the areas where HEWs have developed a better connection with the community members in their respective kebeles; need to consider the community health workers' day to day jobs in line with the population they served and geographic area coverage; and good notification systems are essential for high PNC coverage (Amare, Scheelbeek, Schellenberg, Berhanu & Hill 2018:1)

5.3.2.1.4 *Counseling on thermal care, breastfeeding and immunizations*

As part of the PNC home visit package, HEWs agreed that, they are providing counselling services to delay bathing of the neonate, assessing the feeding condition of the neonate following with counselling of the mother especially for exclusive breastfeeding up to 6 months; and reminding the schedule of the immunization at 45 days of birth.

G7/P3: “We[HEWs] check also her [mother] feeding situation, breastfeeding status of the neonate.”

G3/P3: “We counsel her about vaccination of babies starting from 45 days of birth up to 9th months. In addition to this, up to 6 months, infants shouldn’t feed additional food except breast feeding.”

As a routine care for all newborns, all newborns should only breastfeed up to six months after birth; bathing should be delayed to after 24 hours of birth; single dose of BCG vaccine and oral polio vaccine shall be given at birth. In addition, newborns born as a preterm and or having low birth weight needs to be detected as early possible after the onset of birth, it could be during at birth or thorough early PNCH home visit and should be provided special care (WHO 2017a:5, 6).

5.3.2.1.5 *Case management of sick young infants*

Everyone of HEWs participants revealed that, they are managing sick young infants at community level as per community based newborn care (CBNC) guidelines at their respective HPs. HEWs confirmed that they are trained and equipped to manage sick young infants at HPs or during home visits.

The management of sick young infants at community level by HEWs is supported by different evidences. For example, in a poor resource setting, a trained and supervised CHWs had a better competency in assessing the sick newborns and facilitate referral the service (Nalwadda, Guwatudde, Waiswa, Kiguli, Namazzi, Namutumba, Tomson & Peterson 2013:898).

G3/P1: “When newborn infants become sick, based on the community based newborn care manual, we treat then, and refer them if more complicated.”

In addition, in Africa and Asia, the study indicated that if the primary level healthcare providers are equipped with adequate training, they may assess and classify sick young infants as having possible bacterial infection with relatively high sensitivity and lower specificity (Lee, Chandran, Herbert, Kozuki, Markell, Shah, Campbell, Rudan & Baqui 2014:1).

G6/P2: “We have treated 4 neonates [sick young infants] from July onwards (about half of the year). One of these is which was brought due to the complain of unable to breastfeeding, after we [HEWs] have checked, we gave referral. We have provided the injection to the second infants. We have got these infants when we were doing home to home service.”

5.3.2.2 Experience of the HEWs on the neonatal health care services

5.3.2.2.1 Experience of early PNC home visits

In Ethiopia, it is only 26 percent of birth occurred in a health facility with the assistance of healthcare providers (CSA Ethiopia & ICF 2016:136). As per WHO advises, the newborns and their mother shall receive home visits for routine care (WHO 2017a:5). In the Ethiopian context, provision of home visits for PNC is expected to be carried out by HEWs (FMOH 2013:23-24). Consequently, early identification of births is vital for HEWs to provide postnatal home visit. In fact, identification of births is also expected through different mechanisms including notification by families, community health workers/health development armies (HDAs) and HCs to the HPs deliveries that occurred in HCs (FMOH 2013:23). Despite the prompt postnatal care is important for the newborn and mother in treating complications that arise from delivery, and provision of essential newborn care services for the newborn, only 17 percent of mother gave birth had received a postnatal check during 48 hours after birth (CSA Ethiopia & ICF 2016:139). Consequently, in this study, it was tried to explore the existing birth notification or communication system in placed to carry-out the home visits for PNC by HEWs. However, all HEW agreed that, there is some common mechanisms were existing to

notify births, but there are no a clear and standard pathway for timely notification of births.

G7/P2: “We know most of pregnant women are giving birth at health centre; the midwife writes a letter for us. There is a paper the mother supposed to gives to us. ...but sometimes we get the notification letter at 45 days when they come for vaccination.”

Consequently, most of HEWs agreed that, commonly, the day of receiving notification is about 2-7 days from the onset of delivery. It implies that, most of time the early PNC visits within two days of delivery was missing. In fact, the first two days are critical periods to save the lives of newborns and mothers so that home visits are strongly recommended.

G3/P4: “I [HEW] can get the information within 3 days. On the 3rd day, on the 7th day some mothers remind us [HEWs] by phone and says come and see me.”

G7/P1: “We follow-up identified pregnant mothers and hear within five or six days. Or we hear when they call to get ambulance service.”

In cognizant of this study finding, around three quarters of mothers were not practicing essential newborn care (ENC); among the others, the provision of advice on the required care for newborn during at birth were facilitating the improvement of ENC services by mothers (Berhe, Medhaniye, Kahsay, Birhane & Abay 2017:2).

This implies that, in addition to having early PNC home visit, the quality of PNC service provision is determining the quality of ENC provided by the caretakers. It is also required to delay the timing of discharge after deliver of the mother and babies, and provided the required ENC by health professionals and proper counseling to improve the behavior of the caretakers on the provision of ENC after discharge. Overall, the delay of the PNC home visit will compromise the ENC. In the time when the visit is carried-out, the essential care for newborn will be missed and the family might start other traditional services for the newborn.

G6/P2: “There are conditions when we get them early or after many days, but on average within 7 days...there is conference with pregnant mothers from the beginning of their pregnancy. Each women development army (WDA) has our [HEWs] phone address and they call when they are at labour for ambulance service and announce to us. Every Friday we [HEWs] have meeting with administrators, and they report new births if available. In addition to these we call through phone and identify.”

Meanwhile, HEWs were using different mechanism to be informed about who gave birth, when and which village. Some of the mechanisms include; getting report or information from the WDAs, notification letter or card from the midwives in the HC, by closely following up the outcome if the HEWs facilitated the calling of the ambulance for the pregnant women transportation, and some of them are receiving a call or a message from the delivered mother by themselves like ‘come and see me’.

G6/P3: “After they went by ambulance [for delivery] we [HEWs] ask on what condition they are available. And sometimes women development armies tell us.”

HEWs are trying to use different mechanism to be informed about the births, sometimes they are followed with WDAs which are the same village of the pregnant women, and rarely they are receiving birth notification notes from the respective HC after delivery.

G3/P3: “There are women development armies in the kebele they report to us when they see mothers who gave birth. But because there is no feedback from the HC for us I [HEW] am following on what condition they are.”

G7/P2: “We know in a day since most of them are giving birth at HC and because the midwifery is available, he writes a letter for us. There is a paper the mother gives to us. ...sometimes we get them at 45 day when they come for vaccination.”

The interaction of the HEWs and WDAs were also an issue in regarding to the timely birth notification. If the WDAs are inactive in the village, some home births might not be notified to HEWs timely or might be missed. As a result, the PNC home visit by HEWs might delay or not be provided at all.

G7/P1: “The WDAs are not as such functional, and because of the vast population we [HEWs] are serving around 11,000 it is not proportional with the HEWs capacity.”

5.3.2.2.2 *Level of care*

HEWs participants revealed that, most of the community based newborn care services such ANC, facilitating health facility delivery, early PNC for essential newborn care, provision of counselling for thermal care and feeding; provision of immunization and management of sick young infants shall be provided at HP level. However, HEWs participants are strongly complained that they are busy and tasked to other different urgent assignments which usually diverts their attention towards into the unplanned requested priority. In addition, lack of thrust from the community on their quality of services; feeling that there is not sick newborns in their catchment; and HEWs are unhappy on the day-to-day unfinished agenda are also affecting the routine service provision.

G3/P2: “To say one young infant is sick, we [HEWs] have to improve gaps already discussed. I should accept my personal weakness. Most of them prefer to go to the higher facility. And this may improve if we work hard, and the community can accept our activity.”

In addition, due to different reasons, even though the service is available at the HP level, the community did not properly utilize. Sometimes they might by-pass the HP to the HC to seek care, prefer the traditional healers or not seek care at all.

Similarly, in the rural community in southern Nigeria, the utilization of services in primary health care was affected by community's views on the quality of services provided; moreover, their experience on the utilization is also limited if not all the required services are available as per their demand (Adam & Awunor 2014:117). In addition, the offered referral service successfulness was also depending on the caregivers' preference on the seeking of care from the traditional healers at community level for a selected or all types of danger signs in Africa and Asia (Kozuki et al 2015:10). In the other study done in the central and southern Ethiopia application of home therapies at household level and seeking of care in the traditional healers are some of key reason in the delay of seeking care for sick newborns in the health facilities (Amare et al 2012:3)

P6/P1: “When we[HEWs] discussed with the community they have said that we were not informed that newborn treatment is available at HP and because of this we [community members] are taking young infants to the HC or hospital.”

If the community members are not aware of the available of curative services at HP level for sick young infants’, consequently, HPs won’t be the choose for seeking care for newborns. In the discussion, it was noted that, all the service provision including case management of sick young is free of charge at HP level. However, it is a missed opportunity for the community not properly accessing this service. In addition, the essential medicines might be expired before giving the required services. The existing fact has shown that, community members and caregivers need to know the curative services is available at community level; HP is equipped with essential medicines and supplies; and build confidence on the competency of community health workers to provide the quality of care (CORE Group, Save the Children, BASICS & MCHIP 2010:199).

5.3.2.3 Adequacy of neonatal health care services

5.3.2.3.1 Practicing early PNC home visits

In this study, the main reasons for not practicing early PNC home visits and hindering in the provision of quality of PNC services were discussed. The main reason for affecting the coverage and quality of PNC were; HEWs are overburden with other demanding tasks including non-health related tasks; and lack of motivation and dissatisfaction by HEWs.

G3/P2: “The reason why we [HEWs] don’t check them immediately after birth is that being engaged by other activities and being bored because of minimum progress, which is very low when it compared with our efforts. The other thing is that, the absence of chance to upgrade our education career. Regarding carrying the thermometer in the home visit, it is our problem; but to take weight scale and going home to home is not possible due to its big size.”

In cognizant with this study finding, in other study done in Ethiopia to know the working conditions of HEWs in Ethiopia; time management, proper planning of their routine activities and close connections at their respective communities were recognised as some of the challenges (Teklehaimanot et al 2007:246).

The other main challenges mentioned by most of the HEWs are wider geographic services coverage and bad topography to access and reach the household; and, less attention and priority given to the PNC visit by HEWs and programme managers.

G7/P2: “Our kebele is vast and hilly with 6,000 population; there are challenges from the beginning and absentees during pregnant mothers’ conference. There is also gaps to give PNC service because of ups and downs of the topography.”

As per WHO guideline, the poor community health workers (CHWs) performance is related to an excessive workload and it is linked to an increased population size. It was also noted that the demotivation of the community health workers with linked with the huge burden of tasks they are supposed to accomplish (WHO 2018a:53).

5.3.2.3.2 *Chlorhexidine (4%) application on the newborn umbilical cord*

In Ethiopia, chlorhexidine (4%), “Yimserach jel” the local name, recommended to apply in the umbilicus of the newborn immediately after birth for total of 7 days to prevent infection.

In the discussion with the HEWs participants’ chlorhexidine (4%), “Yimserach jel”, was lacking in HPs despite the current policy does not allow HEWs to attend delivery at HP level. However, still a significant number of mothers gave birth at home where infection prevention is a concern. This implies that mother who gave birth at home, their newborns won’t get Yimserach jel” from the HEWs during their home visits, despite home delivery is from the top list to get the application to prevent infection originated at umbilicus of the newborns. Thus, the role of HEWs are limited to checking the application of “Yimserach jel” during home visit for those mothers who gave birth at HC or hospital and if they received the jel.

G3/P1: “They gave us [HEWs] sample but not available now. It is available at HC. Many mothers told me that they took it from HC and applied to their newborn’ umbilicus.”

In addition to lacking “Yimserach jel”, one HEW participant found to be with inadequate knowledge on the benefit and purpose of “Yimserach jel” application. She felt that, it will be used for the treatment of local infection such as rash and umbilicus infection. It seems this HEW did not get the proper orientation about benefits and application procedure of “Yimserach jel.”

G7/P2: “It is not available at the health HP...it is for the treatment if the umbilicus is red or infected.”

5.3.2.3.3 *Management of possible serious bacterial infections (PSBI)*

Most of the HEWs participants reveled that, they are managing possible serious bacterial infections (PSBI) when it occurs in young infants in adhering with the national service delivery guidelines at their respective HPs. In addition to the competency skill to manage PSBI, in most of the times, HPs are also equipped with essential medicine and supplies to treat PSBI cases at community level.

G6/P1: “If they become unable to breast feeding, if their breathing is abnormal, if their umbilicus become redden, there may be bacterial infection, so we [HEWs] treat them with an injection. If they gasp and their umbilicus is more redden we refer them.”

In the discussion with HEWs it was confirmed that, HPs are equipped with gentamycin injection and amoxicillin dispersible tablet to treat possible serious bacterial infections in the time when referral is either not accepted by the caregivers or for the provision of treatment as pre-referral when they are issuing referral for sick young infant.

5.3.2.4 Opportunities for neonatal health care services

5.3.2.4.1 Treatment of sick young infants at the community level

All the HEWs FGDs participants feels that, managing the sick newborns including infants up to the age of 2 months at their respective kebele or health post is a great opportunity for the HEWs to save more lives. HEWs are managing sick newborns up to the age of 2 months at health post or kebele level as per their treatment guideline. In the discussion, HEWs notified that, they are managing sick young infants at HP and during PNC home visits. Previously, HEWs confirmed that, they were known by the community members in non-case management task of the sick young infants. They are also trained and equipped with the essential medicines and supplies.

G6/P2: “The community members were knowing HEWs in practicing mainly on latrine construction, motivation the community to join health insurance, report writing, extra assistance for agricultural works, initiating students for enrolment of education; but they raised their idea as if they didn’t see us [HEWs] on treatment activity.”

The relevance of managing sick young at community level by HEWs is justified by the study done in the Ethiopia. This study finding has shown that, adding management of possible serious bacterial infection at village or health post level is a cost-effective intervention that was contributed for an estimated seventeen percent reduction of newborns deaths whose age is one day after birth (Mathewos, Owen, Sitrin, Cousens, Degefie, Wall, Bekele, Lawn & Daviaud 2017: i21). In addition, evidence has shown that properly trained and supervised CHWs are competent in assessing and classing; and referring sick newborns whenever needed in a poor resource setting (Nalwadda et al 2013:898).

5.3.2.5 Quality of neonatal health care services

5.3.2.5.1 Readiness for PNC home visits

Postnatal care visits during the first week as per the WHO recommendation are the main entry point for active case detections of sick newborns who are needing medical care if the HEWs are doing the home visits in the early postnatal period with a standard checklist. This is very useful to identify danger signs on the newborn (FMOH 2013:25). In addition to assessing young infants for danger signs of illness by community health workers, and they are also expected to promote appropriate care seeking and counsel the families on recognition of danger signs (WHO 2015a:2). During the assessment of newborn in each postnatal care contact, if there is any of danger signs present, referring the newborn to the health facility shall be facilitated for additional assessment and the caregivers must be well informed about the benefit to early care seeking in the health facilities (WHO 2017a:5) or treated by HEWs at HP level with appropriate antibiotics if referral is not possible (FMOH 2013:25; WHO 2017a:10).

In this FGD, most of HEWs participants agreed that the type of PNC service provided during home visit is in a poor quality. Most of the time, HEWs, visited the household without the necessary preparation and carrying the essential supplies and job-aids including the chartbook and family health guide to be used as checklist to check the danger signs and assess the newborns. In addition, poor documentation after the services provided during the home visit is mentioned by some of HEWs as weakness from the HEWs side.

G3/P2: “When we get them I [HEW] try to check his/her [newborn] breast-feeding habit, its umbilicus, whether he/she takes it to morning sunshine or not. But there are some limitations, such as not registering them. If you see registration book, only some 2 or 3 sick young infants are registered. Especially in this year, this gap is mine. Even, I am not registering them even on the field note.”

If the PNC home is provided in poor quality, and adequate time is not given for counseling of essential newborn care services (ENC), the caregivers behaviors on ENC won't be changed. This is also substantiated by the study done in one city of Ethiopia, the study finding has shown that a significant portion of women at their postpartum

period were found to be with poor knowledge in regarding to the early newborn care and as well as a limited experience in the provision of ENC (Berhea, Belachew & Abreha 2018: 2).

In addition, the study in one woreda of Ethiopia, the utilization of services in the postnatal period was affected by many factors including that the place where women are residing, distance from health facility, experience of ANC service utilization, experience of receiving visits from the community health workers, and their decision power to visit health facilities (Tesfahun, Worku, Mazengiye & Kifle 2014:2350).

5.3.2.5.2 *Sub-optimal adherence on PNC home visit guideline*

As per consensus reached by HEWs participants, the quality of PNC is compromised since the weight is not measured and the breath per minute is not counted for all newborns. Regarding to the weight scale, the HEWs complained that, the available small weighing scale is not accepted by the mothers and the big one is heavy to care for household visit.

G3/P4: “All of us are not practicing checking their weight and count breathing after we make follow-up of infants, but only registering them...yes, we hold chartbook and family health guide during home visits. Even when we are going for vaccination we hold ORS, zinc, injectable family planning methods/ “depo...small weighing scale is available but not appropriate for postnatal care, mothers are not willingness in fear of infection or fall down. And the big scale is not comfortable to hold as already stated.”

In addition, most of the time HEWs are not carrying the weight measurement scale, thermometer, sample register book, timer and essential medicines during their home for PNC. As result, the weight of the newborns is not taken and assessed for birth weight especially for newborns at home delivery; the temperature of the newborns is not measured and breath per minute is not properly counted so that the newborns are not assessed and classified for all key signs of PSBI for the newborns. And again, if the essential medicines are not available in the home visit kit, HEWs won't able to initiate the treatment at household level base on their assessment.

G7/P2: “We are not carrying all the material always, we leave some materials and hold thermometer and balance. Blood pressure apparatus is not available.”

In the study done to know the effectiveness of the healthcare services provided by the primary healthcare facilities in eight counters categorized as having a high burden of mortality, it was found that below 50 percent of healthcare providers were adhere on the maternal newborn ad child health guidelines to provide the required care (Leslie, Malata, Ndiaye & Kruk 2017:1).

G6/P1: “We advise them to keep their hygiene, we check its breastfeeding status. But with the current experience we hold nothing.”

5.3.2.5.3 *Less attention to home visits for PNC*

Sometimes, the home visit is integrated into other prioritized activities; consequently, less attention is given for the PNC home visit including a prior preparation and allocation of a dedicated schedule and time for PNC home visit. Just, HEWs are visiting the house of the mothers even though they are not doing in the right way.

G6/P2: “When we are going for other duties [in the village] we don’t carry nothing because of our attention is on the other job.”

In contrary, some of the HEWs are confident that, they were performing the required types PNC services during the PNC home visits including the general assessment of newborn and feeding situations. The service is also includes measuring the weight and temperature of the newborn.

G7/P1: “We take with us materials such as weight balance, vitamin A, iron, thermometer, and blood pressure apparatus; regarding to balance we are using to weigh the newborn, mothers need which is made up of cloth and holds neonates gently and it is found at HC.”

In the discussion, the current portable weight scale using during the PNC home visit is not well accepted by the caregivers. It was noted that, they are not comfortable to put the baby in the bag of the weight scale, because they are scary on fear of falling the baby in the process of weight measurement.

G7/P3: “We are checking the neonate, counting its breathing, check its breastfeeding status, we weigh its weight and refer if it is less than 2 kg. We advise mothers the newborn should feed only breast milk up to 6 months of age.”

In addition, some of HEWs argues that, after they are doing a proper assessment of the newborns, they are also initiating the treatment as per their protocols and issuing referral if the newborns are requiring the attention of the higher-level health facilities.

G7/P1: “We check if danger signs are available and treat if possible, otherwise we refer the sick newborn to the higher facility.”

5.3.2.6 Performance of HEWs on neonatal health care services

5.3.2.6.1 Coverage of the sick young infants’ case management task

As a proxy indicator for the service provision of neonatal healthcare by HEWs at the community level, in the FGDs with HEWs, much emphasis was provided on the coverage of management of sick newborns including infants up to the age of 2 months at health post or village. In this discussion, the expected number of sick young infants’ cases was calculated and analysed with the actual performance. However, all the participants in these FGDs regrettably acknowledge that the number of PSBI cases they were managed in their respective HPs in 4-6 months’ period prior to this discussion is very low.

G6/P1: “Before five months [this FGD] we [HEWs] have identified one sick young infant and referral [to the HC] was sought.”

In this study, it is noted, the service provided for the sick young infants at HPs level is critically low. Low service utilization at HPs is also a concern for sick children. In the study done in Ethiopia, it recommends that the management of severe illnesses for the under-five children and the utilization of integrated community case management services at health post level should be improved to increase the chances of impact on child mortality (Miller, Amouzou, Tafesse, Hazel, Legesse, Degefie, Victora, Black & Bryce 2014:424).

5.3.2.7 Referral linkage

5.3.2.7.1 Referral communication

In the discussion with HEWs, it was revealed that HPs are the lowest health facilities to provide the essential neonatal health care services. In addition, the HPs are close to the communities and provide a free service including the management neonatal sepsis. The HEWs who are deployed in the HPs are providing promotive, preventive and some curative services. Facilitating referral of severe cases and cases which are above the mandate of HPs is the responsibility of HEWs. HCs are also the first referral receiving health facilities from the HPs within the established referral linkage. In this FGDs with HEWs, the type of referral communication, transportation services for very critically sick young infants, and experience of referral feedback are thoroughly discussed with HEWs.

In the discussion, most of the HEWs agreed that there is an experience of referring sick young infants to the HCs for further management. In fact, the referral communication is mainly dependent on writing some notes to the HC. The format they are using the referral is varying, sometimes they are using the standard referral format; just write some information in the white paper; or they might not give any referral slips.

G3/P2: "We [HEWs] write name, got [village] and problem occurred on white paper and refer."

It is also advisable that, the referral document should outline the brief history, classification of the sick young infant illness, the pre-referral treatment given and the reasons for referral. To improve the compliance of the referral, the CHW should discuss with families about why referral is necessary, the urgency and the place of referral to seek care (CORE Group, Save the Children, BASICS & MCHIP 2010:149).

G7/P2: "Mothers themselves bring the neonates [to the HP] if they see any illness. Regarding referral linkage in the last times there was some form but now we refer them on white paper."

Different evidences have shown issuing of referral slips and counseling on the urgency of the referral to families are critical on the completion of the referral. This is not a case in most of the times in this study. It is also augmented by the existing studies; women had lower completion rates if they are not received a referral slips form the health facility and not counselled on the urgency of referral (Kozuki et al 2015:10); in addition, in the study done in rural Afghanistan, it was documented that, the compliance of the referral services was improved by issuing of referral slips (Newbrander et al 2012:1).

Besides, the management of the severely sick under-five children with the required time and strengthen linkage between community health workers and the respective health facilities in the primary health care the referral was facilitated by a well-established referral system (CORE Group, Save the Children, BASICS & MCHIP 2010:148).

5.3.2.7.2 Transportation services

As a sign of possible serious bacterial infections, some young infants might develop a sign of critical illnesses such convulsions, unable to feed at all, and or unable to move even when the sick young infant is stimulated (unconscious); or some newborns could be found with very low birth weight or very preterm. If the above listed signs are identified, the newborns shall be urgently referred to in to the remote hospital for the lifesaving interventions. In line with this, discussion was held with HEWs about the types of emergency transportation services provided for the sick young infants. Despite ambulances are available in the woreda which are providing mainly transportation services of pregnant women from their village to HCs or hospitals; critical sick young infants are not getting the emergency referral services. Arrangement of transportation is the responsibility of the family.

G6/P1: "Ambulance service is not available for the newborn."

G7/P1: "They bring it [sick newborn] by 'clasping' it and we [HEWs] refer as it is."

In this study, it is well noted that, using ambulance for the transportation for critically sick young infants lacks clear direction. No one is sure about as a prerequisite for referral of sick newborns up to the age 2 months. In the study area, and as well as in Ethiopia, the majority of the population are living in the rural area and distant from

hospital, without arranging the transportation services, issuing only referral might not facilitate the completion of the referral of sick young infants.

Many studies have shown evidences on the relevance of transportation and its impact on the completion of the referral such as prolonged transportation time, travel required more than 3 hours was linked with the deaths of newborns during the transportation time (Baidya, Shirin & Saha 2017:159); delays in seeking healthcare related to transporting the sick newborn to the hospital was one of factors that contributing for the deaths of newborns in Nigeria (Ekwochi et al 2015:e171); if the residence of the family was far from the health facility and the likelihood of getting care for the sick newborn was very low or none (Molla, Gonie, Belachew & Admasu 2017:85); lack of transportation was one of the barriers not or delay care seeking for sick newborns (Amare et al 2012:3); and equipped transport system also considered as one of the strategy to improve the outcome of sick newborns management (Thenmozhi & Sathya 2017:1817).

5.3.2.7.3 *Receiving feedbacks*

Similarly, HEWs agreed that, receiving of feedback about the referred cases from the HCs is not common. It was believed that, the referral lineage between HPs and HC is poor and will affect the quality of case management for sick young infants.

G3/P2: “No, they [HC] don’t give us. In the past, there was a trend which we [HC and HPs staff] used to meet weekly.”

In agreement with this study, the infrequent practice of giving feedback after receiving referral is revealed in the study done in South Africa. The evidence has shown that only 16 percent of health workers gave written feedback to the referring CHW on the outcome the referred newborns up to the age of 2 months (Nsibande, Doherty, Ijumba, Tomlinson, Jackson, Sanders & Lawn 2013:1).

G7/P1: “Development armies [from the village] send them to us [HEWs] and we try to treat them if we can and refer them if the problem is somewhat complicated. But there is no feedback from the HC.”

It is also revealed that, there was some experience that, the women development armies at village level is also linking the sick young infants to the HP.

5.3.2.8 Non-health seeking behaviour

5.3.2.8.1 Misconceptions on causes of illnesses in sick young infants

In line with the Ethiopian treatment guidelines including integrated management of newborn and childhood illnesses (IMNCI) (FMOH 2015a:7), guidelines for the management of common illnesses in hospitals (FDREMOH 2016:77-78) and integrated community case management of newborn and childhood illnesses at community /HP level (FMOH 2017a:8) are also adapted the WHO clinical definitions to management PSBIs at different level of care in the Ethiopian health system.

Despite the existing knowledge on the signs of PSBIs, during the discussion with HEWs on the reasons for low service utilization for sick young infants, ‘sprained’ of the neonate, “Mekechet” in Amharic and tonsillitis have similar signs with the clinical signs of PSBI. Their care seeking preference was mainly linked to the traditional healers than the nearby health facilities.

The FGD participants defined ‘sprain’, “Mekechet” when the baby develops crying even when it touches, unable to breast feeding, strong fever, fast breathing or grunting. ‘Sprain’ also defines, something to injure a joint in the body especially in wrist, or ankle by suddenly twisting (Oxford Advanced Learner’s Dictionary 2010:1492). Despite all these illnesses are similar with the clinical signs of PSBI which requires hospitalization or treatment at HC and HP with appropriate antibiotics where referral is not possible (WHO 2015a:5, FDREFMOH 2016:77-78, FMOH 2017a:8; FMOH 2015a:7), which is associated with ‘sprain’ and the trend to seek care is to the traditional healers.

The group participants defined the symptoms of ‘sprain’ as follow:

G6/P1: “Fever, gasp, crying for long time, unable to breast feeding.”

G3/P1: “They [newborns] become crying, higher fever, fast breathing.”

In the discussion, it was revealed that, if the newborn is developed 'sprain', "Mekechet", she/he might develop fever, gasping, crying, unable to feed and or cry when the newborn touched.

G5/P1: "When you touch it [newborn] will become crying, mostly abdomen, neck and the like."

G5/P2: "...mothers usually explaining, crying, fever, some body part which is harmed becomes hard, gasp etc."

Other studies have also documented the effect of misconceptions on causes of illnesses and its health seeking behaviours. In the study done in one district of Ethiopia, mothers were believed that, some of the newborn danger signs were caused by evil spirits, thus they were not considering care seeking in the health facilities (Molla, Gonie, Belachew & Admasu 2017:85); and in the other study done in the central and southern Ethiopia, the caregivers perception on the causes that made the newborn sick and their poor knowledge to identify the newborns danger signs were among the reasons for delay or constraint of seeking care in the health facilities for sick newborns (Amare et al 2012:3).

In addition, HEWs reported that, most of the community members feel that their neonate is developed tonsillitis, "intil worede" in Amharic, mostly when the newborn develops vomiting, fever, failed to suck breast milk, dried lips, salivation and sneezing. In fact, most of these signs are the clear sing of PSBI. In addition, as per the confirmation of HEWs, they are associated tonsillitis as of 2-3 days after deliver of the newborns.

G3/P2: "When newborn unable to suck breastmilk, when their lips dried and vomiting occurred etc."

G7/P1: "Unable to breast feeding, there is fever, saliva concentration and flow out."

In the discussion, in few days after the delivery of the newborn, the newborn is considered as having tonsillitis if the newborn develops the following signs such as weak or unable to feed the breastmilk, fever dry lips and or vomiting.

G6/P2: "Tonsillitis happen soon after birth or within 2 or 3 days."

Moreover, HEWs are also described that, the community believed that, the problem of having 'sprained' in the newborn is identify by touching the body of the newborns by traditional healers.

G3/P1: "You know if you touch some part of newborn body."

5.3.2.8.2 *Cultural practices*

In most of the time, as per the confirmation of HEWs in the discussion, primarily, the community seeks care for 'sprained' and tonsillitis from the traditional healers, and they believe that the treatment they are getting will cure the problem than seeking care from the health facilities.

G6/P2: "Most of the time they take them to traditional healer than to health institutions. To make cut off uvula and having massage service."

In this study, the discussants agreed that, the practice of cutting the uvula is much rampant. In some areas, all the newborns uvula might be cut. In the procedure of uvulectomy, life-threatening infection could happen (Assefa et al 2005: 22). Evidences has shown that the traditional uvulectomy was also linked with the contribution for children being sick or die following the traditional uvulectomy procedure (Sawe, Mfinanga, Ringo, Mwafongo, Reynolds & Runyon 2015:1).

G3/P2: "They take them to traditional healer and they become cured."

G7/P1: "If they took to traditional healers they massage them.

G5/P3: "I [HEW] can't conclude that there are no harmful traditional practices regarding health of newborns. Sometimes they accept what we tell them, but in practice they are still taking infants to the traditional healer. When we deeply ask them why, they are replying the medication can't cure it, so we took it to traditional healer."

In addition, the actions practiced by the traditional healers on the sick newborns are also discussed. Most of them knew that, the traditional healers are massaging the newborn for the complaint of 'sprained' and cutting the uvula of the newborn for the complaint of tonsillitis.

Different evidences are substantiating the effect of cultural practices on the care seeking for the newborns. For example, the preference of caregivers on some or all danger signs of the newborns from traditional healers could also affect the referral completion of the sick newborns (Kozuki et al 2015:10); and in central and southern Ethiopia households apply home therapies and or seeking traditional healers are among the practice for sick newborns (Amare et al 2012:3); and in other study done in Ethiopia due the caregivers or communities beliefs on religious and cultural conditions, the families often sought care for the sick newborns to the traditional healers than health facilities (Warren 2010:110).

G5/P3: "After massage has been done she [the traditional healer] covered it with cloth then the neonate started to suck breastmilk. I [HEW] believed that it is because she has massaged it. After that day, the neonate's wellbeing is fine."

G3/P3: "For example, if you touch their leg they cry but they become cured immediately."

G5/P1: "They believe that it is extra. And they cut the uvula. But tonsillitis is which occurred at both sides due to some infection."

In the discussion, it was noted that, the traditional healers are using sharp materials to cut the uvula. Cross transmission of communicable disease from one infant to others such as human immunodeficiency virus (HIV) and hepatitis are a big concern with the very poor infection prevention practices. In addition, the cutting practice of the uvula is also compromise the feeding practice of the newborns in the early days after birth.

G5/P1: "There is sharp iron material boiled in water then washed with lemon and soap."

Even though the neonatal care service provided at HPs free of charge; the traditional healers are charging 50-200 Ethiopian Birr (ETB) for each cutting of uvula and about 50

ETB for each massage service for 'sprained' assumed newborn. In addition to the payment, sometimes, they might require also "Doro Wot" (Ethiopian National Chicken Dish), which is more than or equivalent to the payment done.

G5/P2: "They pay up to 100 ETB, if the neonate is male they pay more for circumcision and uvula cutting."

The traditional healers had received cashes or domestic fowls equivalent to US1-3\$ per operations (Kunii, Tanaka, Lewis & Wakai 2006:159).

In the FGDs, it was revealed that, most of HEWs are not strongly working to revert the role of the traditional healers and caretakes care seeking practices for the complaint of sprained or tonsillitis developed newborn.

G5/P1: "We [HEWs] didn't include it [sprained] as harmful traditional practices. And the community also didn't ask about this, we didn't discuss with them...by massaging service sometimes they become cured, I think it is not which is perceived psychologically. I am sometimes in dilemma that if the illness is pneumonia how it can't be cured by medication? So I don't think sprain is not related with pneumonia."

Even, some of the HEWs believe that, massaging practice for the complaint of 'sprained' newborn is right. If the HEWs are not against to such harmful traditional practices; and this will have a huge implication to improve the service utilization of sick newborns at HP and HC level.

G3/P1: "I [HEW] myself treated my baby many times. But he can't be cured at all and I had put some traditional medicine on his head and finally he was cured. At that time health professionals [HC] told me that there is breastfeeding problem, but not."

G3/P2: "Even the educated themselves take their babies to be cut their tonsillitis[uvula]...my sisters' child was cut her tonsillitis[uvula] at her 12 years of age; because she was frequently sick like weekly or within two weeks."

G5/P2: "Treatment at health facility can't stop sprain, but they become healthy after they got massage treatment. I[HEW] think when they say it was cured I think it is psychological. Psychologically, they perceive as if the neonate is cured but I don't think because the next days they are coming here."

Moreover, some of the HEWs do not know whether the traditional practice done to cure the complaint of spray is right or not. This confusion also comprised any activities done to improve the services provision for sick young infants at the community level. As a change agent and the first entry point for the health system, the HEWs should be convinced on the traditional practices being done in newborns such as cutting the uvula and massaging for the so-called 'sprain'.

G5/P1: "I [HEW] can't identify it [massaging for sprained newborn] as correct or not."

In regarding to the practice of uvulectomy, the discussants agreed that, the practice of cutting the uvula is much rampant. In some areas, all the newborns uvula might be cut.

G6/P1: "May be ten of them [all of them their uvula might be cut]. But we are teaching them this practice is harmful practice. Their parents rigidly argue that cutting off is a permanent relief."

G7/P2: "They go to the traditional healer for uvula cut-off. And most of them believe that modern medication is not curing the tonsillitis."

There is also frustration among the HEW discussants, it seems that, the traditional practice is beyond their capacity to bring the intended behaviour and practice in their respective community. Thus, the HEWs requires support to holistically approach the deep-rooted cultural practices on the sick young infants.

G3/P1: "Cutting tonsillitis [uvulectomy] is still practicing. We [HEW] can't stop it."

G6/P2: "For uvula cut-off ... even the educated individuals are taking their infants."



The HEWs participants confirmed that the communities believe that cutting of the uvula is considered as the radical cure of tonsillitis. Otherwise, it is believed that the tonsillitis often repeated many times in the child. This though will comprise the care seeking of sick young infants to health facilities.

Uvula is a small piece of flesh that hangs from the top of the inside of the mouth just above the throat (Oxford university press 2010:1705). Despite, uvula helps the child to prevent choking during swallowing and is used in producing certain sounds necessary for language communication; uvulectomy is practiced by cutting of the uvula and sometimes the near-by structures such as the tonsils (Assefa, Wassie, Getahun, Berhaneselassie & Melaku 2005:20). Uvula cutting was performed in 72.8 percent of children in Axum town in the northern Ethiopia and it was a leading among the other harmful traditional practices (Gebrekirstos, Fantahun & Buruh 2014:1). Assefa et al also documented that uvulectomy is commonly practiced in the northern part of Ethiopia (2005:21).

G5/P1: "They believe that, when we take them to health facilities, the infant will sick sickness again, but if it is once cut off no illness will come again."

Regarding to the perception of uvulectomy, over 80 percent of respondents believed traditional treatment to be more effective than modern medicines (Kunii et al 2006:159). In the same reasons, most of this study, FGD discussants agreed that, in most of the time, the community seeks care for sprained and tonsillitis from the traditional healers, and they believe that the treatment they are getting will cure the problem than seeking care from the health facilities. As a result, primarily the community seeking care mainly from the traditional healers.

In contrary, some of HEWs acknowledge that, there is also some awareness created regarding to understanding the cause, and care seeking for the complaint of tonsillitis in health facilities. Where this practice shall be documented, and used for the awareness creation campaign.

G5/P2: "In the previous time there are wide practices [uvulectomy], for example some mothers explained that we have took the neonate because its tonsillitis become worsen. But now through a better health education the condition is

improved from time to time. They give syrups and other necessary medications prescribed appropriately for the neonate.”

5.3.2.9 Factors affecting the neonatal healthcare services at HPs level

In addition, factors that are affecting the neonatal health care services at HPs level were also discussed with HEWs in the FGDs. Most HEWs FGD discussants generally believed that workload, uniform number of HEWs per kebele despite the population is different, commitment, unplanned and urgent requested activities, lack of coordination, lack of enough standard rooms for service delivery, misconception and misunderstanding on neonatal health care and low level of awareness were discussed as factors that are affecting neonatal health care services. Overall, the factors are grouped and discussed into supply and demand sides.

5.3.2.9.1 Shortage of essential medicines and supplies

In the discussion, stock-out of essential medicines such as gentamicin injections & amoxicillin dispersible tables and supplies such as scale, and thermometer were also identified by some of HEWs as factors which are compromising the overall effectiveness of neonatal health care service at HPs level.

G3/P2: “Gentamycin is not available currently...there is a shortage of weighing scale, and there is only one thermometer [in the HP].”

G7/P2: “Yes, there was a shortage of amoxicillin dispersible tablet 125 mg.”

To refill the gaps of the 20 mg/2 ml gentamicin, one HEW acknowledged that her HP received 80mg/2ml gentamicin preparation. However, she was concerned that, she doesn't have the required technical skills to dilute the 80 mg/2 ml gentamicin to provide injections to sick newborns. Even if, the 80mg/2ml gentamicin is available in this HP, the HEWs are not confident enough to treat the sick young infants.

G7/P3: “But nowadays the HC is providing [medicines] for us [HPs] and we don't know how to dilute it [gentamicin 80 mg/2 ml].”

In addition, gaps on timely utilization of the available essential medicines are also mentioned as an issue from the supply side factors; this could lead also the expiry of the essential medicines before using the treatment of sick young infants.

G3/P3: “They gave us [HEWs] medicine during the training, and they also brought once and I stored it because the previously given was available on stock.”

5.3.2.9.2 *Adherence on job-aids*

In the discussion, it was learned that, even though HEWs were trained on treatment of sick young infants and seriously advised on adhering and referring their job-aids particularly the community based newborn care chart booklet during the assessment, classification and treatment of every sick young infant. However, some of the HEWs confessed that they are not referring all the time for every sick young infant.

G7/P1: “We [HEWs] don’t refer manuals for treatment sometimes and forget some things if updating trainings are not available.”

5.3.2.9.3 *Interruption of services*

As per the HEWs discussants, the sub-optimal readiness of the HPs to provide the curative services to sick young infants were considers as of the major deterring factors for the low service utilization of sick infants at community level. Health posts closure and not providing services in a regular time due to most of the HEWs spent their time out of the HPs for community level activities.

G3/P6: “Because of all activities are concerning our duty [HEWs] sometimes we become bored. For example, health insurance, mothers care, infants care etc. we give more attention for what is asked recently.”

G3/P1: “At HPs, I [HEW] was working before there was gentamycin and amoxicillin. And we had used to giving young infants treatment if they become sick. But now there is no serious illnesses occurred on infants in this kebele.”

Most of the HEWs workers' FGD participants revealed that HPs are not open and provide services in most of the times, mostly, it openness depends on the schedule of the HEWs. In contrary, there are also few HPs which are opened in most of the time to provide services. There is also some experience by HEWs about informing the community on the opening schedule of the HPs.

G3/P2: "We [HEWs] have programs [schedules] and it is open according to that program. We created awareness that we are treating babies up to their 5 years old. But because of the HC is nearby to the HP; they prefer it [HC] than coming here [HP]."

G7/P4: "Nowadays, I [HEW] am the only HEWs in the HP and I open it[HP] by shifting [schedule]."

G3/P1: "Yes, it [HP] is open full day."

5.3.2.9.4 *Lack of attention and priority*

Unplanned tasks usually with a short deliverables time periods are shifting the attention and the focus of the HEWs. As a result, most of the HEWs confessed that, they are not giving attention to the neonatal health care's services and as well as it is not giving priority by the lower administrators.

G6/P1: "There is a concentration and attention problem and lack of commitment [by HEWs]. But there are many sick young infants need treatment. We [HEWs] can treat them when we are going for PNC service. There is also a heavy workload."

G6/P3: "We [HEWs] supposed to identify and manage if they [the young infants] become sick and no attention we give."

5.3.2.9.5 *Being bored*

Most of the HEWs FGD discussants agreed that HEWs are overburden many activities in on top of the sixteen packages of health extension programme (HEP). They believed that feeling bored is hinder them in providing the required neonatal health care services.

In the discussion, even though, there are already planned activities, HEWs are providing much for urgent issues which are under strict follow-up and evaluation.

G6/P1: “We [HEWs] give more attention for the current demanding issues [urgent tasks];....we are covering a wider health and non-health related extra duties. Because of this there are gaps.”

G6/P2: “We [HEWs] are providing focus and working on some activities when that given activity is especially under strict follow-up and evaluation. Because of this some tasks and activities may be left undone.”

HEWs are also complaining that the non-health related tasks that make them busy and draw their attention from the expected routine duties. Thus, the workloads on the HEWs is one of the factor that emphasized by group discussants that affecting the effectiveness of neonatal health service provision at HP level.

G7/P3: “There is extra workload [non-health] which hinders us [HEWs] from providing neonates’ treatment.”

G3/P1: “We refer them [sick young infants] if we can’t treat them based on the guideline. The main deterring factor for us is the workload. We are becoming bored due to workload.”

5.3.2.9.6 Demotivation and dissatisfaction

HEWs are supposed to spend their 50 percent of the time at their HP by offering selected basic health services; and the rest of their half time spend on conducting home visits and outreach activities through outreach bases to reach the communities (Damtew, Chekangn & Moges 2016: [1]).

However, the HEWs FDG participants were reflecting different barriers that lead to dissatisfactions and demotivation to meet their expected role. Most of the HEWs pinpointed that their loss of hope and lack of motivation is due to mainly on the denying of their expected benefits. HEWs are not inspired through the career development opportunities including educational learning, changes in their career paths, salary increments/financial motivation; and non-financial incentives. The FMOH payment scale

for HEWs is obviously known; however, the current monthly salary of the HEWs FGD participants varies from 3,000.00 to 3,600.00 ETB in accordance to their years of service. Even though the wage rate for qualified level four (IV) HEW is more than 4,000.00 ETB per month as per the FMOH salary scale, but none of the FGD participants are paid. The salary difference between in the consecutive levels (level III and IV) is very negligible and it is only about 200.00 ETB per month. The insignificant salary difference between different education levels and delay of the level IV additional expected wage rate are some of the demotivation factors.

G3/P2: “Not so much [salary difference between level III and IV], I have level IV and qualified with competency exam; and only 200 Birr salary difference.”

G3/P3: “All of us are qualified with level IV. Loss of hope and being bored is a matter to work hard. ...there is no self-motivation, poor attention for the job, for example sometimes we wait them [the sick young infants] until they come[HP], but it is good if we go [to their home] and treat them. And there is supply problem.”

5.3.2.9.7 Poor infrastructure of HPs

HEWs believe that the poor infrastructure of the HPs is also combating the quality of health services and affecting the effectiveness of health services for the newborns.

G7/P2: “...there should be a quality [standard] room for treatment; and the wall of the store [medicine store in the HP] itself is corrugated iron which may cause medicines to be spoiled,...well standardized HPs should be built.”

5.3.2.9.8 Poor to sub-optimal programme monitoring

As per the discussion finding with HEWs FGD participants, programme monitoring visits from HCs staff to improve the competency and case management skills of HEWs are not regularly and well-coordinated. Sometimes the visit might be integrated with other activities where adequate time might not allocated for the visit.

G7/P2: “There is less attention, they [HC staff] come sometimes for another activity and ask us indirectly about the child under 5 years of age service.”

Moreover, the competency of the supervisors from HC was also questioned by HEWs at the community level. In addition, the sick young infants case management and newborn service provision are considered as additional task by HC supervision and usually asked later after at the end supportive supervision mission.

G7/P3: "Sometimes they [HC staff] come [to HPs] but they couldn't assist us as expected. For example, our [HP] register is far better than the register at the HC."

5.3.2.9.9 *Low community awareness*

On the demand side, most of HEWs noted that the low level of community awareness on neonatal health care services provision at HPs level.

G4/P2: "Low understanding of the community on the issue [the curative service for under-2 months children in the HPs]."

G6/P1: "When we [HEWs] were discussed with the community they have said that we were not informed that sick newborn treatment is available at HP and because of this we are taking infants to the HC or to the hospital. They also added that HEWs we know are practicing mainly on latrine construction, motivation the community to health insurance, report writing, extra assistance for agricultural works, initiating students for their education enrolment; but they raised their idea as if they did not see us [HEWs] on the treatment activity."

In the contrary, some of the HEWs acknowledge that awareness level of the community regarding to the availability of neonatal health care services is being improved.

G6/P3: "They know that there is treatment is available in this HP after health insurance has been started, and we are telling them when we [HEWs] give vaccination in churches."

As per the opinion HEWs FGD discussants, due to the religious or cultural practices in some of the communities, mothers are not allowed to go out within 10 days after their delivery. As a result, the care seeking behaviour for their sick newborn is very limited.

G7/P2: “Mothers don’t go out from their home up to 10 days. So, we can’t get them at the health post unless we go at their home.”

5.3.2.10 *Strategies for the effective neonatal healthcare services at HPs level*

5.3.2.10.1 *Reducing the workload*

The HEWs FGD participants were recommending about lessening their workload to provide the effective neonatal health care services in their respective HPs.

G6/P1: “It is better if the workload is minimized for us. It is hard to follow all young infants [birth-2months] and children from 2 months up to 5 year. And HCs are expected to supervise us [HEWs] and training and review meeting is necessary to improve our skills and fill the gap.”

5.3.2.10.2 *Motivating the HEWs to inspire in their profession*

Almost all the HEWs FGD participants agreed and recommended that minimization of the workload, life work balance, fair distribution of works, clear job description, focusing on high impact intervention, and setting obligation can uplift the HEWs’ motivation.

G3/P1: “It is better if workloads are minimized and one specified job is given to us [HEWs], ...it is better if we work by dividing mothers related and infants or children related [thematic division].”

G3/P2: “From the 16 HEP packages which are divided into 4 packages; but we need to get 1 of them individually.”

G3/P3: “It is advisable to set accountability. For example, we are asked about health insurance but there is no question [accountability/follow-up] about newborns treatment.”

In agreement with this study evidence, some motivations that are supposed to improving the financial benefits of the health workers in the developing countries such as upgrading the career development and further education, acknowledgement on the good work and the enabling working environment including the hospitals infrastructure

that comfortable to provide services, the availability of required resources in the health facility and the type of management adhered to govern the health works were some the factors facilitate the motivation and retention (Willis-Shattuck, Bidwell, Thomas, Wyness, Blaauw & Ditlopo 2008:[1]). In other study done in Bangladesh, incentives related of finance, recognition of their contribution by their respective community and future anticipated career development were some of the key factors that motivated the community health workers. However, tasks that overburden the community health workers including some activities which requires traveling at night, working outside the residence area and unacceptability of the families on the payment were found to be the reasons for the community health workers attrition (Rahman, Ali, Jennings, Seraji, Mannan, Shah, Al-Mahmud, Bari, Hossain, Das, Baqui, El Arifeen & Winch 2010:1). Similar study done in Tanzania, enough and sustainable incentives either in financial or in kind for the volunteer CHWs were considered as the motivational factors to improve their commitment at their respective work (Greenspan, McMahon, Chebet, Mpunga, Urassa & Winch 2013:11, 52).

5.4 OVERVIEW OF RESEARCH FINDINGS

5.4.1 Neonatal interventions provided

5.4.1.1 *Management of pregnancy*

In addition to the provision of ANC services at HC level, pregnant women were informed on the possible signs and symptoms that are occurred during pregnancy and labour. ANC follow-up visit is also used as an entry point for discussion and planning about where to give birth, and emergency preparedness and birth readiness. HEWs' who are working in the HPs, were mainly engaged in the identification of pregnant women at their respective community; followed by provision of the ANC services at HP level. In addition to providing the services, they are also referring the pregnant women to the nearby HC for the highly level ANC investigation and laboratory test. Despite the efforts exerted by HCs and HPs staff to improve the access and quality of ANC services to the pregnant women, still home birth is reported.

5.4.1.2 Immediate and essential neonatal care services

The immediate and essential newborn care services is provided in HCs for the newborn such as resuscitation of the newborn if she/he develops birth asphyxia, application of tetracycline in the eyes of the newborn, vitamin k injection in the thigh of the newborn, initiate breast feeding and chlorhexidine application in the cord of the newborn.

5.4.1.3 Neonatal care services provision at different level of care in the health system

The neonatal health care services are provided at different level of care in the health system including at HPs level which are near to the community members, HCs and hospitals. Though it is not strong enough, each level of care across the health system are also networked with the referral linkage.

5.4.1.4 Case management services for sick neonates and sick young infants (birth-2 months)

The case management service is provided for sick neonates up to the age of the 2 months according to the integrated management of newborn and childhood illnesses (IMNCI) in the HCs and community based newborn care (CBNC) in HPs. For this age groups, the HC and HPs have a separate register to manage under 2 months' infants. Depends on the level of severity of illnesses for the sick young infants, sick young infants are either treated at HPs and HCs level or referred for further diagnosis and management. The HCs are also receiving referral cases from the HPs.

5.4.1.5 Facilitating ambulance services for transportation of pregnant women during labour

The HCs and HPs are trying their best in connecting the pregnant women as soon as labour is initiated or anticipated to get the ambulance services for their transportation from their home to HCs or hospitals to facilitate professional assisted delivery. Despite all the efforts, HEWs knows that, still few mothers are giving births at home without the support of the health care provider.

5.4.1.6 *Early PNC home visits*

The experience of provision of early PNC was varied among the HEWs participants. The experience has shown, some homes either it didn't receive or receive a delayed PNC home visit by HEWs. Thus, these newborns won't get the key lifesaving interventions and essential newborns care, particularly the burden would be huge for those mothers who gave birth at home.

5.4.1.7 *Counseling on thermal care, breastfeeding and immunizations*

As part of the PNC home visit package, HEWs are providing counselling services to delay bathing of the neonate, assessing the feeding condition of the neonate following with counselling of the mother especially for exclusive breastfeeding up to 6 months; and reminding the schedule of the immunization at 45 days of birth.

5.4.2 Experiences of health facilities on neonatal health care services

5.4.2.1 *Level of care for neonatal health care services*

The neonatal services are providing at HC level and the HCs are also receiving referral newborn cases from the catchment HPs. In addition, due to different reasons, even though the service is available at the HP level, the community didn't properly utilize. Sometimes they might by-pass the HP to the HC to seek care, prefer the traditional healers or not seek care at all.

5.4.2.2 *Preference of care seeking for newborns*

The preferred level of care for sick infants by the community members are HCs in comparison with HPs. There is an experience of by-passing the nearby HP to seek care into in the relatively remote HC from their villages. Traditional healers are still considered as the choice of preference to seek care for their sick newborns in some portion of the community's.

5.4.2.3 *Experience of early PNC home visits*

Some common mechanisms were existing to notify births, but there is no a clear and standard pathway for timely notification of births. Consequently, the day of receiving notification by HEWs is about 2-7 days from the onset of delivery. It implies that, most of time the early PNC visits within two days of delivery was missing. Meanwhile, HEWs were using different mechanism to be informed about who gave birth, when and which village. Some of the mechanisms include; getting report or information from the WDAs, notification letter or card from the midwives in the HC, by closely following up the outcome if the HEWs facilitated the calling of the ambulance for the pregnant women transportation, and some of them are receiving a call or a message from the delivered mother by themselves like 'come and see me'.

5.4.3 Adequacy of neonatal health care services

5.4.3.1 *Early PNC for the mothers and newborns after delivery in the HFs*

With different reasons, HCs were experiencing of early discharge of the mothers and their babies than the stated recommendations. Among the frequently mentioned reasons for early discharge were lack of enough space and beds in their respective health facilitates. Most importantly, once the mother gave birth the family members and the accompanies consider that there is no problem after birth and they want to go to their home and practice some traditional celebration at home with their families and neighbours. This has also a limitation from the health care provides side, and they are not also providing the required counselling to the family members and the accompanies on the complication both the mother and newborn are facing following the early discharge after delivery.

The main reason for affecting the coverage and quality of PNC were; HEWs are overburden with other demanding tasks including non-health related tasks; and lack of motivation and dissatisfaction by HEWs. The wider geographic services coverage and bad topography to access and reach the household; and, less attention and priority given to the PNC visit by HEWs and programme managers are also additional challenges for the provision of PNC home visit.

5.4.3.2 Experience of chlorhexidine (4%) application for cord care

Thus, “Yimserach jel” was mainly available in the HCs. As per the recommendation, the application has started in HC after delivery and the mother take away the remaining to apply at home.

However, chlorhexidine (4%), “Yimserach jel”, was lacking in HPs and still a significant number of mothers gave birth at home and their newborns won’t get Yimserach jel” from the HEWs during their home visits, despite home delivery is from the top list to get the application to prevent infection originated at umbilicus of the newborns.

5.4.3.3 Management of preterm labour

HCs are not equipped to provide the administration of intramuscular dexamethasone or other corticosteroids for pregnant woman at risk of preterm birth; and guideline is not available in their respective health facilities. Consequently, if the HC is experiencing the preterm labour, referring the pregnant woman at risk of preterm to the higher-level facility is the usual practice.

5.4.3.4 Management of birth asphyxia

HCs staffs have relatively adequate knowledge and received training on the management of birth asphyxia to save the lives of newborns immediately after birth. Nevertheless, some critical issues such as the narrow room and space in the delivery room, shortage of supplies for resuscitation, misappropriate use of supplies and technical problems, and limited competency since the HCs staffs are not often practicing the skills of birth asphyxia due to the low prevalence of asphyxia, are some of the factors that are affecting the management of birth asphyxia.

5.4.3.5 Kangaroo mother care

At HC level, KMC is only initiated in cases of referral of very /low preterm or low birth weight newborns to hospitals. Otherwise admission of KMC in the HC is not a common practice as per the discussion findings with the HC staff. In addition, initiating KMC at HC and linking to the HP is not a common practice as well. Material resources like,

inadequate room and beds are main hindering factors to initiate and admit cases for KMC in the HC.

5.4.3.6 *Management of possible serious bacterial infections in sick young infants (PSBI)*

HCs and HPs staffs are managing possible serious bacterial infections (PSBI) when it occurs in young infants adhering with the national service delivery guidelines at their respective health facilities. The essential medicine used for managing PSBI are also mostly available in the HCs and HPs. Despite the HCs are relatively equipped in terms of skills and essential medicines and supplies, the number of sick young infants who were managed at the HCs and HPs in the last 4-6 months prior to this discussion was very low.

5.4.3.7 *Performance of health care providers*

The performance of the health care providers is affected by capacity building trainings, supportive supervision, availability of human resources for health, reference books, essential medicines and supplies. The moral motivation is also affecting the performance healthcare providers. The performance of HEWs are also affected since they are overwhelmed by other activities including non-health related activities given by the local kebele administrators.

5.4.4 *Quality of neonatal health service provision*

Regarding to the quality and adequacy of the neonatal health care provision at HC level, due to suboptimal availability of trained human resources, and essential medicines and supplies, most of the HC participants agreed that, the service provided particularly for the sick young infant is not high as expected quality standards. Nevertheless, some of the HC participants argued that, the HCs is trying their best to provide the quality of health care services for the newborns.

5.4.4.1 *Availability of material resources*

The availability of essential supplies, medicine and job-aids are essential to provide the quality of health care services for the young infants the health care facilities. The availability of essential medicines, supplies and job-aids were getting better from the previous time; however, health facilities were still experiencing stock-out of essential supplies, medicine and job-aids in sometimes. In addition, lack of room or space in the HCs is also one of the factor identified by HCs staffs to provide the KMC for the low birthweight and or preterm babies.

5.4.4.2 *Competency of HCs staffs in the quality of neonatal health care services*

Most of the HCs were tried to provide the quality of health care services as per the standards, however, it was compromised by lack of trained health providers and reference books in the health facilities all the time. In addition, poor motivation is also cited as one factor affecting the competency of staff. In contrary, some of the of HCs staffs claimed that the quality of neonatal health care services at HC level is sub-optimal and the quality of the newborn health care services is not always maintained in all the times.

5.4.4.3 *Readiness for PNC home visits*

The type of PNC service provided during home visit by HEWs is in a poor quality. Most of the time, HEWs, visited the household without the necessary preparation and carrying the essential supplies and job-aids including the chartbook and family health guide to be used as checklist to check the danger signs and assess the newborns. In addition, poor documentation after the PNC home visit services provision is also identified as the weakness the HEWs.

5.4.4.4 *Sub-optimal adherence on PNC home visit guideline*

The quality of PNC home visit by HEWs is compromised since most of the time HEWs are not carrying the weight measurement scale, thermometer, sample register book, timer and essential medicines during their home for PNC. As result, the weight of the newborns is not taken and assessed for birth weight especially for newborns at home delivery; the temperature of the newborns is not measured and breath per minute is not properly counted so that the newborns are not assessed and classified for all key signs of PSBI for the newborns. And again, if the essential medicines are not available in the home visit kit, HEWs won't able to initiate the treatment at household level base on their assessment.

5.4.4.5 *Less attention to home visits for PNC*

Sometimes, the PNC home visit is integrated into other prioritized activities; consequently, less attention is given for the PNC home visit including a prior preparation and allocation of a dedicated schedule and time for PNC home visit. Just, HEWs are visiting the house of the mothers even though they are not doing in the right way. In contrary, some of the HEWs are confident that, they were performing the required types PNC services during the PNC home visits including the general assessment of newborn and feeding situations. The service is also includes measuring the weight and temperature of the newborn.

5.4.5 Performance of HEWs and HCs staffs on neonatal health care services

5.4.5.1 *Coverage of the sick young infants' case management task*

As a proxy indicator for the service provision of neonatal healthcare by HEWs and HWs at the community and HC levels, the expected number of sick young infants' cases was calculated and analysed with the actual performance. However, the number of sick young infants' cases they were managed in their respective HPs and HCs in 4-6 months' period prior to this discussion was very low.

5.4.6 Referral linkage

5.4.6.1 *Linkage for early PNC home visit*

There is no a strong mechanism established at HCs level to inform the HEWs at HPs level about the birth happening at HCs level for their early home visits for PNC. In fact, some of the the HCs staffs were sending a green color notification card to the HEWs at HPs to continue the PNC and other essential services for the newborn and the mother. Even though the HCs staff are expecting that home visits for PNC is expected to be done by HEWs at community level, most of the HC staff believed that, all mother are not getting the required home visit for PNC to save the lives of newborn and mothers.

5.4.6.2 *Referral communication for sick young infants' referral*

Most of the HCs and HPs had an experience of issuing referral of the sick young infants into the referral receiving health facilities. However, regarding to the referral communication among health facilities at different level of care particularly using the referral slip and receiving and giving feedbacks on the referral; there is an experience of using referral slips as a referral communication mechanism, but it is not often practiced, and sometimes they are not adhering with the standard referral slip due to shortage of printed copies of referral slips. Surprisingly, the HC staff were complying the poor adherence of HEWs on using referral slip while they are referring sick young infants into the HCs. This is believed that the referral completion might be compromised since, the caretakers might not feel urgency and necessity of the referral. The referral format used by HEWs is varying, sometimes they are using the standard referral format; just write some information in the white paper; or they might not give any referral slips.

5.4.6.3 *Transportation for sick young infants' referral*

As a common consensus, mostly pregnant women are prioritized to get the transportation services of the ambulance from their home to HCs or hospitals while their labour is initiated or during their expected time of delivery. Otherwise, using ambulance for the transportation of sick young infants is not common at all. Most of the time, the critically sick young infants are not getting the emergency referral services. Arrangement of transportation is the responsibility of the family. In addition, the

awareness creation is not done where the remote rural community is eligible to requesting the available ambulances for sick young who need the attention of higher-level professional at hospital level. This is also affecting the acceptance and complying of the referral by the families of the newborns.

5.4.6.4 *Feedback mechanisms for referral cases*

The provision and receiving of feedback about the referred cases from the referring and receiving health facilities is not a common practice. Most of the time, neither the HCs are receiving feedback from the hospitals nor providing feedback to the HPs in their catchment. No major bottleneck was identified except giving attention to the importance of giving and receiving feedback to improve the quality of care and strengthen the referral linkage among the health facilities. It was believed that, the referral lineage between HPs and HC is poor and will affect the quality of case management for sick young infants.

5.4.7 *Reasons for not seeking neonatal care services*

5.4.7.1 *Lack of awareness on danger signs*

Lack of awareness by the caregivers about the danger signs of the sick young infants, and considering local infection is not an illness or not frequently checking the newborns conditions were some of the factors for the low service utilization of the sick newborns.

5.4.7.2 *Cultural practices*

Still some of the community members are preferring the care seeking from the traditional healers mainly for the complaint of massage for “sprained”, and cutting of the newborns uvula for the complaint of tonsillitis.

5.4.7.3 *Health posts operation*

The readiness of the HPs was mentioned as one factor contributing for the low service utilization of sick young infants. The HPs are not open most of the time and so that the communities won't get the services whenever they needed.

5.4.8 Non-health seeking behaviour

5.4.8.1 *Misconceptions on causes of illnesses in sick young infants*

The low services utilization is associated with misconception including ‘sprained’ of the neonate, “Mekechet” in Amharic and tonsillitis. Their care seeking preference was mainly linked to the traditional healers than the nearby health facilities. Most of the signs mentioned as sign of ‘sprained’ and tonsillitis are related to the signs of PSBI.

5.4.8.2 *Cultural practices*

Primarily, the community seeks care for ‘sprained’ and tonsillitis from the traditional healers, and they believe that the treatment they are getting will cure the problem than seeking care from the health facilities. The traditional healers are massaging the newborn for the complaint of ‘sprained’ and cutting the uvula of the newborn for the complaint of tonsillitis. Even though the neonatal care service provided at HPs free of charge; the traditional healers are charging 50-200 Ethiopian Birr (ETB) for each cutting of uvula and about 50 ETB for each massage service for ‘sprained’ assumed newborn. In addition to the payment, sometimes, they might require also “Doro Wot” (Ethiopian National Chicken Dish), which is more than or equivalent to the payment done.

5.4.9 Opportunities for neonatal health care services

5.4.9.1 *Treatment of sick young infants at the community level*

Treating SYIs (0-2 months) at health post or village level is a great opportunity for the HEWs to save more lives. They are also trained and equipped with the essential medicines and supplies. HEWs are managing SYIs as per their treatment guideline. HEWs are also managing sick young infants at HP and during PNC home visits.

5.4.10 Factors affecting the neonatal healthcare services at PHCU level

Lack of adequate number of trained health human power, adherence on using the job-aids, community perception of neonatal health care service, weak referral linkage, lack of space to demonstrate and use KMC service at HCs stock-out of essential medicines and supplies, interruption of services at HPs level , lack of attention and priority at community level, HEWs being bored, HEWs demotivation and dissatisfaction, poor infrastructure of HPs , and weak monitoring and evaluation system are the key factors affecting the neonatal care service at PHCU level.

5.4.11 Strategies for effective healthcare at HCs level

5.4.11.1 Capacity building of HWs:

The need of continuous refresher training and updating on the new development in neonatal health care services were noted by the HC staffs.

5.4.11.2 Reducing the workload

The HEWs were recommending about lessening their workload to provide the effective neonatal health care services in their respective HPs.

5.4.11.3 Motivating the HEWs

Minimization of the workload, life work balance, faire distribution of works, clear job description, focusing on high impact intervention, and setting obligation can uplift the HEWs' motivation.

5.5 CONCLUSION

The qualitative findings have shown the factors that affects the neonatal healthcare services in the primary healthcare units. The explored factors are very informative to design the appropriate strategy to improve the quality of newborn health services provision and utilization of the available services in the primary healthcare units in

Ethiopia. With the current level of sub-optimal quality care and low service utilization of sick young infants hampered by the preference of traditional healers for care seeking, the significant reduction of neonatal mortality in Ethiopia might not be achieved.

CHAPTER 6

THE INTEGRATION OF QUANTITATIVE AND QUALITATIVE RESULT

6.1 INTRODUCTION

This chapter is providing insight of the major research results by integrating the interpretation of quantitative and qualitative data that are already reported separately in chapter 4 and chapter 5. A mixed method approach with sequential explanatory design was employed in this research; where the quantitative data was collected and analysed in the first phase of research to address quantitative objectives (to assess quality and analyse utilization of neonatal health care services and factors affecting the services), followed by the collection and analysis of qualitative data in the second phase. Though the two forms of data are separately analysed and reported, in this chapter, both the quantitative and qualitative results are integrated and interpreted to able to answer the objectives of this research.

6.2 MIXED-METHOD BACKGROUND

Mixed methods research combines the collecting and analyzing of both quantitative and qualitative data in a single research study (Creswell 2014:32; Cameron 2009:143; Johnson, Onwuegbuzie & Turner 2007:123). Onwugbuzie, Slate, Leech and Collins (2009:14) stated that the mixing of the two approaches and the combined results have the benefit of confirmation, instigation, advancing, relating, and augmentation. By combining the qualitative and quantitative methods, it facilitates the understanding of the researched problem than employing a single approach (Creswell 2014:32) and the combination the two methods is used by aiming to have a result with a higher scope, with a better depth of knowledge, and results that are properly justified (Johnson et al 2007:123). In addition, the mixed method is employed to investigate the day to day challenges that are facing in the healthcare service provision by applying the strengths of each method (Fetters, Curry & Creswell 2013:2); and to gain a better understanding of connections or contradictions between qualitative and quantitative data (Shorten & Smith 2017:74). A mixed-method approaches helps to complement the strength of both qualitative and quantitative methods (Creswell et al 2011:4).

A quantitative dominant mixed methods research is one type of mixed research, where the researcher mainly gives much weight on the quantitative data, and seeks the additional qualitative methods and its data to improve the overall interpretations of the research result (Johnson et al, 2007:124; Onwugbuzie et al 2009:18). The rationality of choosing this quantitative dominant mixed method is to augment quantitative results with qualitative data and provide a better explanation of the result that is analysed from the quantitative data (Creswell 2014:274-281; Johnson et al 2007:124).

6.2.1 Explanatory sequential mixed method design

The explanatory sequential mixed methods design, it is a two-stage design, where the quantitative data are collected and analysed first and which informs the next qualitative data selection process followed by the qualitative data collection and analyses to help explain quantitative data (Shorten & Smith 2017:74; Almalki 2016:293; Creswell 2014:274-275; Fetters et al 2013:3) and the follow-up results from the quantitative and qualitative is interpreted in the discussion section where the qualitative results used to have an expanded and well explained quantitative results (Creswell 2014:274-275). Moreover, in health sciences, this type of method is commonly used (Creswell et al 2011:8).

Consequently, in this study, the researcher employed an explanatory sequential mixed design that is categorized in two data collection phases. The quantitative data collected in the first phase of the research and followed by qualitative data collection in the second phase of the research (Creswell, 2014:274-282; Creswell, 2009: 206, 211& 216). Even though the qualitative and quantitative data collected in distinct phases but they are well connected across the entire process of the research (Creswell, 2009:211) and interpreted in the discussion section of this chapter.

6.3 RESEARCH QUESTIONS

Since this research has employed explanatory sequential mixed method design, each approach had defined research questions. Both the questions described under the quantitative and qualitative phases were designed in consistent with stated research objectives and used for developing the data collection tools.

6.3.1 Quantitative questions

- What are the strategies that the primary health care units use to improve neonatal health care services utilization?
- What kind of health system factors affects the quality of neonatal health care services in the primary health care units?
- What kind of neonatal health interventions are utilized in the primary health care units?
- What are the factors affecting the utilization of neonatal health care services in the primary health care units?

6.3.2 Qualitative questions

- What are the factors affecting the effectiveness of neonatal service delivery at primary health care units?

6.4 DATA COLLECTION PROCESS

The researcher-administered closed-ended structured survey questionnaire for health workers (HWs) in the primary hospitals and health centres (HCs), and health extensions workers (HEWs) in the health posts (HPs). In addition, structured document analysis checklist was used to collect sick newborn service statistics data from sick young infants' registers in the primary health care units. Following the quantitative methods, semi-structured interview with open-ended questions was employed in the focus group discussions (FGDs) for HWs and HEWs to explore factors affecting the effectiveness of neonatal health care services (Figure 6.1).

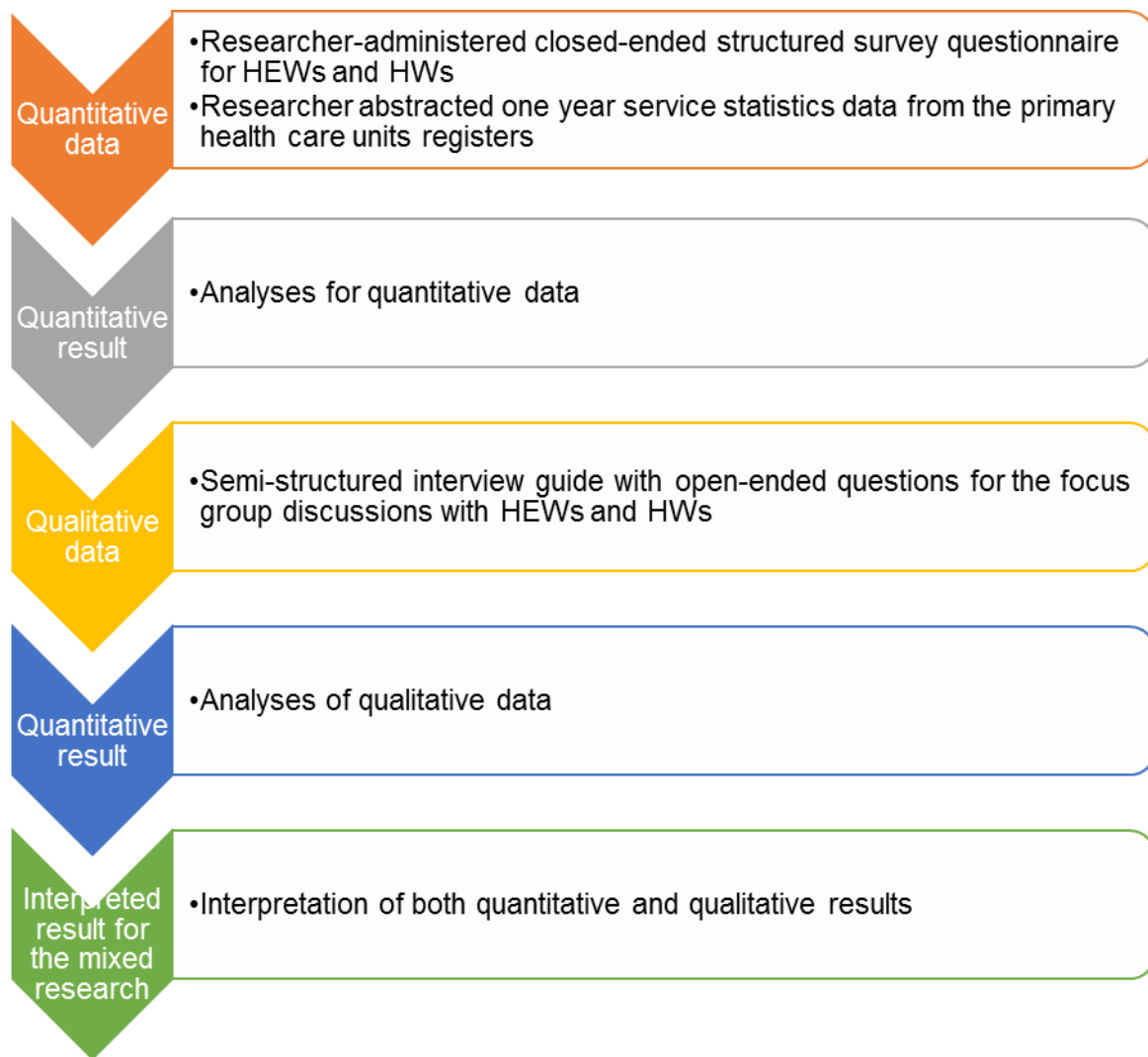


Figure 6.1 The quantitative-dominant mixed research explanatory sequential design and data sources

6.5 MIXED-METHOD ANALYSES

In the process of mixed analyses, the data collected in the two phases of the quantitative and qualitative methods are analysed parallelly or by sequence. The analyses would be a quantitative-dominant mixed analysis, if the research gives much weight for the quantitative data and small scale for the qualitative data and methods. In addition, the mixed analysis could represent case-oriented, variable-oriented, and process/experience oriented analyses (Onwuegbuzie & Combs 2011:2-5).

6.5.1 Case-oriented analyses versus variable-oriented analyses

According to Onwugbuzie et al (2009:17), any specific analytical technique can be operationalized as representing either as a case-oriented analyses or variable-oriented analyses. Its operationalization includes both the quantitative and qualitative method of analyses. Moreover, case-oriented analyses or variable-oriented analyses are distinctively different from each other. In this study the investigator employed a quantitative-dominant mixed research; and a qualitative data used for assisting the interpretation (Onwugbuzie et al 2009:18).

Case-oriented analyses focus primarily or exclusively on the selected case(s). The goal of case-oriented analyses is to analyse and interpret the perceptions, attitudes, opinions or the likes of one or more persons. In this type of analysis, the cases treated as whole object, and it is inclined towards the specific and analytical generalization. (Onwugbuzie et al 2009:17).

Figure 6.2 shows a diagram that has two dimensions, where the vertical pole is representing the quantitative phase(s) of the research. In each ends of the vertical pole the variable and case oriented analysis are assigned. In addition, the qualitative phase (s) of the research is represented by the horizontal line; where in each opposite end of the pole, the variable and case analyses are assigned (Onwugbuzie et al 2009:18).

The upper left quadrant focuses on quantitative and qualitative analyses in the mixed method as a variable oriented analysis; and the upper right quadrant is the analyses that involves variable oriented analyses for quantitative and case oriented analyses for qualitative phases. In contrary, the case and variable oriented analyses for quantitative and qualitative phases respectively are represented in the lower left quadrant of the diagram. Moreover, the case orientated analysis for both quantitative and qualitative phase is represented in the last right bottom quadrant of the diagram (Onwugbuzie et al 2009:18).

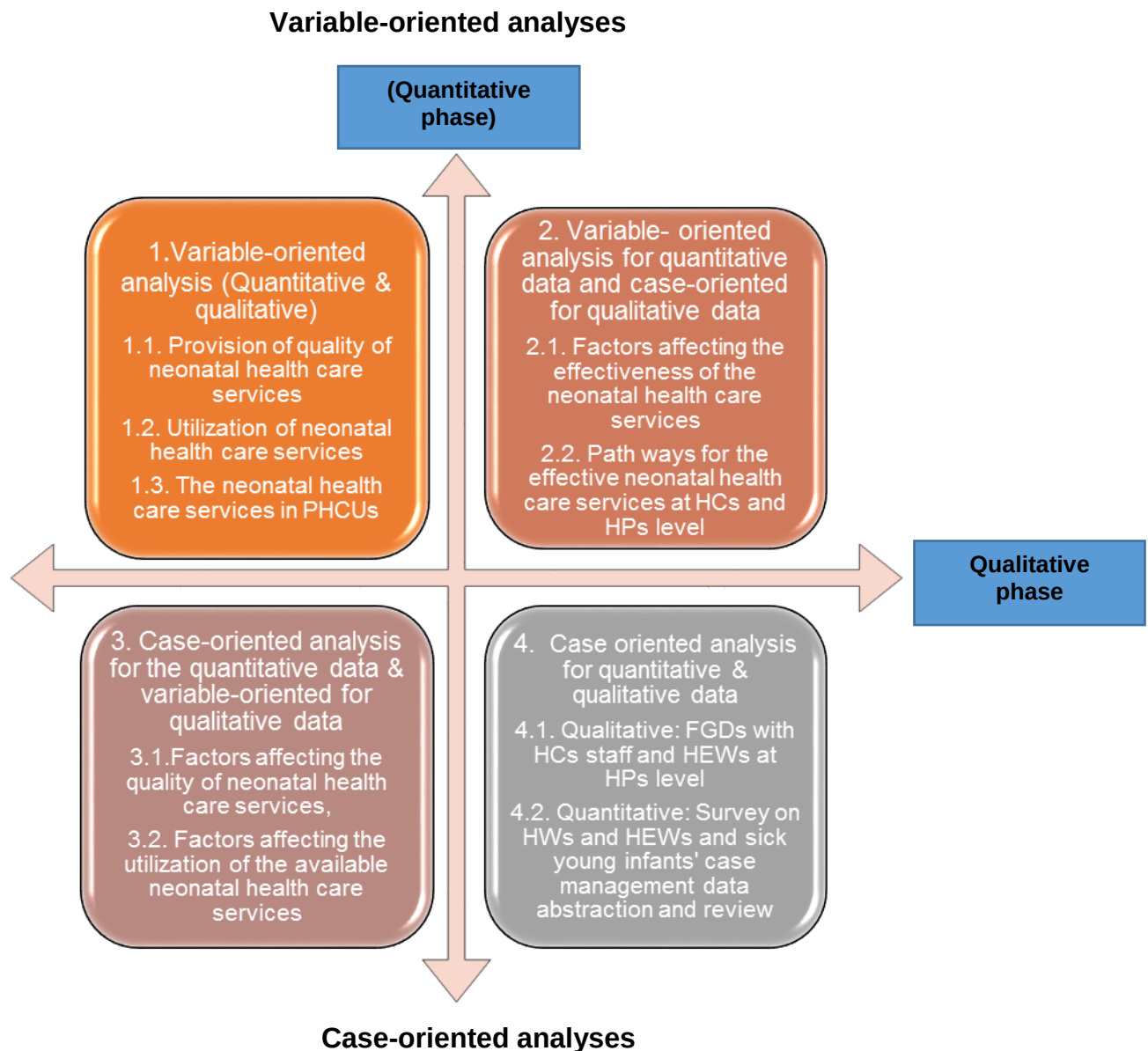


Figure 6.2 A two-dimensional representation of variable-oriented and case-oriented analyses in the mixed analyses

Key words: PHCU: Primary Health Care Units; HC: Health Centres; and HP: Health Posts

6.5.1.1 Case-oriented analyses

Case-oriented analyses focuses primarily or exclusively on the selected case(s). The goal of case-oriented analyses is to analyse and interpret the perceptions, attitudes, opinions or the like of one or more persons. This analyse treats the case as whole entity, has a tendency toward particularizing and analytical generalization. Since this

analysis is well suited for identifying patterns common to one or relatively a smaller number of cases; it is well suited for qualitative research and analyses (Onwugbuzie et al 2009:17).

6.5.1.1.1 The quantitative data case

- The researcher-administered survey on health workers in the primary hospitals and health centres, and health extensions workers in the health posts the researcher-administered survey on and register abstracted data.
- The researcher abstracted sick young infants (birth- 2 months) service statistics data from sick young infants' registers in the primary health care units

6.5.1.1.2 The qualitative data case

- Three focus group discussions were held with health centres staffs and four were conducted with health extension workers.

6.5.1.2 Variable-oriented analyses

In the contrary, variable-oriented analyses involves identifying probabilistic relationship amongst variables in most of the time. In addition, this form of analyses tends to be conceptual and theory centred from the onset. Moreover, the building blocks for the variable-oriented analyses are variables and its intercorrelations rather than focusing on cases, this type of analyses is mainly used in the quantitative methods and analyses (Onwugbuzie et al 2009:17).

6.5.1.2.1 Quantitative variables

- The key maternal health services contributed to improving the outcome of newborn health (The provision of antenatal care services, basic emergency obstetric and newborn care (BEmONC) services and availability of trained skilled birth attendances in the health facilities)
- The neonatal health care services (Provision of emergency newborn care (EmNeC) in the primary health care units, availability of essential immediate

- newborn care, Immediate postpartum care services, reported care for very small/low birth weight babies)
- Quality of essential newborn care: Actions for resuscitation, follow-up and thermal care for newborns
 - Availability of essential equipment for post-delivery newborn care
 - Availability of essential medicines for newborn and maternal health linked to newborn survival
 - Practice of infection prevention in health facilities
 - Diagnostic capacity of health facilities for maternal health related to newborn health
 - Newborn care knowledge of health providers in under-five clinic in PHs and HCs, and HPs
 - Immediate care and breastfeeding advice for very low birthweight babies
 - Status of health workers training on key newborn health management
 - The auditing experience of maternal and early neonatal death, and still births in health facilities
 - The timing of discharge for delivered mothers and their newborns from health facilities
 - Newborn health related national service delivery standards, guides and job-aids in maternity units' ad under-five clinics
 - Experience of receiving supportive supervision in the maternity units, and under-five clinics in PHs, HCs and HPs
 - Health facilities' referral experience for obstetric complication and sick newborns
 - Referral linkage of sick newborns in primary health care
 - Availability of curative services in health facilities for sick newborns
 - Basic amenities for providing maternal and newborn health services in health facilities
 - Sick young infants' classification given by health facilities
 - The plan given to treat sick young infants by primary health care facilities
 - The management plan given to treat very severe disease cases
 - Management plan given to treat local bacterial infections
 - Type of antibiotics given and schedule followed in the treatment of very severe diseases cases
 - Sick young infant's treatment outcome

- Quality of case management of sick young infants
- Service utilization of sick young infants in one-year period
- Factors affecting the effectiveness of the neonatal health care services

6.5.1.2.2 *Qualitative variables*

Qualitative variables from the health workers focus group discussion:

- Neonatal interventions provided
- Experiences of the HCs on neonatal health care services
- Adequacy of neonatal health care services
- Opportunities for neonatal health care service provision
- Neonatal service quality
- Performance of health care providers
- Referral linkage
- Reasons for low care seeking for sick young infants
- Factors affecting neonatal healthcare
- Strategies for effective healthcare for neonatal health care services

Qualitative variables from the health extension workers focus group discussions:

- Neonatal interventions provided
- Experiences of the HPs on neonatal health care services
- Adequacy of neonatal health care services
- Opportunities for neonatal health care service provision
- Neonatal service quality
- Performance of HEWs
- Referral linkage
- Reasons for low care seeking for sick young infants
- Factors affecting neonatal healthcare
- Strategies for effective healthcare for neonatal health care services

6.5.2 Integration of mixed method research results

6.5.2.1 *Levels of integration*

As per Guetterman, Fetters and Creswell (2015:560), integration of the quantitative and qualitative data that maximizes the strength of the mixed methods approach that supports for the development of the new insights. Consequently, integration can be done at a level of interpretation and reporting of the quantitative and qualitative result through the narration of the results from the data sources, data transformation from the two methods, and by jointly displaying the results of the two methods. During the integration, the proper fit for the qualitative and quantitative findings should be considered. In addition, integration is also expected to maximize the benefit of the mixed methods research (Fetters, Curry & Creswell 2013:1-2).

Guetterman et al (2015:555) noted that the mixed methods data integration can be done at level of analytic and interpretation stage; this can be done by writing the data in the discussion sections that quantitative and qualitative data analysis are discussed separately. In addition, the quantitative and quantitative results can be represented with a joint display in the form of table or figure (2015:555). Particularly for an explanatory sequential design, a joint display can be used and relates quantitative scores to qualitative quotes in in line with the theoretical framework of the research (Guetterman, Fetters & Creswell 2015:558). Schoonenboom and Johnson (2007:115) acknowledge that listing the qualitative and quantitative findings in the form of the joint display and using an integrative statement could be also facilitate the integration at the point of results.

Overall, in mixed method research the integration of quantitative and qualitative approaches and findings can be integrated at various level: at design stage of the research like this research employed an explanatory sequential approach by using both the quantitative and qualitative approaches; at methods level with the form of building where first data collection procedure influences the next phases of data collection approaches, and interpretation and reporting stage like adapting a joint display (Fetters et al 2013:2).

6.5.2.2 *Integration of qualitative and quantitative data at the interpretation and reporting level*

Integration of qualitative and quantitative data at the stages of interpretation and reporting can be done mainly in three ways; such as integration thorough narrative, data transformation and joint displays (Fetters, Curry & Creswell 2013:9-10) (Table 6.1).

Table 6.1 Description of integration of qualitative and quantitative data at interpretation and reporting level

Narration approach for integration	Data transformation approach for integration	A joint displays approach for integration
Both the findings of the qualitative and quantitative data are illustrated in one report or successive research reports	Using the content analysis, the qualitative data can be transferred in form of numeric counts; so that these data can be integrated with the quantitative data	Using a joint display to integrate quantitative and qualitative data, the results are presented with visual means such as in the form of figure, table, matrix, or graph
The integration of the qualitative and quantitative data can be done through narration of the research report with three different ways		
1. The weaving approach: In this approach both the qualitative and quantitative key results are integrated at level of each theme or concept		
2. The contiguous approach: To consider the contiguous as an approach of integration, both the qualitative and quantitative results are included in one report; however, each methods of findings are illustrated in different section or chapter in one single report		
3. The staged approach: In this approach, the report of the qualitative and quantitative results included at different sections or chapters of the report.		

After the integration of both the quantitative and qualitative findings and to assess the fitness of the integration, there could be three possible outcomes such as: confirmation, diverge and discordance (Fetters, Curry & Creswell 2013:10-11). In line with the examining for the fit of the two types of data are categorized into four areas such as confirmation, complementarity, expansion, or discordance (Fetters & Molina-Azorin 2017:294).

6.5.2.3 *Adopted method of integration for this research*

In this research the integration of the quantitative and qualitative data through both weaving narrative integration and joint displays was adapted. The quantitative and qualitative results are connected to each other thematically and the discussion was made for similar themes; and the key findings of the quantitative data and relevant quotes from the qualitative data was presented in the form of table or figures (Fetters et al 2013:16-17; Creswell et al 2011:5).

6.6 FINDINGS OF THE INTEGRATION OF THE MIXED METHOD RESEARCH RESULT

6.6.1 Neonatal health care services across the continuum of care

The quantitative data indicated the availability of the 22 components of ANC services in primary hospitals (PHs), urban health centres (UHCs), and rural health centres (RHCs) that were reported 87.9, 87.4 and 82.8 percentage mean score respectively. In addition, from the 15 expected components of ANC services in the health posts (HPs), the availability of 50.9 percentage mean score was reported. It shows that, the percentage mean score of ANC service components in HPs level was much lower than PHs and health centres (HCs). In the second phase of qualitative study, the HCs FGDs discussants agreed that, in addition to the provision of ANC services at HC level, pregnant women were also counselled about the danger signs during pregnancy and labour. During the ANC follow-up, pregnant women are getting the following services: tetanus toxoid vaccination (TT), iron folate supplementation, laboratory examination services such as haematocrit (HCT) test, blood group, venereal disease research laboratory (VDRL), provider initiative counselling and testing (PICT) for human immunodeficiency virus (HIV) testing, urine analysis and stool examination. In addition, blood pressure and weight of the pregnant women is measured, and the foetal heart beat is also monitored. In the discussion, most of HCs staffs agreed that, meeting with pregnant women during ANC follow-up is also used as an entry point for discussion and planning about where to give birth, and emergency preparedness and birth readiness. Moreover, most of the HCs staff agreed that, the midwives from the HCs are regularly visiting and providing technical support to their catchment HPs (Figure 6.3).

Similarly, the FGDs with HEWs substantiated the qualitative findings. Everyone of HEWs agreed that, ANC services is provided at HP level. In addition to providing the services, they are also referring the pregnant women to the nearby HCs for the highly level investigation and laboratory test. In the discussion with HEWs, they are exerting their consolidated efforts to identify and register the pregnant women in the early months of pregnancy to initiate the ANC services at HPs and facilitate the referral link with HCs for additional and better services the pregnant women in their respective kebeles. In the ANC follow-ups visit, pregnant women are also receiving interventions which are useful for the life of foetus such as tetanus toxoid injection, supplementation of iron folate for the prevention of anaemia, measuring blood pressure to detect pregnancy induced hypertension, and birth planning and emergency preparedness. HEWs FGDs participants also noted that, they are not providing clean and safe delivery services at HPs level. Their major job is encouraging and follow-up of pregnant women to give birth at HCs or Hospitals level. In fact, they are also ready to provide the delivery care if the labour is imminent (Figure 6.3).

Quantitative findings	
–	The availability of the 22 components of ANC services in primary hospitals (PHs), urban health centres (UHCs), and rural health centres (RHCs) were reported 87.9, 87.4 and 82.8 percentage mean score respectively.
–	From the 15 expected components of ANC services in the health posts (HPs), the availability of 50.9 percentage mean score was reported.
Qualitative findings	
–	G4/P1: “She [pregnant women] received TT vaccination, all laboratory examination services including HCT, blood group, VDRL, urine analysis and stool examination. ...blood pressure is measure and PITC is also done. Iron and TT is given to her. Then, planning with her where to give birth [facility delivery], about transportation [during labour] and counselling her to come [any time to the HC] if any danger sign is shown.”
–	G7/P2: “We [HEWs] tell her danger signs may occur during pregnancy such as: things related to anaemia and blood pressure, we counsel them to get follow-up service and refer them if the problem is somewhat complex... we counsel her to make adequate rest, prepare a relative who can transfuse blood if it is necessary, because there is a pregnant woman waiting home in the HC, we also advise her to stay there when the expectant mother enter her 9th month”.
–	G7/P3: “There is no birth at the HP this year, but there was one case labour occurred on the ambulance and gave birth on the way before they reached to the HCs.”

Figure 6.3 Survey and FGDs data joint display on the neonatal health care services provided across the continuum of care

6.6.2 Neonatal health care services in the primary health care units

6.6.2.1 *Emergency newborn care (EmNeC)*

As shown in the Figure 6.3, the quantitative findings regarding the provision of emergency newborn care (EmNeC) are also supported by the FGDs with HWs in the HCs. Among the key EmNeC signal functions, the highest score was for newborn resuscitation with bag and mask with 56 (71.8%). In line with the high coverage in the quantitative study, the HCs FGDs participants revealed that they have relatively adequate knowledge and received training on the management of birth asphyxia to save the lives of newborns immediately after birth. Nevertheless, some critical issues were also identified during the discussion with the HCs staffs regarding the management of birth asphyxia which includes the narrow room and space in the delivery room which is compromising the resuscitation process; the shortage of supplies for resuscitation; misappropriate use of supplies and technical problems; and limited competency since the HCs staffs are not often practicing the skills of birth asphyxia due to the low prevalence of asphyxia (Figure 6.4).

The second highest coverage in the quantitative study among the EmNeC signal functions was the provision of injectable antibiotics for newborn sepsis with 85 (61.6%) of the health facilities. This finding is also supported by the FGDs findings with HC staffs and HEWs in HPs. Most of the HC and HEWs participants revealed that, they are managing possible serious bacterial infections (PSBI) when it occurs in young infants adhering with the national service delivery guidelines at their respective health facilities. The essential medicine used for managing PSBI are also mostly available in the HCs and HPs. About kangaroo mother care (KMC), the provision of teaching mother skin-to-skin/KMC for premature and very small babies was provided in 61 (44.5%) health facilities including HPs. The low coverage of the KMC was also justified by the FGDs with HCs staffs. Most of the HCs FGD participants revealed that, KMC is only initiated in cases of referral of very /low preterm or low birth weight newborns to hospitals (Figure 6.4).

Similarly, in the quantitative findings, the provision of corticosteroids for preterm labour in the last six months prior to the survey in the HCs and PHs was only 5 (6.5%). Similar, this low coverage is also supported by the qualitative findings. All the HC FGDs agreed

that, they are not equipped to provide the administration of intramuscular dexamethasone or other corticosteroids for pregnant woman at risk of preterm birth; and the guideline is not available in their respective health facilities. Consequently, if the HC is experiencing the preterm labour, referring the pregnant woman at risk of preterm to the higher-level facility is the usual practice. (Figure 6.4).

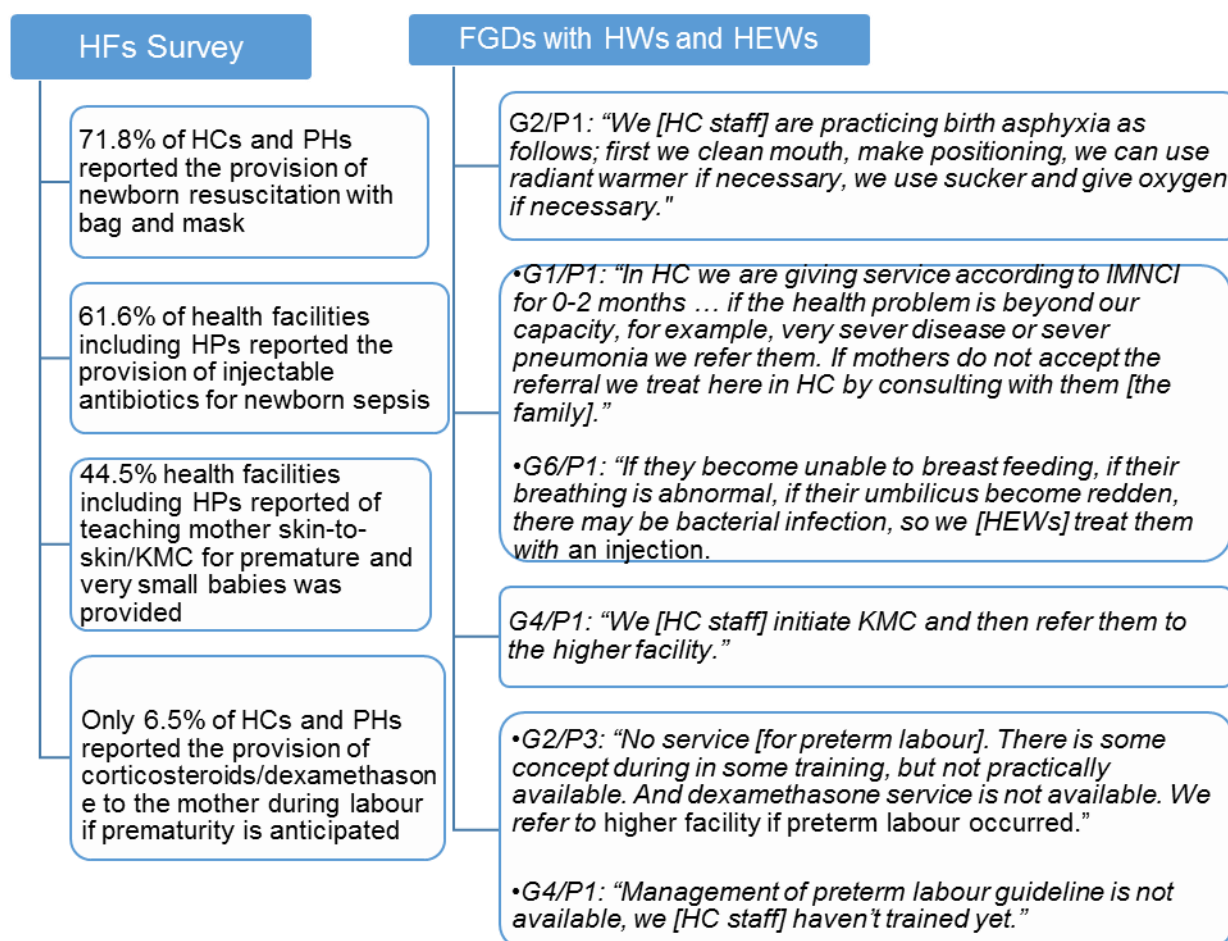


Figure 6.4 Survey and FGDs data joint display on the provision of emergency newborn care services

6.6.2.2 Essential immediate newborn care practices

Health workers were asked in the health facility survey about the experience of essential newborn care practices including the cord care of the newborns immediately after birth. Thus, the application of chlorohexidine (CHX) in the umbilical cord was reported by 28 (35.4%) of health facilities. Though the coverage is low in the quantitative study, the HCs FGDs also confirmed that as per the recommendation, the application of CHX has started in HC after delivery and the mother take away the

remaining to apply at home every day for 6-days. In the FGDs with HEWs participants', chlorhexidine (4%) jel, was lacking in HPs. This implies that mother who gave birth at home, their newborns won't get chlorhexidine (4%) jel from the HEWs during their home visits, despite home delivery is from the top list to get the application to prevent infection originated at umbilicus of the newborns. In addition, as per the report of HWs, the provision of chlorhexidine (4%) jel application is also low in the newborns who gave birth in the health facilities (Figure 6.5).

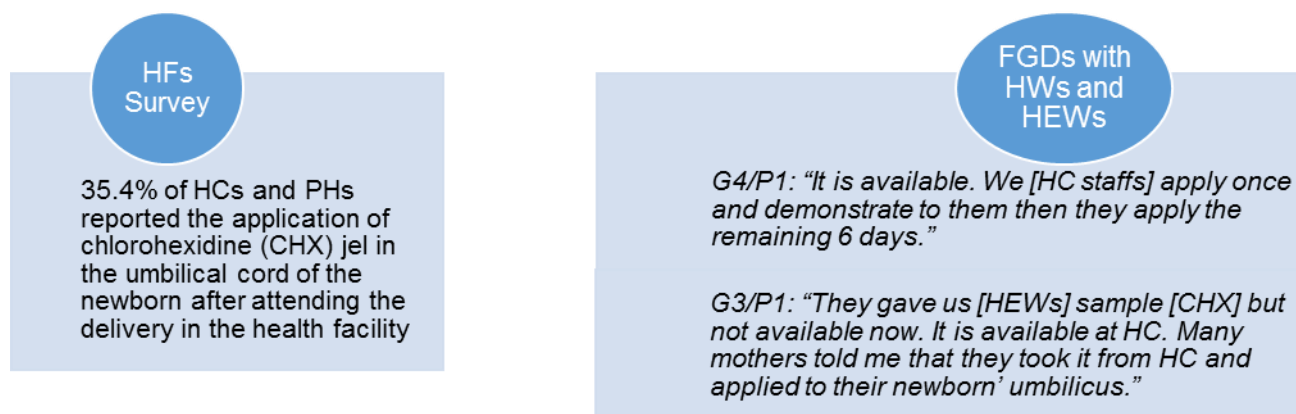


Figure 6.5 Survey and FGDs data joint display on the application of chlorhexidine (4%) jel on the umbilical cord of the newborns immediately after birth

6.6.2.3 Care for very small/low birth weight babies

Assessing the practice of care for very small/low birth weight babies was done with HWs and HEWs in the HCs and PHs and HPs. The six recommended actions such as observation of babies for at least one day, kept the babies in the health facilities longer than usual, placed the babies in the incubator, placed the babies in the radiant heater, kept the baby in the KMC and delayed first bath for a least 24 hours were employed to calculate the percentage mean score at the HCs and PHs level; whereas only three recommended actions including observation of babies for at least one day, kept the baby in the KMC and delayed first bath for a least 24 hours were used to compute the percentage mean score for the care of low birth weight babies in the HP. Thus, the survey data shows that, 83.3 percentage mean score PHs reported the provision of the recommended actions for the care of very small/low birth weight babies; on the contrary, only half (50.8) of the HPs practiced actions for the care of very small/low birth weight babies. Likewise, slightly more than half of the RHCs, 54.5 and 61.5 UHCs provided actions for the care of very small/low birth weight babies. Among the key recommended

actions for caring of very small/low birth weight, most of the HC FGDs participants revealed that, KMC is only initiated in cases of referral of very /low preterm or low birth weight newborns to hospitals. Otherwise admission of KMC in the HC is not a customary practice as per the FGDs findings with the HC staff. In addition, initiating KMC at HC and linking to the HP is not a common practice as well (Figure 6.6).

In addition, HEWs FGDs participants agreed that, from the total birth in their respective kebeles, with wider range between 40 percent to 85 percent of estimated women after delivery were getting PNC home visits. In this PNC home visit, weighing the newborn is expected to assess for birth weights. Yet, the day of the first visit among HEWs are also varied. In the discussion, it was noted that, the PNC service provided is not provided as per the standard (Figure 6.6).

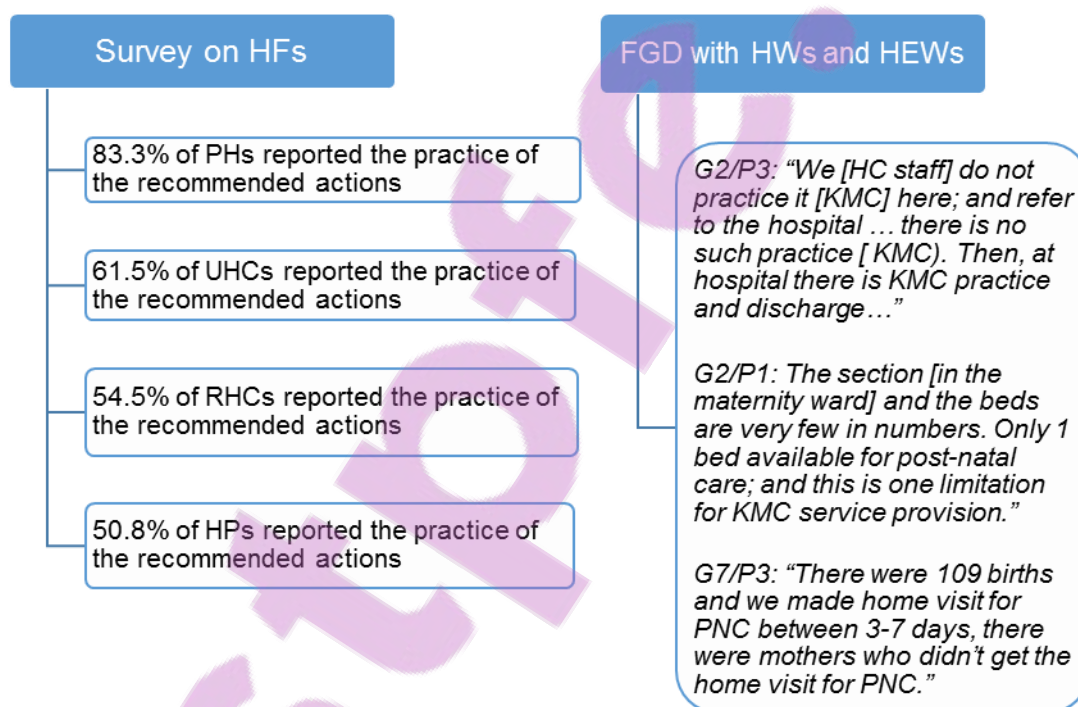


Figure 6.6 Survey and FGDs data joint display on the care for very small/low birth weight babies'

6.6.2.4 Quality of essential newborn care: Actions for resuscitation, follow-up and thermal care for newborns

Quality of essential newborn care was assessed by considering the five and three key resuscitations actions and follow-up care to save the lives of the newborns, and the five key actions to improve the quality of thermal care of the newborns. As shown in Figure

6.6, the mean score from the total 30 was computed for each health facility types, and the mean ranged below 10 for HPs and about 20 for PHs. However, UHCs had a mean of 18.7 and RHC had 15.9. This implies that the lower level health facilities including HPs and RHCs had a lower essential quality of care score. This also justified by the FGDs with HCs staff and HEWs at HPs level. In the FGDs discussion, some of the of HCs staffs claimed that the quality of neonatal health care services at HC level is sub-optimal and the quality of the newborn health care services is not always maintained in all the times. Lack of trained health human resources, references books to update the current knowledge and practice, and motivation are some key factors affecting the quality of service provision (Figure 6.7).

The quality of essential newborn care is also explored with HEWs FGD participants. As part of the PNC home visit package, HEWs FGDs participants agreed that, they are providing counselling services to delay bathing of the neonate, assessing the feeding condition of the neonate following with counselling of the mother especially for exclusive breastfeeding up to 6 months; and reminding the schedule of the immunization at 45 days of birth. However, most of HEWs participants agreed that the type of PNC service provided during home visit is of a poor quality. Most of the time, HEWs, visited the household without the necessary preparation and carrying the essential supplies and job-aids including the chartbook and family health guide to be used as checklist to check the danger signs and assess the newborns. As per consensus reached by HEWs participants, the quality of PNC is compromised since the weight is not measured and the breath per minute is not counted for all newborns. In addition, most of the time HEWs are not carrying the weight measurement scale, thermometer, sample register book, timer and essential medicines during their home for PNC. As result, the weight of the newborns is not taken and assessed for birth weight especially for newborns at home delivery; the temperature of the newborns is not measured and breath per minute is not properly counted so that the newborns are not assessed and classified for all key signs of PSBI for the newborns. In contrary, some of the HEWs are confident that, they were performing the required types PNC services during the PNC home visits including the general assessment of newborn and feeding situations. In addition, some of HEWs argues that, after they are doing a proper assessment of the newborns, they are also initiating the treatment as per their protocols and issuing referral if the newborns are requiring the attention of the higher-level health facilities. Moreover, most of HEWs FDGs participants agreed that the quality of newborn care services is not provided as

per the standard due to different supply side reasons including the poor infrastructure of the HPs and lack of attention to the neonatal care services (Figure 6.7).

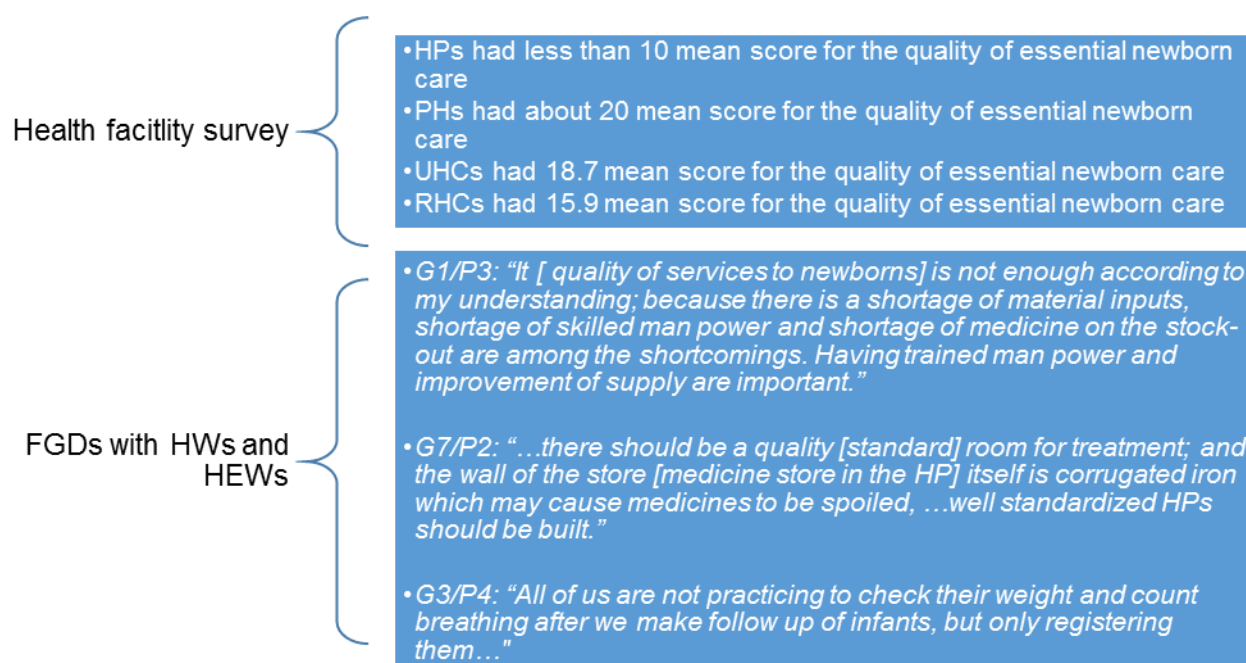


Figure 6.7 Survey and FGDs data joint display on the quality of essential newborn care

6.6.2.5 Availability of essential equipment for post-delivery newborn care

In the quantitative phase of the study the mean score on the availability of essential equipment for post-delivery newborn care was calculated from the health facility survey. The highest, 82.3 mean percentage score of functional essential equipment and supplies were available in PHs; followed by 72.4 in UHCs. Similarly, only 61.9 percentage score of essential equipment and supplies were available in the RHCs. Most importantly, regarding thermal care of the newborn immediately after delivery, the availability of towels for drying babies and hats or caps for head covering was only available in 3.7% and 1.5% of health facilities including health posts. The qualitative findings of this study are also augmented by the FGDs in the qualitative study. The FGDs with HC staffs revealed that, among the others, stock-out of essential supplies was also one of the supply side factors affecting the provision of the neonatal health care services. On the other hand, the lowest mean percentage score was documented for HPs at 36.3 percent. This highly supported by the findings of the qualitative data. The issue of lack of supplies was repeatedly mentioned in FGDs with HEWs as it affects

the quality of neonatal health care services including the early PNC. Overall, the data shown that HPs and RHCs were facing a shortage of essential equipment and supplies to provide key intended services for mothers and newborns (Figure 6.8).

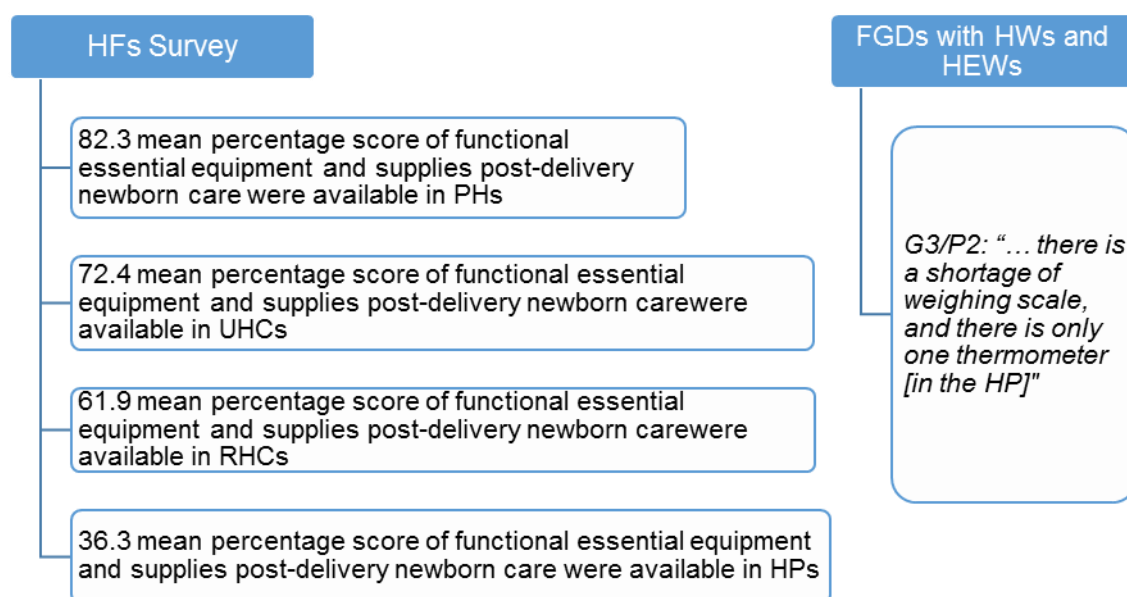


Figure 6.8 Survey and FGDs data joint display on availability of essential equipment for post-delivery newborn care

6.6.2.6 Availability of essential medicines for newborn and maternal health linked to newborn survival

Ten tracer medicines such as injectable oxytocics, ampicillin, gentamicin (20mg/2ml or 80mg/2m), anticonvulsant (magnesium sulphate or diazepam), dexamethasone, and vitamin K (phytomethadione), intravenous (IV) fluids with infusion sets, amoxicillin (dispersible tablet or syrup), nevirapine, and small size syringe and needles were selected to calculate the mean percentage availability of the essential medicines at PHs and HCs, and on the other hand, only three tracer essential medicines including amoxicillin, gentamicin injection and small syringe and needles were selected for calculation of the mean percentage score in the HPs. Thus, a mean percentage score of 86.7 and 81.5 of essential medicines were available at PHs and UHCs respectively. On the contrary, the RHCs were less equipped with essential medicines with a mean percentage score of 74.8. Having been in the better position of the HCs and PHs in the availability of essential medicines, it did not come as a significant issue from the FGDs with HCs staff. Even though, a 70-percentage mean of HPs were equipped with the tracer essential medicines as per the quantitative study findings; stock-out of essential

medicines such as gentamicin injections & amoxicillin dispersible tables were also identified by the FGDs of the HEWs as factors that are affecting the provision of the neonatal health care service at HPs level (Figure 6.9).

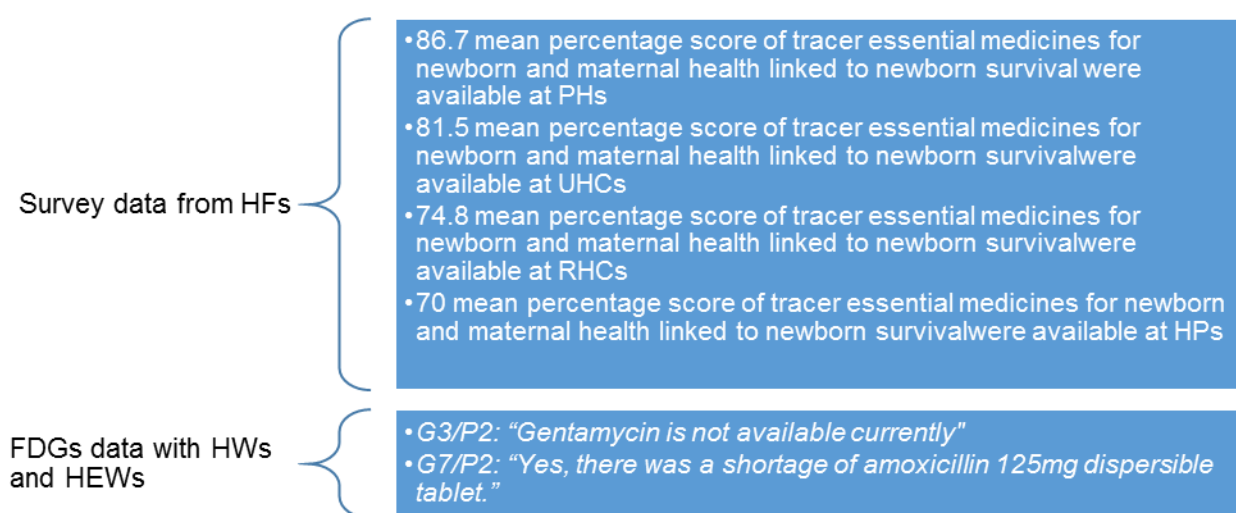


Figure 6.9 Survey and FGDs data joint display on the availability of tracer essential medicines for newborn and maternal health

6.6.2.7 Newborn care knowledge and training status of health providers in under-five clinic in PHs and HCs, and HPs

The ten different newborn care knowledge domains asked to health providers at each facility level to estimate their overall knowledge score on newborn care. Each of the ten questions had given equal weights, standardized, and rescaled into 10 to range from a 0 to 10 scale. Health workers who were working in PHs were found to be at scale of 5; HWs in UHCs had a relatively higher knowledge scale from the rest of health facilities at a point of 5.4 followed by RHCs with a knowledge scale of 5.3. Relatively below half of the knowledge scale were HEWs in HPs level, with the scale point of 4.2.

In addition, according to the response of the interviewed HWs and HEWs in the PHs, HCs and HPs, the training status found to be below 40 percent in most of the key newborn healthcare management trainings received in the past 12 months before the survey. Particularly for the integrated approach, training such as integrated management of newborn and childhood illnesses (IMNCI) was 57 percent and newborn corner management training was at only 6.3 percent. Only 36.7 percent of HCs and HPs staff were trained on the community based newborn care (CBNC) including the

management of neonatal sepsis in past 12 months before the survey. Among HWs interviewed at the three hospitals, none of them were trained on management of newborns in the newborn intensive care unit.

In line with the gaps identified on newborn care knowledge and training status coverage in the quantitative study; FGD participants from the HCs repeatedly mentioned that the availability of inadequate trained health professionals, is one of the key supply side determinant factors for the effectiveness of neonatal health care service at the HCs level. However, HEWs had a knowledge scale at a point of 4.2 below the average, it didn't come out as a major challenge, rather, the FGDs with HEWs revealed that, despite them being equipped with the necessary training, they are not adhering with the guidelines all the times, which is affecting the quality of neonatal care services for sick young infants (Figure 6.10).

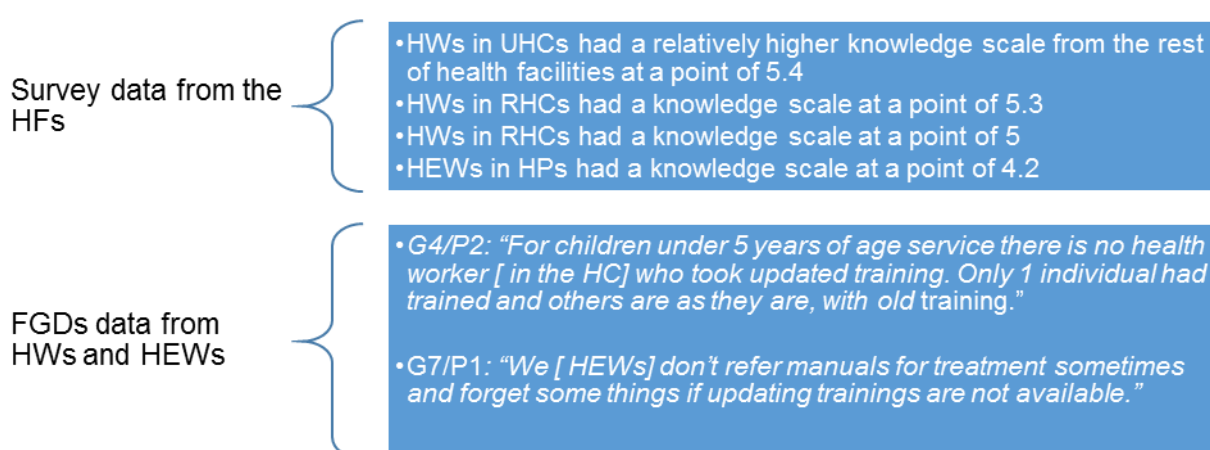


Figure 6.10 Survey and FGD data joint display on newborn care knowledge and training status of health providers in PHs and HCs, and HPs

Key words for figure 6.10:

HWs: Health Workers; UHCs: Urban Health Centres; RHCs: Rural Health Centres; HEWs: Health Extension Workers; and HPs: Health Posts

6.6.2.8 The timing of discharge for delivered mothers and their newborns from health facilities

According to the quantitative data, among 79 HCs and PHs, most (79.7%) discharged mothers and their newborns from the health facilities between 6 and 12 hours of delivery. In addition, early discharge before 6 hours of delivery was accounted by

13.9%. However, only, 6.3% of health facilities were retaining delivered mothers and their babies in the respective health facilities between 12-24 hours of delivery. The early discharge of mothers and newborns from the health facility before 24 hours was also confirmed by FGDs with HCs staff tied with several reasons. All the HC FGDs discussion participants agreed that, they were experiencing early discharge of the mother than the stated recommendations. Among the frequently mentioned reasons for early discharge were: lack of enough space in the health facilitates, lack of beds, once the mother gave birth the family members and the accompanies think that there is no problem after birth and they want to practice some celebration at home, and the health providers are not also providing the required counselling to the family members and the supporting family members on the issues following the early discharge after delivery (Figure 6.11).

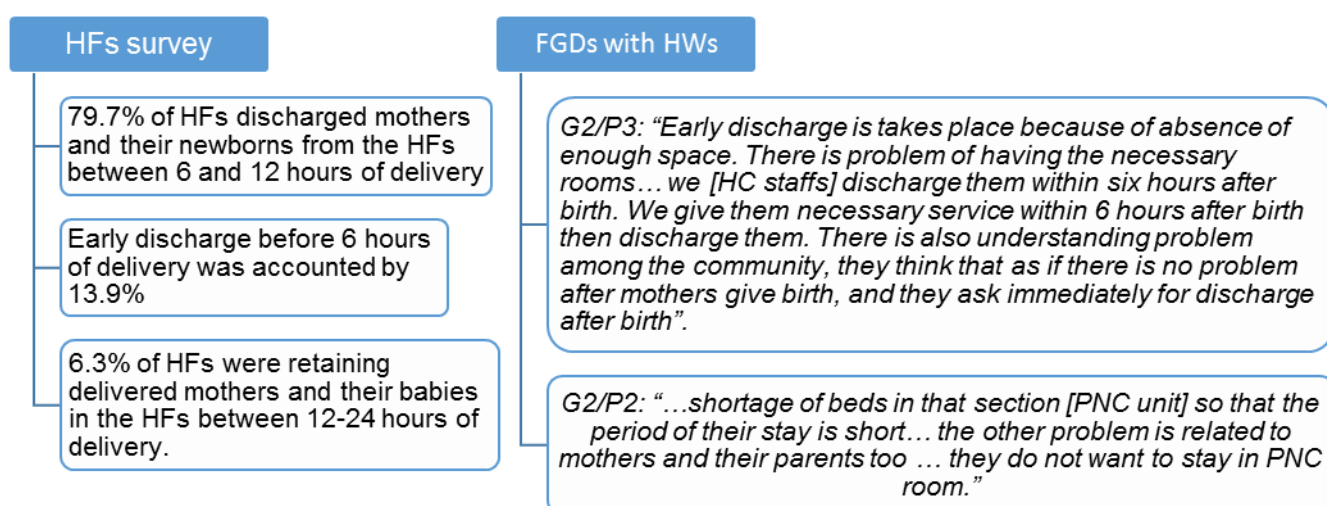


Figure 6.11 Survey and FGD data joint display on the timing of discharge for delivered mothers and their newborns from health facilities

6.6.2.9 Experience of receiving supportive supervision in the maternity units, and under-five clinics in PHs, HCs and HPs

About 43.1% of maternity units and HPs reported that they had received supportive supervision (SS) related to maternal and newborn health services in the health facilities before three months of the survey. Moreover, it was found that 101 (73.2%) of health facilities had received SS visits to improve the case management skill of sick young infants in past three months before the survey. In line with it, within the past three months before the survey, most the health posts, 50 (80.6%) had received the SS visits.

Despite relatively having a good coverage of SS visits in last three months before the survey, the FGD participants of HCs staff, revealed that, there is no a functional system that established for program monitoring visit that the SS regularly initiated from HCs to HPs to improve the case management skills of HEWs. In addition to having irregular SS practice, there is inconsistent provision of supervision feedback by HC supervisors to HPs. Even, in the erratic practice of feedback from HC staff to HEWs, the content of the feedback is mainly focusing on prenatal care, postnatal care, family planning service, vaccination and status and functionality of the health developmental armies. The feedback is not inclusive of the quality and coverage of sick young infants' case management. Moreover, the performance of the sick young infants' management at HPs is not often reported (Figure 6.12).

Similarly, HEWs FGD participants consistently confirmed that, programme monitoring visits from HCs staff to improve the competency and case management skills of HEWs are not regularly and well-coordinated. Sometimes the visit might be integrated with other activities where adequate time might not be allocated for the visit. Moreover, the competency of the supervisors from HC was also questioned by HEWs at the community level. In addition, the sick young infants case management and newborn service provision are considered as additional task by HC supervision and usually asked later at the end of supportive supervision mission (Figure 6.12).

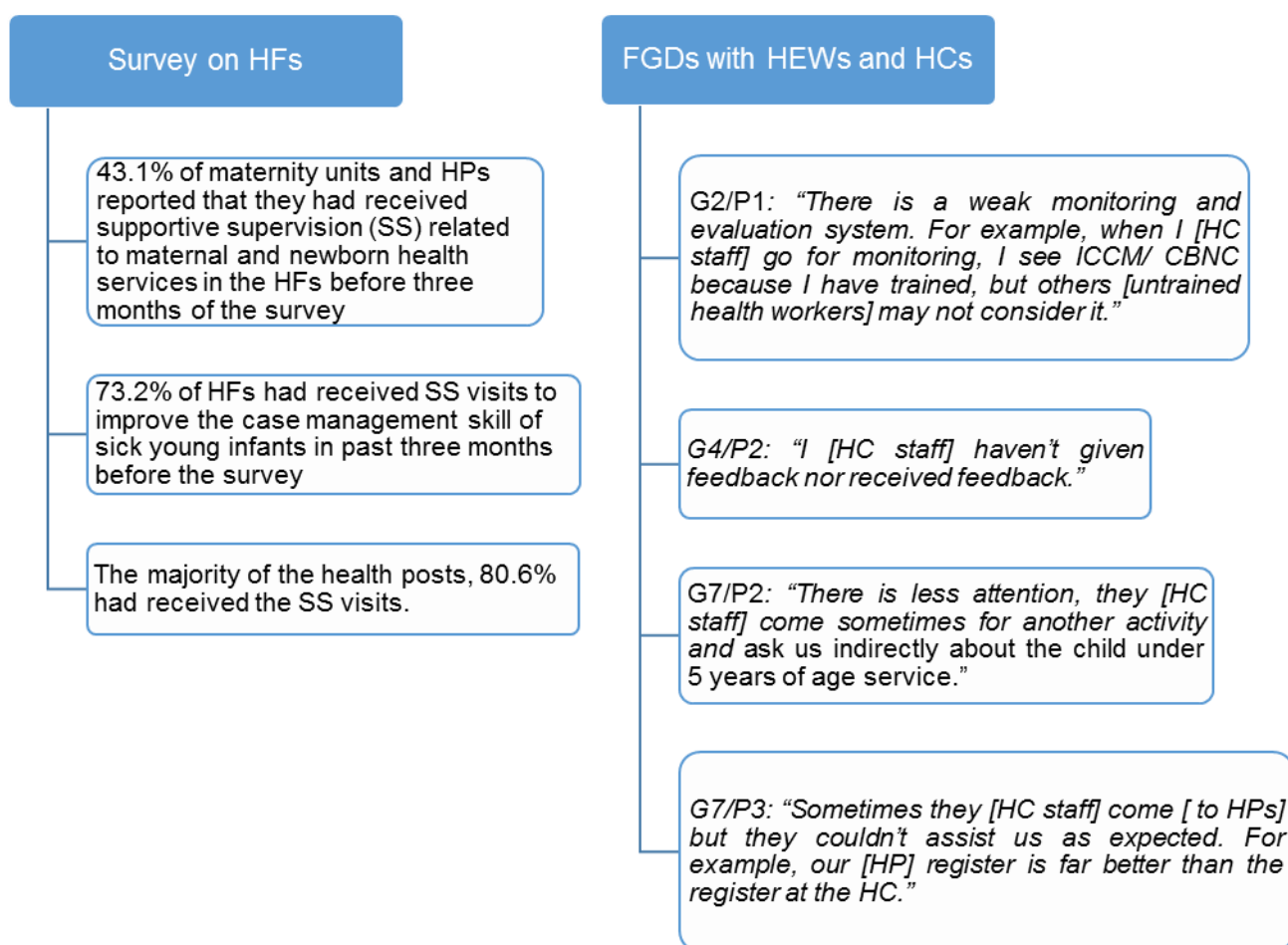


Figure 6.12 Survey and FGDs data joint display on experience of receiving supportive supervision in the maternity units, and under-five clinics in PHs, HCs and HPs

6.6.2.10 Health facilities' referral experience for obstetric complication and sick newborns

One hundred thirty-one (95.6%) and 126 (91.3%) health facilities were referring obstetric complications and newborn complications to other health facilities when needed. In line with this, 60 (76%) health facilities possessed a functional motorized vehicle or ambulance for emergency transport. However, from the overall health facilities assessed including health posts, a fewer number of health facilities, 51 (37%), were providing newborn emergency transport service through the motorized vehicle or ambulance. Meanwhile, 49 (35.5%) and 55 (40%) health facilities including health posts had access to a functioning landline telephone and cellular telephone (including a private cellular telephone) respectively (Figure 6.12). Overall, 81.5 the mean percentage

score from the ten referral communications actions and prerequisites was available in UHCs; 66.7 and 62.0 in PHs and RHCs respectively. On the contrary, the mean referral communication at HPs level was very low, with a percentage mean of 31.3.

In the FGDs with the HCs staff, most of the HWs agreed that, as part of the referral protocols, the availability and use of ambulance for referral of sick young infants are also discussed. As a common consensus, most of pregnant women are prioritized to get the transportation services of the ambulance from their home to HCs or hospitals while their labour is initiated or during their expected time of delivery. Otherwise, most of the participants agreed that, using ambulance for the transportation of sick young infants is not common at all. In addition, the awareness creation is not done where the remote rural community is eligible to requesting the available ambulances for sick young who need the attention of higher-level professional at hospital level. This is also affecting the acceptance and complying of the referral by the families of the newborns. In line with this, in the discussion held with HEWs FGDs about the types of emergency transportation services provided for the sick young infants. Despite ambulances being available in the woreda which are providing mainly transportation services for pregnant women from their village to HCs or hospitals; critical sick young infants are not getting the emergency referral services. Arrangement of transportation is the responsibility of the family (Figure 6.13).

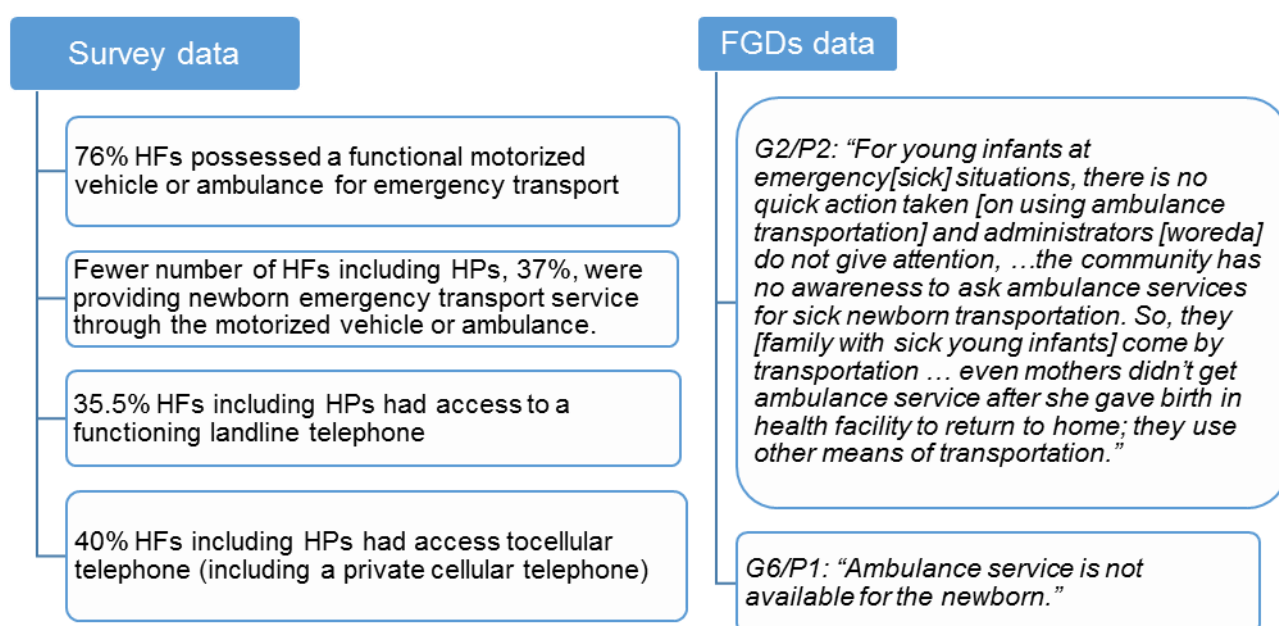


Figure 6.13 Survey and FGDs data joint display on Health facilities' referral experience for sick young infants

6.6.2.11 Referral linkage of sick newborns in primary health care

Standardized rereferral slips were only available in 63 (46.3%) health facilities including HPs. In line with this, 12 (21%) and 36 (57.1%) HPs and RHCs had standardized referral slips. Similarly, fewer health facilities, 26 (19.3%), had only a system to receive feedback from a referral receiver health facility.

In the FGDs with the HCs staff, it was noted that, most of the HCs had an experience of issuing referral of the sick young infants into the referral receiving health facilities. However, regarding the referral communication among health facilities at different level of care particularly using the referral slips and receiving and giving feedbacks on the referral; the participants agreed that there is an experience of using referral slips as a referral communication mechanism, but it is not often practiced, and sometimes they are not adhering with the standard referral slips due to shortage of printed copies of referral slips. Surprisingly, in the discussion, the HC staff complied to the poor adherence of HEWs on using referral slips while they are referring sick young infants to the HCs.

In addition, the experience of receiving and giving feedback on the referral cases were discussed with the HC staffs. The finding of the discussion reflected that, the provision and receiving of feedback about the referred cases from the referring and receiving health facilities is not a common practice. Most of the time, the HCs are neither receiving feedback from the hospitals nor providing feedback to the HPs in their catchment. No major bottleneck was identified except giving attention to the importance of giving and receiving feedback to improve the quality of care and strengthening the referral linkage among the health facilities.

In the FGDs with HEWs, most of the HEWs agreed that there is an experience of referring sick young infants to the HCs for further management. In fact, the referral communication is mainly dependent on writing some notes to the HC. The format they are using for the referral is varying, sometimes they are using the standard referral format by just writing some information in the white paper; or they might not give any referral slips. Similarly, HEWs agreed that, receiving of feedback about the referred cases from the HCs is not common. It was believed that, the referral lineage between

HPs and HC is poor and will affect the quality of case management for sick young infants (Figure 6.14).

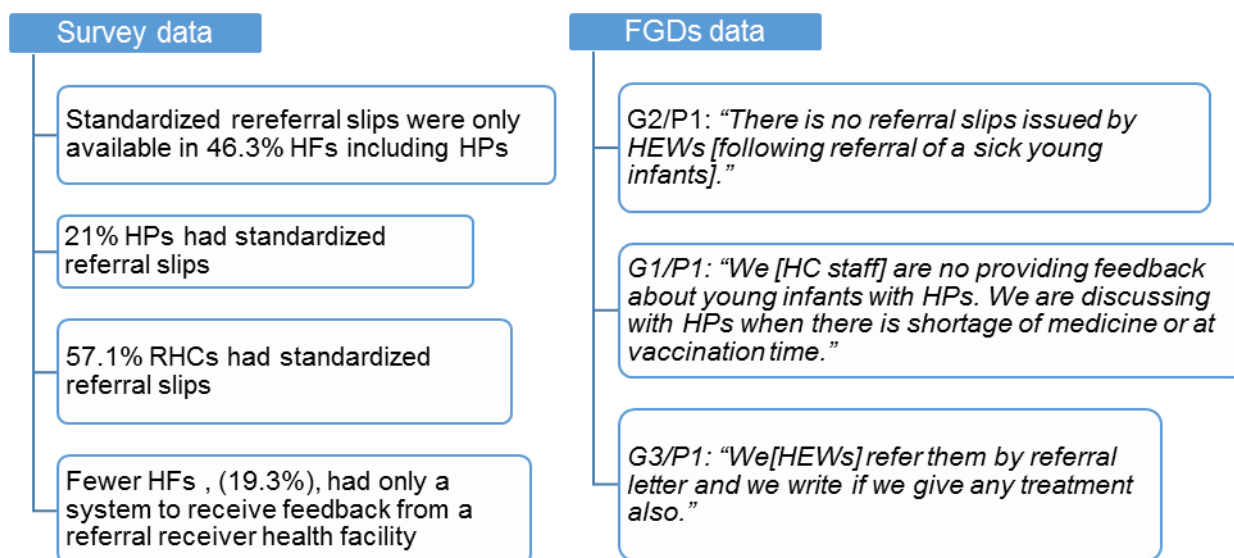


Figure 6.14 Survey and FGDs data joint display on referral linkage of sick newborns in primary health care

6.6.2.12 Availability of curative services in health facilities for sick newborns

The assessed health facilities including HPs responded that 99 (75%) and 33 (25%) of health facilities were offering sick newborn consultation services everyday including weekends respectively (Figure 6.15).

However, the availability of case management services for the sick young at HPs in most of the time is not supported by the qualitative findings. Most of the HEWs FGD participants revealed that HPs are not open and provide services in most of the times, mostly, its openness depends on the schedule of the HEWs. In contrary, there are also few HPs which are opened in most of the time to provide services. There is also some experience by HEWs about informing the community on the opening schedule of the HPs. Similarly, the HC staffs FGDs participants are complaining that, the HPs are not open most of the time and so that the communities will not get the services whenever they needed (Figure 6.15).

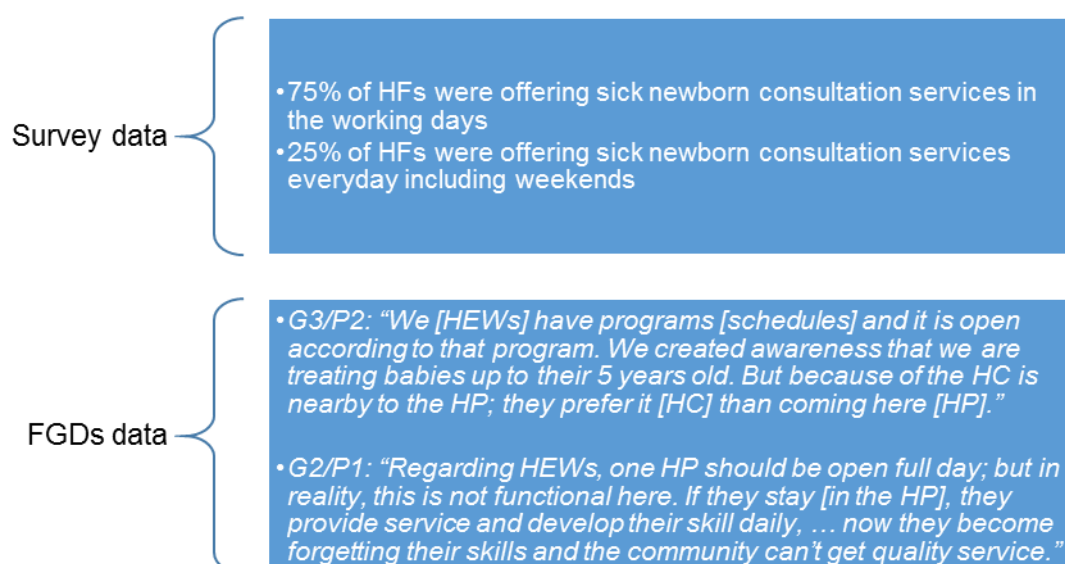


Figure 6.15 Survey and FGDs data joint display on availability of curative services in health facilities for sick newborns

6.6.3 Quality of neonatal health care services

6.6.3.1 Quality of newborn care service provision

In the quantitative study, the quality of newborn care (QNC) service as one of the outcome variable was constructed from the five variables index including the essential newborn care, care provided for low birth weight babies, monitoring postnatal care, signal functions for EmNeC, and newborn death audit. Consequently, 8.7, the highest mean QNC score was achieved by PHs followed by UHCs with a 6.4 mean. However, nearly half of the RHCs were providing QNC (5.7), and below half of QNC was provided by HPs (4.5). This shows that the QNC given was high at the higher-level health facilities and lower in the lower level of health facilities. The availability of essential equipment is significantly associated with the QNC provision in the health facilities ($p < 0.05$) (Figure 6.16).

The quality of newborn care service provision in the quantitative finding is also supported by the qualitative findings. The HCs FGDs participants were also asked about their opinion on the performance of health care providers regarding to the quality of neonatal health care service provision in the primary health care units. They agreed that, most of the HCs tried to provide the quality of healthcare services as per the standards, however, it was compromised by lack of trained health providers and

reference books in the health facilities all the time. In contrary, some of the of HCs staff claimed that the quality of neonatal health care services at HC level is sub-optimal and the quality of the newborn health care services is not always maintained in all the times. Lack of trained health human resources, references books to update the current knowledge and practice, and motivation are some key factors affecting the quality of service provision. In line with, most of HEWs FGD participants agreed that the type of PNC service provided during home visit is in poor quality. Most of the time, HEWs, visited the household without the necessary preparation and carrying the essential supplies and job-aids including the chartbook and family health guide to be used as checklist to check the danger signs and assess the newborns (Figure 6.16).

In addition, most of the time HEWs are not carrying the weight measurement scale, thermometer, sample register book, timer and essential medicines during their home for PNC. As a result, the weight of the newborns is not taken and assessed for birth weight especially for newborns at home delivery; the temperature of the newborns is not measured and breath per minute is not properly counted so that the newborns are not assessed and classified for all key signs of PSBI for the newborns. And again, if the essential medicines are not available in the home visit kit, HEWs won't be able to initiate the treatment at household level base on their assessment (Figure 6.16).

Quantitative findings

- The availability of essential equipment is significantly associated with the quality of newborn care (QNC) provision in the health facilities ($p < 0.05$).
- 8.7 mean score from 10 points of QNC is achieved by PHs
- 6.4 mean score from 10 points of QNC is achieved by UHCs
- 5.7 mean score from 10 points of QNC is achieved by RHCs
- 4.5 mean score from 10 points of QNC is achieved by HPs

Qualitative findings

- G1/P1: "... here service provided [at HC] is as per the guideline, there are trained health providers and supplies, there is good service ... training only is not sufficient, timely monitoring and supervision is necessary."
- G1/P3: "No one can conclude all professionals give the same quality service. To give quality service there should be moral motivation of workers there... are shortage of reference books
- G7/P2: "We are not carrying all the material always, we leave some materials and hold thermometer and balance. Blood pressure apparatus is not available."
- G3/P4: "All of us are not practicing to check their weight and count breathing after we make follow-up of infants, but only registering them...."

Figure 6.16 Survey and FGDs data joint display on the quality of newborn care services provision

6.6.3.2 *Quality of sick young infants' management from the register review*

In the quantitative study, the quality of sick young infants' case management was computed by considering the successful performance of all three quality proxy indicators from all sick young infants' case management tasks of assessment and classification, classification and treatment, classification and stated follow-up. It shows that about 55.6% of health facilities fulfil all three quality of case management tasks. Most health facilities were achieving more than 60% of the quality sick young infants case management (66.8% PHs, 61.5% RHCs and 61.9% HPs) except for UHCs, which had a score of 47.6%. However, 44.4% of health facilities were not meeting the quality of case management tasks for sick young infants. Moreover, the multiple regression analysis shows that, from the 11 listed and computed facility readiness indicators (independent variables), overall newborn care knowledge of health providers working in under-five clinic is significantly associated with the quality of sick young infants' management ($p < 0.05$) (Figure 6.17).

However, most of the HC FGDs participants revealed that, they are managing possible serious bacterial infections (PSBI) when it occurs in young infants adhering with the national service delivery guidelines at their respective health facilities. The essential medicine used for managing PSBI are also mostly available in the HCs. Despite the HCs being relatively equipped in terms of skills and essential medicines and supplies, the number of sick young infants who were managed at the HCs in the last 4-6 months prior to this discussion was very low. They are also repeatedly mentioned that inadequate trained health professionals in the HCs, is one of the key supply side determinant factors for the effectiveness of neonatal health care service in HC level (Figure 6.17).

Similarly, most of the HEWs FGDs participants also agreed that, they are managing PSBI when it occurs in young infants in adhering with the national service delivery guidelines at their respective HPs. In addition to the competency skill to manage PSBI, in most of the times, HPs are also equipped with essential medicine and supplies to treat PSBI cases at community level. In the discussion, it was learned that, even though HEWs were trained on treatment of sick young infants and seriously advised on adhering and referring their job-aids particularly the community based newborn care chart booklet during the assessment, classification and treatment of every sick young

infant. However, some of the HEWs confessed that they are not referring all the time for every sick young infant which is strongly affecting the quality case management tasks for the newborn (Figure 6.17).

Quantitative findings	
–	55.6% of HFs fulfil all three quality of case management tasks (assessment and classification, classification and treatment, and classification and stated follow-up.)
–	66.8% PHs fulfil all the three quality of case management tasks
–	61.9% HPs fulfil all the three quality of case management tasks
–	61.5% RHCs fulfil all the three quality of case management tasks
–	47.6% UHCs fulfil all the three quality of case management tasks
–	44.4% of health facilities were not meeting the quality of case management tasks for sick young infants
–	Newborn care knowledge of health providers working in under-five clinic is significantly associated with the quality of sick young infants' management ($p < 0.05$).
Qualitative findings	
–	G1/P1: "I [HC staff] was trained to give health care services for under-5 years of children. When I am not at spot [HC], this treatment is being given by professionals for other health services [untrained]; so, the treatment they give is not according to IMNCI. Because of this reasons, the health service is below the expected standard."
	G4/P2: "For children under 5 years of age service there is no health worker [in the HC] who took updated training. Only 1 individual had trained and others are as they are, with old training."
–	G6/P1: "If they become unable to breast feeding, if their breathing is abnormal, if their umbilicus become reddened, there may be bacterial infection, so we [HEWs] treat them with an injection. If they gasp and their umbilicus is more reddened we refer them."
–	G7/P1: "We [HEWs] don't refer manuals for treatment sometimes and forget some things if updating trainings are not available."

Figure 6.17 Survey and FGDs data joint display on quality of sick young infants' case management tasks

Key words for Figure 6.17

HFs: Health Facilities; PHs: Primary Hospitals; HPs: Health Posts; RHCs: Rural Health Centres; UHCs: Urban Health Centres; HCs: Health Centres; IMNCI: Integrated Management of Newborn and Childhood Illnesses

6.6.4 Service utilization of sick young infants in one-year period

The sick young infants' service utilization of the existing facilities in zone was only 6.3 percent from the expected sick young infants' population; it ranged from 0.8 up to 11.9 percent. It implies that the service utilization of sick young infants was critically low. In the second phase of this study, discussions were held with HWs and HEWs FGDs participants to explore why the care seeking for sick young is low. Thus, factors were identified in both discussion groups. Among the discussion held with the HCs staffs,

lack of awareness by the caregivers about the danger signs of the sick young infants, and considering local infection as not an illness or not frequently checking the newborns conditions were some of the challenges mentioned by the groups participants as a contributing factor for the low service utilization of the sick newborns.

The HCs participants also noted that, the cultural practice was mentioned as a challenge; still some of the community members are preferring the care seeking from the traditional healers mainly for the complaint of tonsillitis and for cutting of the newborns uvula. Besides being a supply side factor, the HC staffs are complaining that, the HPs are not open most of the time and so that the communities will not get the services whenever they needed (Figure 6.18).

Quantitative findings – Only 6.3 percent of sick young infants seek care from the total expected sick young infants' population in the existing facilities in one year period Qualitative findings Lack of awareness by the caregivers on the danger signs – G2/P2: "There is problems from the community to bring young infants to health facility even at times when danger signs are seen and newborns are unable to breastfeeding ... if local infection (umbilicus infection) present, some parents not consider it as illness; they bring them after complication. This may be occurred in two cases: parents may not check infants every time or they may not give attention. So, what we see some times is that, for example if infants are brought for diarrhoea case and when you check umbilicus you may find pus." – G4/P2: "There is some gaps; even the neonate is being brought by other individual [mother remaining at home] and this by itself is a problem, because to check the neonate breastfeeding condition, its position and we can't get full information from other family members where the mother is not available with the baby." Cultural practices – G2/P2: "Yes, most of them take newborns primarily to local healer, and he[traditional healers] cut their uvula. This is very harmful practice to change through counselling and training." Supply side factors – G2/P1: "Regarding HEWs, one HP should be open full day; but in reality, this is not functional here. If they stay [in the HP], they provide service and develop their skill daily, now they become forgetting their skills and the community can't get quality service."

Figure 6.18 Survey and FGDs data joint display on service utilization of sick young infants at HCs level

As a proxy indicator for the service provision of neonatal healthcare by HEWs at the community level, in the FGDs with HEWs, the expected number of sick young infants'

cases was calculated and analysed with the actual performance by their respective HPs. However, all the participants in these FGDs regrettably acknowledge that the number of sick young infants' cases were managed in their respective HPs in 4-6 months' period prior to this discussion is very low. Despite the existing knowledge on the signs of PSBIs, during the discussion with HEWs on the reasons for low service utilization for sick young infants, 'sprained' of the neonate, "Mekechet" in Amharic and tonsillitis have similar signs with the clinical signs of PSBI. Their care seeking preference was mainly linked to the traditional healers than the nearby health facilities (Figure 6.19).

Most of the HEWs also agreed that, most of the community members feel that their neonate developed tonsillitis, "intil worede" in Amharic, mostly when the newborn develops vomiting, fever, failed to suck breast milk, dried lips, salivation and sneezing. In fact, most of these signs are the clear signs of PSBI. In most of the time, as per the confirmation of HEWs in the discussion, as a cultural practice, the community seeks care primarily for 'sprained' and tonsillitis from the traditional healers, and they believe that the treatment they are getting will cure the problem than seeking care from the health facilities (Figure 6.19). In addition, as supply side factor, as per the HEWs discussants, HPs closure and not providing services in a regular time due to most of the HEWs spent their time out of the HPs for community level activities; and stock-out of essential medicines and supplies are among the factors compromising the care seeking practice of sick young infants (Figure 6.19).

Quantitative findings

- Only 6.3 percent of sick young infants seek care from the total expected sick young infants' population in the existing facilities in one-year period.

Qualitative findings

- G6/P1: "Before five months [this FGD] we [HEWs] have identified one sick young infant and referral [to the HC] was sought."

Cultural practices

- G6/P2: "Most of the time they take them to traditional healer than to health institutions. To make cut off uvula and having massage service [for 'sprained']."
- G6/P1: "May be ten of them [all of them their uvula might be cut]. But we are teaching them this practice is harmful practice. Their parents rigidly argue that cutting off is a permanent relief."

Supply side factors

- G3/P6: "Because of all activities are concerning our duty [HEWs] sometimes we become bored. For example, health insurance, mothers care, infants care etc. we give more attention for what is asked recently."
- G3/P1: "At HPs, I [HEW] was working before there was gentamycin and amoxicillin. And we had used to giving young infants treatment if they become sick. But now there is no serious illnesses occurred on infants in this kebele."

Misconceptions on causes of illnesses in sick young infants

- G3/P1: "They [newborns] become crying, higher fever, fast breathing." as a sing of 'sprained' of the neonate, "Mekechet" in Amharic
- G3/P2: "When newborn unable to suck breastmilk, when their lips dried and vomiting occurred etc." as a sing of tonsillitis
- G5/P1: "They believe that, when we take them to health facilities, the infant will sick sickness again, but if it is once cut off no illness will come again."

Figure 6.19 Survey and FGDs data joint display on service utilization of sick young infants at HPs level

6.6.5 Effectiveness of the neonatal healthcare services

In the first phase of the quantitative study, the effectiveness of the neonatal health care services in the primary health care units' composite index score was defined and measured by a composite index of quality of newborn care service provision, quality of sick young infants' case management, and service utilization of sick young infants in the health facilities. All variables were given equal weights and recalibrated into a range between zero and 10. Over all, the effectiveness of the newborn care services in the primary health care which ranged between zero and 10, for every unit increase of the facility readiness score, there was a corresponding average of 0.45 percentage points [95%CI:0.134-0.768] increase in the effectiveness of the newborn care services. This

implies that the effectiveness of the neonatal health care services has a statistically significant association with the health facilities readiness score ($p < 0.05$).

In the second phase of the qualitative study, factors affecting the neonatal healthcare services at HCs and HPs level were explored in the FGDs with HWs and HEWs. The study findings showed that there are various factors that play a key role in deterring the use of available neonatal health care services, affecting the quality of neonatal health care services and the effectiveness of neonatal health care services in the primary health care units. It is categorized into supply and demand sides, and programme monitoring.

Overall, HCs FGD discussants revealed that lack of adequate number of trained health human power, adherence on using the job-aids, community perception of neonatal health care service, weak referral linkage, lack of space to demonstrate and use KMC service at health facility, stock-out of essential medicines and supplies, and weak monitoring and evaluation system are the key determinants on effectiveness of neonatal care service at PHCU level. Similarly, most HEWs FGD discussants generally believed that workload, uniform number of HEWs per kebele despite the population is different, commitment, unplanned & urgent requested activities, lack of coordination, lack of enough standard rooms for service delivery, misconception and misunderstanding on neonatal health care and low level of awareness were discussed as factors that are affecting neonatal health care services. Overall, the factors are grouped and discussed into supply and demand sides.

6.6.5.1 *Supply side factors at HC level*

FGD participants from the HCs repeatedly mentioned that inadequate trained health professionals, is one of the key supply side factors affecting the neonatal healthcare service in HC level. Lack of room or space in the HCs is also one factor identified by the group discussants to provide the kangaroo mother care (KMC) for the low birthweight and or preterm babies. In addition, most of HCs FGDs participants were referring that, since HEWs are mainly provided different tasks at different level including by their respective kebele administrators with a short deliverable time; HEWs might not give a due attention and priority for the newborn care services. HCs staffs also noted in the FGDs that the current weak programme monitoring is also affecting neonatal healthcare

service at PHCU level, and there is no a functional system that established for program monitoring visit including the supportive supervision from HCs to HPs. In addition to having irregular supportive supervision practices, there is inconsistent provision of supervision feedback by HC supervisors to HPs. Even, in the erratic practice of feedbacking from HC staff to HEWs, the content of the feedback is mainly focusing on prenatal care, postnatal care, family planning service, vaccination and status and functionality of the health developmental armies. The feedback is not inclusive of the quality and coverage of sick young infants' case management. Moreover, the performance of the sick young infants' management at HPs is not often reported (Figure 6.20).

6.6.5.2 Demand side factors at HC level

In this discussion with the HC staff, it was revealed that in most of the participants, the communities might not know the availability of services for sick young infants at HP level which is near by their village (Figure 6.20).

Quantitative findings

- The effectiveness of the neonatal health care services has a statistically significant association with the health facilitates readiness score ($p < 0.05$).

Qualitative: Supply side factors

Inadequate trained health professionals

- G2/P2: "Lack of trained manpower [health professionals] in the facility."

Lack of adequate room or space in the HCs to provide services:

- G4/P1: "It is advantageous if KMC section has one room independently ... there is no defined room for KMC service. There is no on-job training regarding this service. And there is shortage of reading materials."

Poor or sub-optimal and uncoordinated programme monitoring

- G2/P1: "There is a weak monitoring and evaluation system. For example, when I [HC staff] go for monitoring, I see ICCM/ CBNC because I have trained, but others [untrained health workers] may not consider it."
- G4/P2: "I [HC staff] haven't given feedback nor received feedback."

Lack of attention and priority for neonatal health care services

- G4/P4: "Most of the time they [HEWs] are performing timely activities they are required to do with the task given by the administrators. They may not give attention for neonate treatment."

Demand side factors:

- G4/P2: "Low understanding of the community on the issue [the curative service for under-2 months children in the HPs]."

Figure 6.20 Survey and FGDs data joint display on factors affecting the neonatal healthcare service at HCs level

6.6.5.3 *Supply side factors at HPs level*

In the FGDs with HEWs, stock-out of essential medicines such as gentamicin injections & amoxicillin dispersible tablets and supplies such as scale, and thermometer were also identified by some of HEWs as factors which are compromising the overall neonatal healthcare service at HPs level. In addition, gaps on timely utilization of the available essential medicines are also mentioned as an issue from the supply side factors; this could lead also to the expiry of the essential medicines before using the treatment of sick young infants. In the discussion, it was also learned that, even though HEWs were trained on treatment of sick young infants and seriously advised on adhering and referring their job-aids particularly the community based newborn care chart booklet during the assessment, classification and treatment of every sick young infant. However, some of the HEWs confessed that they are not referring all the time for every sick young infant (Figure 6.21).

In addition, most of the HEWs workers' FGD participants revealed that HPs are not open and provide services in most of the times, mostly, its openness depends on the schedule of the HEWs. In contrary, there are also few HPs which are opened in most of the time to provide services. There is also some experience by HEWs about informing the community on the opening schedule of the HPs. HEWs also underlined that, unplanned tasks usually with a short deliverables time periods are shifting the attention and the focus of the HEWs. Thus, most of the HEWs confessed that, they are not giving attention to the neonatal health care's services and as well as it is not giving priority by the lower administrators (Figure 6.21).

As one of the supply side factor, most of the HEWs FGD discussants agreed that HEWs are overburden with many activities on top of the sixteen packages of health extension programme (HEP). They believed that feeling bored is hinder them in providing the required neonatal health care services. In the discussion, even though, there are already planned activities, HEWs are providing much for urgent issues which are under strict follow-up and evaluation. HEWs are also complaining that the non-health related tasks that make them busy and draw their attention from the expected routine duties. Thus, the workloads on the HEWs is one of the factor that emphasized by group

discussants that affecting the effectiveness of neonatal health service provision at HP level (Figure 6.21).

Meanwhile, the HEWs FDG participants were reflecting on different barriers that lead to dissatisfactions and demotivation to meet their expected role. Most of the HEWs pinpointed that their loss of hope and lack of motivation is due to mainly on the denying of their expected benefits. HEWs are not inspired through the career development opportunities including educational learning, changes in their career paths, salary increments/financial motivation; and non-financial incentives. As an additional supply side factor, HEWs believe that the poor infrastructure of the HPs is also combating the quality of health services and affecting the neonatal healthcare services (Figure 6.21).

Lastly, as per the discussion finding with HEWs FGD participants, programme monitoring visits from HCs staff to improve the competency and case management skills of HEWs are not regularly and well-coordinated. Sometimes the visit might not be integrated with other activities where adequate time might not allocated for the visit. Moreover, the competency of the supervisors from HC was also questioned by HEWs at the community level. In addition, the sick young infants case management and newborn service provision are considered as additional task by HC supervision and usually asked later after at the end supportive supervision mission (Figure 6.21).

6.5.5.4 Demand side factors at HPs level

On the demand side, most of HEWs FGDs participants noted that the low level of community awareness on neonatal health care services provision at HPs level is affecting the neonatal healthcare utilization at large. In the contrary, some of the HEWs also acknowledge that awareness level of the community regarding to the availability of neonatal healthcare services is being improved. As per the opinion of HEWs FGD discussants, due to the religious or cultural practices in some of the communities, mothers are not allowed to go out within 10 days after their delivery. Thus, the care seeking behaviour for their sick newborn is very limited (Figure 6.21).



Quantitative findings

- The effectiveness of the neonatal health care services has a statistically significant association with the health facilities readiness score ($p < 0.05$).

Qualitative: Supply side factors:**Poor to sub-optimal programme monitoring:**

- G7/P2: “There is less attention, they [HC staff] come sometimes for another activity and ask us indirectly about the child under 5 years of age service.”
- G7/P3: “Sometimes they [HC staff] come [to HPs] but they couldn’t assist us as expected. For example, our [HP] register is far better than the register at the HC.”

Shortage of essential medicines and supplies:

- G3/P2: “Gentamycin is not available currently... there is a shortage of weighing scale, and there is only one thermometer [in the HP].”

Adherence on job-aids:

- G7/P1: “We[HEWs] don’t refer manuals for treatment sometimes and forget some things if updating trainings are not available.”

Interruption of services:

- G7/P4: “Nowadays, I [HEW] am the only HEWs in the HP and I open it[HP] by shifting [schedule].”

Lack of attention and priority for neonatal health care services:

- G6/P1: “There is a concentration and attention problem and lack of commitment [by HEWs]. But there are many sick young infants need treatment. We [HEWs] can treat them when we are going for PNC service. There is also a heavy workload.”

Being bored

- G6/P1: “We [HEWs] give more attention for the current demanding issues [urgent tasks]; we are covering a wider health and non-health related extra duties. Because of this there are gaps.”
- G7/P3: “There is extra workload [non-health] which hinders us [HEWs] from providing neonates’ treatment.”

Demotivation and dissatisfaction:

- G3/P3: “All of us are qualified with level IV. Loss of hope and being bored is a matter to work hard. ...there is no self-motivation, poor attention for the job, for example sometimes we wait them [the sick young infants] until they come [HP], but it is good if we go [to their home] and treat them. And there is supply problem.”

Poor infrastructure of HPs:

- G7/P2: “...there should be a quality [standard] room for treatment; and the wall of the store [medicine store in the HP] itself is corrugated iron which may cause medicines to be spoiled, ...well standardized HPs should be built.”

Demand side factors:

- G7/P2: “Mothers don’t go out from their home up to 10 days. So, we can’t get them at the health post unless we go at their home.”
- G6/P1: “When we [HEWs] were discussed with the community they have said that we were not informed that sick newborn treatment is available at HP and because of this we are taking infants to the HC or to the hospital. They also added that HEWs we know are practicing mainly on latrine construction, motivation the community to health insurance, report writing, extra assistance for agricultural works, initiating students for their education enrolment; but they raised their idea as if they did not see us [HEWs] on the treatment activity.”

Figure 6.21 Survey and FGDs data joint display on factors affecting the neonatal healthcare service at HPs level

6.7 OVERVIEW OF THE INTEGRATION OF THE RESULTS

6.7.1 Neonatal healthcare services in the primary health care units

6.7.1.1 *Emergency newborn care services (EmNeC)*

According to the Ethiopian emergency obstetric and newborn care (EmONC) assessment report done in 2016, among health facilities that were assessed in the Amhara region, 76 percent performed newborn resuscitation with bag and mask, and 51 percent performed KMC for small babies in the last three months prior to the survey. Antibiotics for neonatal sepsis and antibiotics for preterm premature rupture of the membranes (pPROM) were performed in the 39 and 42 percent health facilities. Among the EmNeC signal functions, the least performed signal functions were antenatal corticosteroids (7 percent), IV fluids (11 percent) and safe administration of oxygen (12 percent). Overall, among assessed facilities, only 3 percent of health facilities in Amhara region were fully providing EmNeC, which is consistent with the Ethiopian national average (FMOH, EPHI & AMDD 2016:81, 330-331). Moreover, the Ethiopian 2016 SARA report revealed that the neonatal resuscitation was available in 59 percent of health facilities in Amhara region, followed by KMC for premature/very small babies, antibiotics for preterm or prolong PROM, and injectable antibiotics for neonatal sepsis were available in 45, 33 and 30 percent of health facilities respectively (EPHI, FMOH & WHO 2016:33-34).

In agreement with the existing evidences, in this study, among the key EmNeC signal functions, the highest score was for newborn resuscitation with bag and mask with 56 (71.8%). In line with the high coverage in the quantitative study, the HCs FGDs participants revealed that they have relatively adequate knowledge and received training on the management of birth asphyxia to save the lives of newborns immediately after birth. The second highest coverage in the quantitative study among the EmNeC signal functions was the provision of injectable antibiotics for newborn sepsis with 85 (61.6%) of the health facilities. This finding is also supported by the FGDs findings with HC staffs and HEWs in HPs. Most of the HC and HEWs participants revealed that, they are managing possible serious bacterial infections (PSBI) when it occurs in young infants at their respective health facilities. In regarding to KMC, the provision of teaching mother skin-to-skin/KMC for premature and very small babies was provided in

61(44.5%) health facilities including HPs. In agreement with the existing evidences, in this study, the low coverage of KMC in quantitative study, was also justified by the FGDs with HCs staffs. Most of the HCs FGD participants revealed that, KMC is only initiated in cases of referral of very /low preterm or low birth weight newborns to hospitals. In addition, the provision of corticosteroids for preterm labour in the last six months prior to the survey in the HCs and PHs was only 5 (6.5%). Similar, this low coverage is also supported by the qualitative findings. All the HC FGDs agreed that, they are not equipped to provide the administration of intramuscular dexamethasone or other corticosteroids for pregnant woman at risk of preterm birth; and the guideline is not available in their respective health facilities.

Overall, the likelihood of getting EmNeC signal functions to save the lives of the sick young infants in the RHCs were critically low and were better provided in PHs. This is also supported by existing evidences, only 3 percent of health facilities in Amhara region were providing fully EmNeC signal functions, and there was no fully EmNeC facilities in rural areas and no health centres were providing fully EmNeC at national level (FMOH, EPHI, & AMDD 2016:81& 83 and 330-331), and the mean availability of EmNeC signal functions was 30 percent of health facilities in Amhara region (EPHI, FMOH & WHO 2016:34). This is also supported by the research result of Winter et al (2017:1), hospitals and facilities in urban areas were in the better position in both service availability and readiness; however, the readiness and availability of essential newborn care services in the rural areas facilities were reported as a substantial equity gaps for people accessing lower-level health.

6.7.1.2 Immediate care and breastfeeding advice for very low birthweight babies

The quality of care for very low birth weight babies at hospitals ranged between moderate and high-quality scores; however, most of the lower level health facilities were scored low regarding to the quality of care for very low birthweight babies (Vesel et al 2013:6).

Consistently with the available evidence, in this study, the quality care for immediate care and breastfeeding advice for very low birthweight babies was found to be moderate at PHs, UHCs and RHCs; and low at lower health facilities, HPs level. This is supported

by the qualitative findings. Among the key recommended actions for caring of very small/low birth weight, most of the HC FGDs participants revealed that, KMC is only initiated in cases of referral of very /low preterm or low birth weight newborns to hospitals. Otherwise admission of KMC in the HC is not a common practice as per the FGDs findings with the HC staffs. In addition, most of HEWs FGDs participants agreed that the type of PNC service provided during home visit is in a poor quality; most of the time HEWs are not carrying the weight measurement scale, thermometer, sample register book, timer and essential medicines during their home for PNC. As result, the weight of the newborns is not taken and assessed for birth weight especially for newborns delivered at home.

6.7.1.3 *Availability of essential equipment for post-delivery newborn care*

The Ethiopian EmONC assessment (FMOH, EPHI & AMDD 2016:208-209) revealed that baby weighing scale was available in 98 percent among all types of health facilities. However, only 23 percent of all facilities has caps or hats to prevent newborn heat loss. In addition, neonatal resuscitating tables, mucus extractors or simple suction, neonatal resuscitation bag and mask of both size were available in more than 70 percent of all facilities. The assessment is also reported that, most supplies and equipment utilized for small and sick newborns including radiant warmer, incubator, designated space or beds for KMC were not widely available and only fewer than half of the facilities reported their availability. In addition, most of these items were not available in the health centres. Similarly, neonatal bag and mask and infant weighing scale were found in 73 and 95 percent of health facilities at national level. From the 14 tracer items in the equipment domain were available above 52 percent except vacuum aspirator/ D and C (EPHI, FMOH & WHO 2016:35-36). Neonatal bag and mask, and infant weighing scale were found in 46 percent and 90 percent of health facilities in Amhara region (EPHI, FMOH & WHO 2016:37).

In consistent with the evidence, the highest, 82.3 mean percentage score of functional essential equipment and supplies were available in PHs; followed by 72.4 in UHCs. Similarly, only 61.9 percentage score of essential equipment and supplies were available in the RHCs. Most importantly, regarding to keeping the thermal care of the newborn immediately after delivery, the availability of towels for drying babies and hats or caps for head covering was only available in 3.7% and 1.5% of health facilities

including health posts. The qualitative findings of this study are also augmented by the FGDs in the qualitative study. The FGDs with HC staffs revealed that, among the others, stock-out of essential supplies was also one of the supply side factors affecting the provision of the neonatal health care services. On the other hand, the lowest mean percentage score was documented for HPs at 36.3. This highly supported by the findings of the qualitative data. The issue of lack of supplies was repeatedly mentioned in FGDs with HEWs as it is affecting the quality of neonatal health care services including the early PNC. Overall, the data shown that HPs and RHCs were facing a shortage of essential equipment and supplies to provide key intended services for mothers and newborns.

6.7.1.4 Availability of essential medicines for newborn and maternal health linked to newborn survival

Injectable uterotonic and antibiotics were found in 85 percent of health facilities in Amhara region; in the contrary, magnesium sulphate injectable was found only in 17 percent of health facilities in Amhara region (EPHI, FMOH & WHO 2016:37). EmONC assessment result shows that key essential drugs for BEmONC signal functions and emergencies including antibiotics, oxytocics and prostaglandins and anticonvulsant were found in 99, 94 and 87 percent of health facilities at national level. Dexamethasone was also available in 47 percent of health facilities (FMOH, EPHI & AMDD 2016:2000).

In this study, in agreement with the evidences, ten tracer medicines such injectable oxytocics, ampicillin, gentamicin (20mg/2ml or 80mg/2m), anticonvulsant (magnesium sulphate or diazepam), dexamethasone, and vitamin K (phytomethadione), intravenous (IV) fluids with infusion sets, amoxicillin (dispersible tablet or syrup), nevirapine, and small size syringe and needles were selected to calculate the mean percentage availability of the essential medicines at PHs and HCs, and on the other hand, only three tracer essential medicines including amoxicillin, gentamicin injection and small syringe and needles were selected for calculation of the mean percentage score in the HPs. Thus, a mean percentage score of 86.7 and 81.5 of essential medicines were available at PHs and UHCs respectively. On the contrary, the RHCs were less equipped with essential medicines with a mean percentage score of 74.8. The availability of essential medicines also confirmed by the HCs FGDs participants; during the

discussion, stock-out did not come out as a significant issue. Even though, a 70-percentage mean of HPs were equipped with the tracer essential medicines as per the quantitative study findings; stock-out of essential medicines such as gentamicin injections & amoxicillin dispersible tablets were also identified by the FGDs of the HEWs as factors that are affecting the provision of the neonatal health care service at HPs level

6.7.1.5 Newborn care knowledge and training status of health providers in under-five clinic in PHs and HCs, and HPs

Nurses, midwives, and nursing assistants were considered to have adequate knowledge in prenatal care (53.6 percent), newborn care (46.5 percent), management of neonatal infections (7.1 percent) and identifying/stabilizing low birth weight babies (56.3 percent) (Ayiasi, Criel, Orach, Nabiwemba & Kolsteren 2014: 14:65). In addition, less than a third of providers could demonstrate ventilation skills correctly by using NeoNatalie anatomic model (De Graft-Johnso et al 2017:1).

In consistent with the existing evidence, in this study to measure the newborn care knowledge of the health providers, the ten domains of questions were rescaled to range from a 0 to 10 scale. Health workers who were working in PHs were found to be at scale of 5; HWs in UHCs were at 5.4; followed by RHCs with a knowledge scale of 5.3. Relatively below half of the knowledge scale were HEWs in HPs level, with the scale point of 4.2. The overall analysis shows that there was no significant difference in newborn care knowledge by HWs and HEWs at different level of care.

Regarding to the trained staff on newborn health care services, 55 percent of health facilities in Amhara region had trained staff in newborn resuscitation in the past two years (EPHI, FMOH & WHO 2016:37). In other study in four regions of Ethiopia, results showed that, among the interviewed HC staffs, only a quarter to a fifth had received IMNCI case management during in the last 12 months. Despite the training was provided more than 12 months before in most cases, training in iCCM provided for 83 percent of HEWs and 65 percent of HEWs were also trained in CBNC (Okwaraji, Berhanu & Persson 2017:27). In this study, the IMNCI training in past 12 months was found to be 57 percent, which is higher than the other study results. Most of the newborn related training in the past 12 months were ranged between 35 percent to 37.9

percent and particularly 36.7 percent of HCs and HPs staff were trained in CBNC including the management of neonatal sepsis. Since the cut-off point used for the training was different and this study also includes the HC staffs as a target for CBNC; thus, the status of CBNC training was lower in this study in comparison with the study result by Okwaraji, Berhanu and Persson. Moreover, FGD participants from the HCs repeatedly mentioned that the availability of inadequate trained health professionals, is one of the key supply side factors that affecting the neonatal healthcare service at the HCs level. However, HEWs had a knowledge scale at a point of 4.2 below the average, in the FGDs with HEWs, adhering with the national guidelines all the times was identified as issues which is affecting the quality of neonatal care services for sick young infants.

6.7.1.6 *The timing of discharge for delivered mothers and their newborns from health facilities*

Even though WHO (2017:16; 2014:3) is recommending that healthy mothers and newborns should receive care in the facility for at least 24 hours after birth after having an uncomplicated vaginal birth in a health facility. In this research, in contrary to WHO recommendation of the healthy mothers and newborns should receive care in the facility for at least 24 hours after birth, the majority (79.7 percent of health facilities) discharged mothers and their newborns from the health facilities between 6 and 12 hours of delivery; early discharge before 6 hours of delivery was accounted by 13.9 percent. However, only, 6.3 percent of health facilities were retained delivered mothers and their babies in the respective health facilities between 12-24 hours of delivery.

In other study, the following determinant factors, first time antenatal care seekers after 3 months of gestation, delivery in government hospital, mother or relatives' decision to seek discharge from hospital, and lack of insistence from doctor or staff for the mandatory 48 hours stay were cited in India by Nipte, Dhayarkar, Pawar, Venkatsubramanian and Mehendale (2015: s26). In the other research in one woreda of Ethiopia, results showed, maternal knowledge on postnatal danger signs, previous experience of obstetric complication, antenatal care visit, place of delivery, and socio-cultural practices during puerperium were factors that are influencing the postnatal care services utilization (Belachew, Taye & Belachew 2016:1). In the other study in Tanzania, ANC attendance, place of delivery, and any incidence of newborn were some

of the reasons for PNC completion (Kanté, Chung, Larsen, Exavery, Tani & Phillips 2015:1).

The qualitative phase of this study is also in line with the current evidences and supporting the quantitative findings of this research. All the HC FGDs discussion participants agreed that, they were experiencing early discharge than the stated recommendations. Among the frequently mentioned reasons for early discharge were: lack of enough space in the health facilitates, lack of beds, once the mother gave birth the family members and the family members think that there is no problem after birth and they want to practice some celebration at home, and the health providers are not also providing the required counselling to the family members and the accompanies on the issues following the early discharge after delivery.

6.7.1.7 Experience of receiving supportive supervision in the maternity units, and under-five clinics in PHs, HCs and HPs

In last six months before the survey, 84 percent of HEWs received integrated supportive supervision visits, and in the last one month, only 48 percent HEWs received supportive supervision visit (Berhanu & Avan 2017:31). Similarly, 50-60 percent of health workers including Medical Doctors, Health Officers, Nurses and Midwives had received supervision in the last three months (FMOH, EPHI & AMDD 2016: 187-188). In this study, in agreement with the evidence, about 43.1% of maternity units and HPs reported that they had received supportive supervision (SS) related to maternal and newborn health services in the health facilities before three months of the survey. Moreover, it was found that 101 (73.2%) of health facilities had received SS visits to improve the case management skill of sick young infants in past three months before the survey. In line with it, within the past three months before the survey, most the health posts, 50(80.6%) had received the SS visits. Despite relatively having a good coverage of SS visits in last three months before the survey, the FGD participants of HCs staff, revealed that, there is no a functional system that established for a program monitoring visit that the SS regularly initiated from HCs to HPs to improve the case management skills of HEWs. In addition to having irregular SS practice, there is inconsistent provision of supervision feedback by HC supervisors to HPs. Similarly, HEWs FGD participants consistently confirmed that, programme monitoring visits from HCs staff to improve the competency and case management skills of HEWs are not regularly and well-

coordinated. Sometimes the visit might be integrated with other activities where adequate time might not be allocated for the visit. In addition, the sick young infants case management and newborn service provision are considered as additional task by HC supervision and usually asked later after at the end of supportive supervision mission.

6.7.1.8 *Health facilities' referral experience for obstetric complication and sick newborns*

In Amhara region, only 17 percent of all facilities reported that they had at least one type of functioning motorized ambulance on-site (FMOH, EPHI & AMDD 2016: 262). In this study, 76 percent of health facilities possessed a functional motorized vehicle or ambulances for emergency transport; which is much higher than the existing evidences. Despite the availability of a functional motorized vehicle or ambulances, this study shows that, only 37 percent of health facilities, including HPs were providing/facilitating newborn emergency transport services. Overall, 81.5 the mean percentage score from the ten referral communications actions and prerequisites was available in UHCs; 66.7 and 62.0 in PHs and RHCs respectively. On the contrary, the mean referral communication at HPs level was very low, with a percentage mean of 31.3. In the FGDs with the HCs and HPs staff, most of the participants agreed that, using ambulance for the transportation of sick young infants including critically sick is not common at all. Arrangement of transportation is the responsibility of the family.

6.7.2 Quality of neonatal healthcare services

6.7.2.1 *Early PNC home visit coverage and quality of services*

In other qualitative study done on barriers and facilitators to achieving high PNC coverage in Amhara and SNNP, physical, information and work issues are affecting the coverage. For example, in this study, some areas or villages which are difficult to access were not received the PNC visits; competing activities reducing HEWs availability for visits, PNC visits occurred more often in the communities where the HEWs are found to be active and with strong connection; to avoid the unnecessary workload on the community health workers should consider their catchment areas to;

and good notification systems are essential for high PNC coverage (Amare, Scheelbeek, Schellenberg, Berhanu & Hill 2018:1)

In addition, the study done in Gondar Zuria District of Ethiopia, the findings shown that the utilization of postnatal care services were affected by the place of women residence and its distance from the healthcare facility, women experience on utilization of antenatal care services, experience of household visit by the community health workers and women decision-making power to seek health care (Tesfahun, Worku, Mazengiyya & Kifle 2014:2350).

In agreement with the different available evidences, this study also confirms that, the early PNC home within 48 hours after birth is affected by numerous factors. Regarding to the information about birth; the participants agreed that, some common mechanisms are existing to notify births, but there is no clear and standard pathway for timely notification of births. The commonest days of receiving notification is about 2-7 days from the onset of delivery. It implies that, most of time the early PNC visits within two days of delivery was missing. In addition, the interaction of the HEWs and WDAs were also an issue regarding to the timely birth notification. Some home births might not be notified to HEWs due to the inactive connection of WDAs with HEWs. Thus, some homes either it didn't receive or receive a delayed PNC home visit by HEWs. Regarding to the quality, the group participants agreed that the type of PNC service provided is a poor quality. Most of the time, HEWs, visited the household without the necessary preparation and carrying the essential supplies and job-aids including the chartbook and family health guide to be used as checklist to check the danger signs and assess the newborns.

In line with, most of HEWs FGD participants agreed that the type of PNC service provided during home visit is in a poor quality. In addition, most of the time HEWs are not carrying the weight measurement scale, thermometer, sample register book, timer and essential medicines during their home for PNC. As result, the weight of the newborns is not taken and assessed for birth weight especially for newborns at home delivery; the temperature of the newborns is not measured and breath per minute is not properly counted so that the newborns are not assessed and classified for all key signs of PSBI for the newborns. And again, if the essential medicines are not available in the

home visit kit, HEWs won't be able to initiate the treatment at household level based on their assessment.

6.7.2.2 *Quality of essential newborn care: Actions for resuscitation, follow-up and thermal care for newborns*

The study results by Vesel et al (2013:6) highlights that health facilities that were categorized as a lower level achieved scores ranged from low to moderate for newborn resuscitation, immediate care after resuscitation and thermal care for the newborns provided overall low quality of essential newborn care. In consistent with the evidence, in this study, quality of essential newborn care was assessed by considering the five and three key resuscitations actions and follow-up care to save the lives of the newborns, and the five key actions to improve the quality of thermal care of the newborns. The mean score from the total 30 was computed for each health facility type, and the mean ranged below 10 for HPs and about 20 for PHs. However, UHCs had a mean of 18.7 and RHC had 15.9. This implies that the lower level health facilities including HPs and RHCs had had a lower essential quality of care score. This was also justified by the FGDs with HCs staffs and HEWs at HPs level. In the FGDs discussion, some of the HCs staffs claimed that the quality of neonatal health care services at HC level is sub-optimal and the quality of the newborn health care services is not always maintained in all the times.

6.7.2.3 *Quality of sick young infants' management from the register review*

Regarding to the treatment of local bacterial infections, 86 percent of cases were treated by amoxicillin (Okwaraji, Berhanu and Persson 2017:21). In line with the evidences, in this study, all cases classified as having local bacterial infections were treated at outpatient level. Among, those with very severe diseases (VSD) cases, 34 percent of cases were referred (Okwaraji et al 2017:21). Consistently, this study also showed that 38.5 percent of VSD cases were referred; and 25.5 percent of VSD cases were referred by giving pre-referral treatment; and 13 percent of VSD cases were referred without giving pre-referral treatment).

With the similar context in Ethiopia, despite this study did not included newborns, the iCCM trained workers were reported as providing generally good quality of care.

However, similar study revealed that only few sick children from age of 2-59 months were seeking care from iCCM providers (average 16 per month) (Amouzou, Hazel, Shaw, Miller, Tafesse, Mekonnen, Moulton, Bryce & Black 2016:596).

In the quantitative study, about 55.6% of health facilities fulfilled all three quality of case management tasks. Most health facilities achieved more than 60% of the quality sick young infants case management (66.8% PHs, 61.5% RHCs and 61.9% HPs) except for UHCs, which had a score of 47.6%. However, 44.4% of health facilities were not meeting the quality of case management tasks for sick young infants. However, most of the HC FGDs participants revealed that, they are managing possible serious bacterial infections (PSBI) when it occurs in young infants adhering with the national service delivery guidelines at their respective health facilities. Similarly, most of the HEWs FGDs participants also agreed that, they are managing PSBI when it occurs in young infants in adhering with the national service delivery guidelines at their respective HPs. In addition to the competency skill to manage PSBI, in most of the times, HPs are also equipped with essential medicine and supplies to treat PSBI cases at community level.

6.7.3 Factors affecting the neonatal healthcare

6.7.3.1 *Cultural practices*

In Ethiopia, the newborns sick, in most of the time the families preferred seek care from the traditional healers than healthcare providers due to some beliefs which are related to cultural and religious, limited access to healthcare facilities and payment ability for the expected expenses (Warren 2010:110). In line with existing evidence, in this study, the participants agreed that, the traditional healers are still considered as the choice of preference to seek care for their sick newborns in some portion of the community's members. Despite the existing knowledge on the signs of PSBIs, during the discussion on the reasons for low service utilization for sick young infants, 'sprained' of the neonate, "Mekechet" in Amharic and tonsillitis have similar signs with the clinical signs of PSBI and their care seeking preference was mainly linked to the traditional healers than the nearby health facilities.

6.7.3.2 Factors affecting the motivation of health workers

Some incentives that are related to the financial benefits, such as professional career development, acknowledgment, further education to upgrade the education status and the working environment such the hospital infrastructure, the readiness of resources in the health facilities, and the human resources management approaches are the main factors for the motivation and retention of health workers in developing countries (Willis-Shattuck, Bidwell, Thomas, Wyness, Blaauw & Ditlopo 2008:[1]).

In concurrence with the evidence, the workloads on the HEWs is one of the factor that emphasized by group discussants that affects the effectiveness of neonatal health service provision at HP level. In addition, HEWs' were comparing their huge workload versus with their payment; they were complaining that, the salary and benefit they are earning is very small and not rewarding for their efforts. Almost all the HEWs FGD participants agreed and recommended that minimization of the workload, life work balance, fair distribution of work, clear job description, focusing on high impact intervention, and setting obligation can uplift the HEWs' motivation.

6.8 CONCLUDING REMARKS

In general, the mixed research findings highlighted the effectiveness of the neonatal health care services at primary healthcare level. The findings will be useful to design the appropriate guideline to improve the quality, utilization and effectiveness of newborn health services in the primary health care units in Ethiopia.

Neonatal healthcare service provision

With regard to the neonatal health care services provision, the KMC services provision at HCs level is very low and most of the time it is only initiated in cases of referral of very /low preterm or low birth weight newborns to hospitals. The provision of corticosteroids for preterm labour is very low or none in most of the HCs; and the HCs are not equipped to provide the services. In addition, chlorhexidine (4%) jel, is lacking in HPs, and the mother who gave birth at home, their newborns won't get chlorhexidine (4%) jel from the HEWs during their home visits, despite home delivery.

Early discharge from the health facilities after delivery

Most mothers and their newborns are discharged from the health facilities within 12 hours of delivery. Lack of enough space in the health facilities, lack of beds, the family's preference to go home early and poor counselling to extend the discharge are some of the reasons given for early discharge.

Early Postnatal (PNC) home visit

Most of the time the early PNC home visit for neonate is delayed and in most of the time the PNC service provided is not as per the ideal standard.

Quality of neonatal healthcare and sick newborn case management tasks

The quality of newborn care services is not provided as per the standard due to different supply side reasons including: lack of trained health human resources, lack of references books to update the current knowledge and practice, motivation, poor readiness for home visits, the poor infrastructure of the HPs and lack of attention to the neonatal care services are some key factors affecting the quality of service provision. In addition, HPs and RHCs were facing a shortage of essential equipment, supplies and medicines to provide key intended services for mothers and newborns. The availability of essential equipment is significantly associated with the quality of neonatal care provision in the health facilities.

In addition, more than forty percent of health facilities were not meeting the quality of case management tasks for sick young infants and overall newborn care knowledge of health providers working in under-five clinic is significantly associated with the quality of sick young infants' management.

Programme specific supportive supervision:

The programme monitoring visits from HCs staff to improve the competency and case management skills of HEWs are not regularly and well-coordinated; and the provision of feedback is inconsistent.

Referral linkage

Using ambulance for the transportation of sick young infants is not common at all. This is also affecting the acceptance and compliance of the referral by the families of the newborns. There is an experience of using referral slips as a referral communication mechanism, but it is not often practiced and the provision and receiving of feedback about the referred cases from the referring and receiving health facilities is not also a common practice.

Services utilization of sick young infants

The service utilization of sick young infants was critically low. Lack of awareness by the caregivers about the danger signs of the sick young infants, considering local infection as not an illness or not frequently checking the newborns conditions, the cultural practice, preferring care seeking from the traditional healers, the HPs are not being open most of the time, and stock-out of essential medicines and supplies are among the factors compromising the care seeking practice of sick young infants

Effectiveness of neonatal healthcare services

The effectiveness of the neonatal healthcare services has a significant association with the health facilities readiness. Overall, that lack of adequate number of trained health human power, adherence on using the job-aids, community perception of neonatal health care service, weak referral linkage, lack of space to demonstrate and use KMC service at health facility, stock-out of essential medicines and supplies, weak monitoring and evaluation system, workload, poor commitment, unplanned & urgent requested activities, lack of coordination, lack of enough standard rooms for service delivery, misconception and misunderstanding on neonatal healthcare are some of the factors affecting effectiveness of the neonatal health care services.

6.9 CONCLUSION

This chapter shows how the quality of care and service utilization of neonatal health care services; and effectiveness of neonatal health care services are affected by supply and demand side factors. Overall, the lower health facilities including the rural health

centers and health posts, where most of the rural communities are expecting to get services in these health facilities provide sub-optimal or low quality of neonatal health care services and lacks strategies to improve the service utilization of sick young infants'. The service provision is also hampered by several factors.

CHAPTER 7

PROPOSED GUIDELINES TO IMPROVE THE NEONATAL HEALTH CARE SERVICES IN THE PRIMARY HEALTH CARE UNITS IN THE NORTH-WEST OF ETHIOPIA

7.1 INTRODUCTION

The main purpose of developing the guidelines is to improve the quality and utilization of neonatal healthcare services in the primary healthcare units (PHCUs) of Ethiopia. In this chapter, the need for developing the guidelines, guiding principles, objectives, scope, methodology, strategic objectives, proposed activities, monitoring and evaluation modalities are included in the content of the guidelines. It is drafted by the researcher and reviewed by the invited expert panels involved in the Delphi study. Finally, the guidelines are finalized by incorporating the comments given by the expert panel until they were reached a sort of consensus. The primary targets for these guidelines are the primary hospitals, health centres and health posts under the primary healthcare systems of Ethiopia.

7.2 RESEARCH METHODS

This research employed an explanatory sequential mixed design that involved a two-phase in which the researcher collected quantitative data in the first phase, and qualitative data in the second phase (Creswell 2014:274-282) to understand the effectiveness of neonatal healthcare services in the PHCUs in the north-west part of Ethiopia. The key findings of the research were discussed in the previous chapters (4, 5 and 6); and these guidelines are developed based on the key findings of this study and reviewed literature.

7.3 THE NEED FOR DEVELOPING THE GUIDELINES

As per the key findings stipulated in this research, it is worth to develop the guidelines to improve the quality and services utilization of neonatal healthcare services in the PHCUs of Ethiopia. As per the World Health Organization (WHO) guidance, the

developed guideline need to have a well-known end-user; and the recommendations included in the guideline need to be tailored to the audience identified as the end-user (WHO 2014d:17). In context of these guidelines, it is prepared primarily to the PHCUs; however, some of the strategic recommendations are also addressed to the higher-level health system; the woreda/district health offices, zonal health department (ZHD), regional health bureau (RHB) and federal. In the nutshell, these guidelines are one of the key contribution from this study; and will be delivered primarily to the study area's health facilities and health managers, RHB, federal ministry of health (FMOH) and developing partners who are supporting the neonatal health care services in Ethiopia.

7.4 GUIDING PRINCIPLES

During the drafting phase by the researcher and reviewing by the invited expert panels involved in the Delphi study, the following guiding principles were considered during the development process such as; evidence based, continuum of care, high impact intervention, quality of care, integration, community & health system strengthening, feasible, cost effective, acceptable, participatory, engaging communities, multi-sectoral collaboration, alignment with the global and Ethiopian priorities for the health sector; and measurable (FDREMOH 2015a:12-14; FDREMOH 2015b: 25-26).

7.5 OBJECTIVES

7.5.1 General objective

The general objective of these guidelines is to contribute to the reduction of neonatal mortality and improve the wellbeing of the newborns by improving the quality and service utilization of the neonatal healthcare services in the PHCUs of Ethiopia.

7.5.2 Specific objectives

- Develop draft guidelines by the researcher based on the key findings of this research and literature reviewed for improving the quality and service utilization of the neonatal healthcare services in the PHCUs of Ethiopia.

- Seek experts' contributions through the Delphi methods for their comments and reached a certain consensus.
- Producing the final validated guidelines that are tailored to the audience identified as the end-user.

7.6 SCOPE

The scope of these guidelines is for primary hospitals (PHs), health centers (HCs) and health posts (HPs) at woreda/district level. The overall leadership for the implementation of these guidelines are expected from the woreda/district health offices (WorHO) and ZHD. Despite of this, there are some strategic directions that is stipulated in the guidelines that have implication at RHB and FMOH levels. For example, the advocacy to inform the decision making on the existing policy, direction and strategies in the neonatal healthcare provision at PHCUs level. In addition, different developing partners who are supporting the government of Ethiopia will be benefited by contextualizing and adapting these guidelines for the effectiveness of neonatal care services in Ethiopia.

7.7 METHODOLOGY

7.7.1 Delphi Techniques

WHO (2014b:19) recommends that many groups and people shall be engaged from the onset in the guideline development process. It should involve a multidisciplinary expertise and seeks their expertise opinion and inputs on the draft guideline. This is expected to minimize the risk of bias in the recommendations included in the guideline (WHO 2014d:2). In line with this, for this guideline development, the researcher employed Delphi method. It is well known that, the assumption of the the Delphi method built on that the group opinion is more valid than individual opinion (Keeney, Hasson & McKenna 2011:3). For any set of issues or ideas, the Delphi technique is used to set priorities and mainly to gain consensus (Keeney et al 2011:5). The selected expert panel can be reached thorough face-to-face interview, and postal or email rounds; and two-three rounds of seeking comment is required (Keeney et al 2011:7).

7.7.2 Selection of the experts for Delphi study

Purposively selecting an expert who is knowledgeable in line with the drafted guideline is one of the key steps in the Delphi method (Keeney et al 2011:7). Thus, initially, the researcher drafted the guidelines based on the key research findings and literature reviewed to improve the quality and service utilization of the neonatal healthcare services in the PHCUs of Ethiopia. Following that, 18 newborn and child health experts were identified and selected. Experts were selected from the FMOH, RHBs, developing partners, and professional association who are the key experts and the member of the national & regional newborn and child survival working groups. These colleagues have been supporting and consulting the FMOH and RHBs in the development of different guidelines, solicit advocacy for policy change, led the implementation, disseminate technical & managerial guidelines, and monitor and evaluate neonatal health programmes at national and regional level (FDREMOH 2015b: 50-51).

Following the selection of the experts, they were approached by the researcher either by phone or face-to-face; and the study objectives and key findings were briefly discussed with them. In addition, the anonymity of the responses was given by each expert and the right to decline at a time from being the members of Delphi study group was explained. By ensuring the anonymity of each panel members, they got equal chance to present and react to ideas without any influence of knowing the identities of other experts in the panel (Keeney, Hasson & McKenna 2011:9).

7.7.3 Communication modality

Before proceeding into the next steps, the verbal consent was sought from each expert after confirming their participation. Accordingly, the researcher forwarded the draft guideline for improving the quality and service utilization of the neonatal healthcare services in the PHCUs of Ethiopia thorough email and followed with text messages to check their email inbox on time and seek their reply for confirmation. In addition, in the last page of guideline, a simple evaluation checklist was included to evaluate the overall presentation of the guideline, exhaustiveness or content, level of detail, applicability, target, any suggestions for improvement, extra addition, removal or modification. The experts were instructed to feel free to provide their experts opinion and inputs on the body of the draft guideline thorough inserting comments and or track changes.

Moreover, they were encouraged to write whatever they felt including their general impression, thought and comments in addition to the few criteria suggested in the evaluation checklist (Table 7.1).

Table 7:1 Comment sheet on the proposed guideline to improve the quality and service utilization of neonatal healthcare services in PHCUs in Ethiopia

Themes	Comment/opinion	Area for improvement	Input for improvement
Presentation			
Exhaustiveness/content			
Relevance			
Level of detail			
Applicability			
Target			

Once the agreed deadline for responses has passed, the researcher summarized the given comments and incorporate into the second version of the guideline. Again, the second version including the summary of the first-round response was forwarded to the experts and the process was continued until the experts failed to share response and/or confirm their consensus (Keeney et al 2011:10).

7.7.4 Follow-up of experts

Withdrawal from being a member and/or poor response rates are a common characteristic that often face the final round of Delphi technique (Keeney et al 2011:12). Thus, in the entire process, the researcher encouraged the experts either by text messages or phone call to provide their valuable comments to enrich the draft guidelines. In the first round, 83.3 percent (n=15) of the experts replied with their inputs and comment.

7.8 STRATEGIC OBJECTIVES AND ACTIVITIES

The identified experts in the field of newborn and child health shared their valuable insights and comments to supplement the draft guidelines in at least two rounds of feedback. Thus, the below consolidated strategic objectives and list of activities were

finalized to improve quality and service utilization of neonatal healthcare services in the PHCUs of Ethiopia.

1. Strategic objective: Improve the quality of immediate newborn care services.

Activities:

- 1.1. Implement low-dose high frequency onsite training with practical attachment to the midwives, clinical nurses and health officers to improve the skills on the provision of the immediate newborn care services.*
- 1.2. Enhance peer-based clinical mentoring by consulting within the primary hospitals, health centres and health posts to improve quality of immediate newborn care. The lead health facility within woreda can take the initiatives.*
- 1.3. Assign two midwives or health professional to attend a delivery at a time to provide the full packages of the immediate essential newborn care services. This also ensures actions when the emergency has occurred either on the newborn or the mother or both.*

Put a system in place to ensure the functionality of the newborn corner in the health centres and primary hospitals.
- 1.4. In addition to availing the equipment to health facilities, training of health professional on how to use is essential. This helps to minimize miss to-use, able to detect some problems and maintaining the equipment such as newborn care corner equipment should be a part of the package.*
- 1.5. Establish a newborn resuscitation skills lab to continuously improve and retain the health professional skills on resuscitation by conducting stimulation sessions. When adequate space and resource is available, this skills lab can also comprise skill sets that able to improve the midwives' skills of the health professionals on the basic emergency obstetrics and neonatal care services.*
- 1.6. Adapt a standard of childbirth checklist as per the expected label of care in the primary hospitals and health centres, and be posted in the wall of the maternity room to improve the services provision of the newborns immediately after birth. Each birth needs to be evaluated to foster the adherence of using the checklist for by each health professionals and*

- 1.7. *Improve the availability of towels for drying babies, hats or caps for head and socks for foot covering in the health facilities to improve the thermal care for the newborns. As part of birth preparedness for each health facilities.*
- 1.8. *Establish a kangaroo mother care (KMC) at health centre (HC) level; initiate the KMC services at HCs and advocate for using the HC revenues to expand the rooms for KMC services provision. The safety precautions in the provision of KMC, adhering to the standards, close follow-up to take timely action, referral link with the hospital, and documenting the outcome of each admission as some of the critical actions that should be considered to establish the KMC at HC.*

2. Strategic objective: Improve the provision of the emergency newborn care signal functions to save their lives across the neonatal period

Activities:

- 2.1. *Strengthening the provision of the emergency newborn care (EmNeC) signal functions (neonatal resuscitation, kangaroo mother care (KMC) for premature or low birth weight, and injectable antibiotics for neonatal sepsis at health posts (HPs), health centres (HCs) and primary hospitals (PHs). In addition, administration of corticosteroids in preterm labour at PHs and intravenous fluids at HCs and PHs.*
- 2.2. *Consolidating the effort of equipping the health workers (HWs) and health extension workers (HEWs) on the hands-on skills on the provision of the EmNeC signal functions at their level of care.*
- 2.3. *Facilitate the collaboration, the teamwork and referral linkage within different units (maternity, and under-five clinic) of a facility; and maternity to newborn intensive care units in the PHs.*
- 2.4. *Develop a standard operation procedure (SOP) for the provision of (EmNeC) with an accountability framework.*

3. Strategic objective: Improve the provision of the early postnatal care (PNC) for the newborn in the health facility within 24 hours after delivery

Activities:

- 3.1. *Ensure that mothers and newborns receive postnatal care in the facility within 24 hours after birth. Provision of proper counselling to the families on the importance of staying in the HCs for 24 hours after delivery.*

- 3.2. *Advocate for the use of the HCs revenue or allocating additional resources from the regional and/or federal government to ensure the availability of the standardized and equipped maternity rooms for admission of women and babies for PNC in the facility for at least 24 hours after their birth and extend up to 72 hours for premature babies.*
- 3.3. *Women who give birth in a health facility and their newborns should be assessed for problems with checklist. The midwife should facilitate discussion with the parents to improve their skills on the provision of essential newborn care services at home. A specific date to return for further postnatal care should be given, even if everything is going well, and be advised to return immediately if they notice any danger signs. It need to be customized and use mobile health technology as a reminder whenever feasible.*
- 3.4. *Strive to change the attitude of health professionals in the HCs and PHs to retain women and their newborns for at least 24 hours after birth.*
- 3.5. *Adapt a standard to assess the newborn using standard checklists and provide quality early postnatal care services for the newborn in the health facility.*

4. Strategic objective: Provide attention for the early PNC home visit coverage and the quality of services

Activities:

- 4.1. *Guide the HEWs to provide priority for the early (within 24-48 hours' birth) PNC home. Develop a real-time monitoring system to ensure whether the expected household is visited timely or not.*
- 4.2. *Establish a robust birth notification system from HC/PHs to HP and women development armies/ volunteers (WDAs) to HPs in line with the continuum of care; and introduce technologies for real time birth notifications.*
- 4.3. *Ensure active birth surveillance for home deliveries by HEWs and WDAs in collaboration with other existing platforms including religious leaders to be able to offer the early PNC home visits.*
- 4.4. *Improve the quality of PNC home visit by providing all the content of the PNC key actions for the newborn as per the guideline. Each visit should be done with adapted checklist and proper time shall be given to thoroughly asses the newborn as per the checklist. This helps to ensure the active case detection of sick newborns, low birth weight or preterm babies by HEWs and WDAs in their catchment during the early PNC home visits. Whenever feasible, the checklist*

can be also customized and used in mobile health technology to ensure the provision of all the expected services at each visit.

5. Strategic objective: Improve the quality of sick newborns and young infants' management

Activities:

- 5.1. *Provide on-job refresher training on sick young infants' management at PHs, HCs and HPs; and on the agreed standard of care at each level.*
- 5.2. *Provide in-service training for HCs and PHs staff on the management of newborn corner (NBC); and newborn intensive care units (NICU) for hospital staff.*
- 5.3. *Provide pre-service and on-site training for newly deployed staff before they start the case management task of sick young infants or either managing NBC or NICU. The PH or a selected HC in the woreda can be taken as a centre of excellence for the on-the-job training for the newly deployed staff. This should be considered as one of the key elements in the induction process of the fresh staff assigned in the woreda.*
- 5.4. *Ensuring the regular catchment based programme specific mentorship/supervision from PH to HCs, and HC to HPs to improve the quality of sick young infants' management and build the confidence and competency of HWs and HEWs.*
- 5.5. *Provide catchment based clinical review meeting at PHCU level to improve the quality of care for sick young infants' management, where HCs and HPs staff join. This is a wonderful opportunity for HEWs to directly observe while the HC staff is doing the assessment, classification and treatment of the sick young infant; and jointly assess the newborn by visiting the maternity ward. This is also a form to share experience among HEWs within the PHCU.*
- 5.6. *Establish a feedback mechanism with the families such as conducting exit interview to understand their level of satisfaction and feedback on the service they received. The compiled feedback contributes for improving the quality of care and service provision in the healthcare facility.*

6. Strategic objective: Improve the demand for the sick young infants' case management and newborn care

Activities:

- 6.1. *Ensure all women development armies (WDAs) or volunteers equipped with the required competency on the identification of the danger signs on the newborn, the importance of timely sending notification messages to HEWs to visit the household of the sick newborn, urging the family to seek care from the nearby HP, and improve their negotiation & communication skills.*
- 6.2. *Using the pregnant women conference to improve the awareness of mothers and families on the key danger signs of the newborn, and the importance of seeking care on the local infection and any danger sign present on the newborn.*
- 6.3. *Adapt the existing social behaviour change communication (SBCC) tools like mobile health (mhealth) and print materials on the misconception on the signs of sprained ('Meketchet') and uvulitis ('intil mewored') with classic signs of possible serious bacterial infection (PSBI) in the sick young infant. Then, HWs and HEWs distribute the adapted tools and provide a continue sensitization & counselling for WDAs, families, pregnant women, traditional healers and communities at large.*
- 6.4. *Conduct a serious of consultation and sensitization workshop with all traditional healers available in the kebele and woreda. It includes creating awareness on the danger signs on sick newborn, the necessities & urgency of seeking care of sick newborn to health facilities, the need of establishing a referral link with them, the importance of developing a memorandum of understanding with the local authority, the possibility of engaging the traditional healers in other tasks to get revenue, and the rule of law and its consequence.*
- 6.5. *Using mass media to reach a wider community about the danger sings for young infants, misconceptions, current practices and importance of seeking care for sick newborn in the nearby health facilities.*
- 6.6. *Build the communities thrust on HEWs quality of services for newborns. That includes facilitating of the communities to visit HPs & exhibit the available essential drugs and supplies to treat sick young infants', show case the type of training HEWs received to manage the sick young infants at community level; listening testimonies from the beneficiaries to promote, awareness the service is provided free of charge, and facilitate discussion with the community representative to seek their engagement.*

- 6.7. *Improve the knowledge of religions and elders on danger signs for newborns and encourage them to promote the health seeking behaviours of the families with in their networks.*
- 6.8. *Engaging the existing community platforms and structures for increasing demand for services utilization for sick young infants.*
- 6.9. *Facilitate a multi-sectoral approach to improve the services utilization for neonatal health care services.*

7. Strategic objective: Strengthening the referral linkage and communications between health facilities

Activities:

- 7.1. *Develop a standard operation procedure (SOP) to establish a functional referral linkage and communication within health facilities; reach consensus on the processes for initiating referrals and counter-referrals. A sick newborn who requires referral, the referral follows a pre-established plan that can be implemented without delay at any time.*
- 7.2. *Advocate for using ambulance for the transportation of referred sick young infants to health facilities to save the lives of newborns. It is expected to improve referral compliance, give attention to the urgency of referral for the families and significantly reduce delay of care. Thus, the local authority will consider having additional ambulance and the communities will start demanding for having ambulance services for sick newborns referral from their villages/health posts (HPs) to the remote hospitals/referral receiving health facilities.*
- 7.3. *Encourage health facilities to issue the referral slips often as a referral communication to the referral receiving health facilities and proper counselling to families on the urgency of the referral.*
- 7.4. *Establish an appropriate information exchange and feedback/counter referral to relevant health care staff on the newborn referred within or between health facilities.*

8. Strategic objective: Strengthening the programme specific supportive supervision and performance review meeting on the management of sick young infants

Activities:

- 8.1. *Develop a standard operation procedure SOP for catchment based programme specific mentorship/supervision linked with accountability framework.*
- 8.2. *Carry-out regular programme specific monitoring visits from HCs staff to improve the competency and case management skills of HEWs; likewise, from PH to HCs.*
- 8.3. *Adapt programme specific supportive supervision checklist or guide for mentorship.*
- 8.4. *Provide feedback and develop a joint action plan in every programme specific supportive supervision or mentorship visit.*
- 8.5. *Conduct periodic performance review meetings coordinated by woreda health offices with PHs, HCs and HPs to evaluate management of newborns and young infants*
- 8.6. *Ensure regular follow-up and communication for achievement of agreed action plans developed during supportive supervision and performance review meetings.*

9. Strategic objective: Improve the planning, monitoring and evaluation system of the neonatal health services

Activities:

- 9.1. *Carry out regular planning from the expected target. Maximize a joint planning exercise of the key newborn health interventions with HWs and HEWs.*
- 9.2. *Regular reviewing of the plan and performance of sick young infant in each health facilities and develop an action plan to improve the coverage.*
- 9.3. *Improve the inclusion of the key newborn health service indicators in to the routine performance monitoring chart and reviewing the performance against target at HPs, HCs, PHs and woreda level.*

- 9.4. *Involve the local administration and community representatives in the planning, implementation and monitoring process of newborn health services.*
- 9.5. *Consider the performance of newborn health services as one of the key indicators for the performance based award at HPs, HCs, PHs and woreda level with strong and agreed data quality verification mechanisms.*
- 9.6. *Encourage regular implementation of data quality assurance techniques.*
- 9.7. *Establish a localized experience sharing visits within the PHCUs and woreda.*
- 9.8. *Encourage local use of program data for decision making and planning.*
- 9.9. *Implement electronic community health information system (e-CHIS) to improve the quality of care for sick young infants and children.*
- 9.10. *Establish performance monitoring tool/system to assess the progress regularly.*

10. Strategic objective: Other cross cutting activities which are relevant for other strategic objectives

Activities: Human resource for health

- 10.1. *Boosting the commitment of HEWs by responding to the administration issues which are chronically complained by HEWs.*
- 10.2. *Advocate for the minimization of minimize for the unplanned, urgent and non-health related activities for HEWs.*

Activities: Services availability

- 10.3. *Advocate for the opening of the HPs often to provide curative care services by HEWs whenever the newborn is become sick and the family seeks care.*

Activities: Improving supply chain

- 10.4. *Develop a functional supply chain system to avoid the interruption of essential medicines and supplies at health facilities (PHs, HCs and HPs).*
- 10.5. *Equip rural health centres and health posts with essential medicines and supplies to provide the required care for newborns.*

- 10.6. *Regular equipping of health facilities with essential supplies and medicines for the management of the emergency newborn care signal functions and routine care for newborns.*
- 10.7. *Equip HPs with chlorhexidine (CHX) jel for the application of the newborn umbilical cord stump by targetting home delivered newborns.*

Activities: Service delivery standards

- 10.8. *Availing neonatal service delivery standards/guidelines in health facilities for the day-to-day guidance.*
- 10.9. *Advocate for adherence on using the national service delivery standards or job-aids to improve the standard and quality of care for newborns.*

Activities: Quality improvement

- 10.10. *Establish a quality improvement initiative at PHs, HCs and HPs that is also engaging communities. This will foster a collective leadership to collect newborn data tracking and data for decision making at facility level to improve the quality of care as culture. In addition, it will help the facility to improve compassionate respectful care and service provider-client communication.*
- 10.11. *Develop a SOP for quality of care and establish a quality improvement initiative at PHs, HCs and HPs linked with accountability framework to improve the culture on the quality of care for newborns.*
- 10.12. *Encourage peer-based clinical mentoring and self-evaluation within the health facility to improve the quality of care for sick young infants. This helps to ensure adherence to on the use of the national services delivery standards; and easily identify the skill gaps among the health workers or HEWs.*
- 10.13. *Improving a facility and community based death auditing for newborns with appropriate action plan to improve the quality of care.*

Activities: Basic amenities

- 10.14. *Ensure that all health facilities to have an appropriate physical environment, with adequate water supply, handwashing facilities, housekeeping tools and consumables, sanitation facilities, electricity supplies, waste disposal facilities and other infection prevention practices as standard of care.*

Activities: Communication and negotiation skills

10.15. Improve the interpersonal communication skills of HWs, HEWs and WDAs.

10.16. Supporting HEWs in the communication efforts for community awareness and involvement in postnatal care.

10.17. Improving the HEWs and WDAs competence in communication skills and building a good relationship with the family when making a home visit.

10.18. Adapting context specific social behaviour communication tools to improve the health of newborns.

7.9 MONITORING AND EVALUATION

The monitoring and evaluation is an integral part of the proposed guideline to improve the neonatal healthcare services in the primary health care units of Ethiopia. The guideline has recommended indicators that is linked with the objective and activities; and supposed to be captured regularly to inform the implementation progress. Thus, the indicators will be collected, compiled and analyzed by the FMOH, RHBs, zonal health departments, Woreda health offices and PHCUs with the existing health management information system to be able to provide timely and relevant information for decision making purposes (FMOH 2017b:10). The activity based indicators is expected to be collected in the implementation process each activity stipulated in the guideline as per each strategic objective.

7.9.1 Proposed outcome level indicators

- Skilled delivery attendance: Number of births attended by skilled health personnel at a health facility.
- Early postnatal care (PNC) coverage: Proportion of women who received post-natal care at least once during the early post-partum period (within 2 days after delivery).
- Early institutional neonatal death rate: Proportion of neonatal deaths at the facility within the first 7 days of life among the total live births attended by skilled birth attendants at health centers and hospitals.

- Early neonatal death at community: The proportion of deaths within the first seven days of life from total births in the kebele/health post.
- Management of sick newborns and young infant: Proportion of sick young infants treated for sepsis/very severe diseases.
- Management of birth asphyxia: Proportion of asphyxiated neonates who were resuscitated (with bag & mask) and survived.
- Management of low birth weight and preterm: Proportion of newborns weighing <2,000g m and/or premature newborns for whom thermal care in the form of kangaroo mother care (KMC) was initiated after delivery.
- Management of newborns at intensive care units: Proportion of neonates admitted with problems that were treated and discharged as cured, improved, died, and others from the neonatal intensive care units (NICU) among total discharges.
- Ambulance: Ambulance service response rate: Number of request for sick newborn referral at community level and for whom ambulance was dispatched.
- Referral rate: Proportion of sick young infants who are referred to another health facility.
- Essential drugs availability: The number of months in which a tracer drug was available averaged over all tracer drugs during the month.
- Household knowledge and practice: Proportion of mothers who correctly identify newborn and sick young infants' danger sign.
- Programme supervision coverage: Percentage of HCs/HPs covered with a programme specific regular supportive supervision.
- Performance monitoring and accountability: Percentage of woredas health offices/PHCUs using neonatal health care service provision indicators for their performance monitoring and accountability.
- Availability of plan for the key newborn health interventions: Proportion of Health Centers/HPs with key newborn health activities included in their annual plan.
- Availability of key newborn health service performance monitoring chart: Proportion of PHs/HCs/HPs that have and use newborn health service performance monitoring chart.

7.10 CONCLUSION

In this chapter, the guidelines drafted by the researcher and reviewed by the invited expert panels involved in the Delphi study were discussed. The researcher is confident that the guideline will contribute to improving the quality and utilization of the neonatal health care services in the PHCUs of Ethiopia.

CHAPTER 8

CONCLUSION, RECOMMENDATIONS AND LIMITATIONS OF THE STUDY

8.1 INTRODUCTION

This chapter provides an overall summary on the journey of the study, and presents the conclusion, recommendations and concluding remarks synthesized from the key findings from the quantitative and qualitative methods of the study. Lastly, the contribution of the study to improve the effectiveness of the neonatal healthcare services in the primary health care units of Ethiopia and its limitation were also highlighted.

8.2 RESEARCH DESIGN AND METHOD

In this study, a mixed method approach with sequential explanatory design was employed; quantitative data was collected and analyzed in the first phase of research to address quantitative objectives; and followed by the collection and analysis of qualitative data in the second phase. The rationality of choosing this quantitative dominant mixed method was to augment the quantitative results with qualitative data and for a more in-depth understanding of the quantitative results.

In the first phase of the study, the researcher-administered closed-ended structured survey questionnaire for health workers (HWs) and health extensions workers (HEWs). Structured document analysis checklist was used to abstract sick newborn and young infants' service statistics data from sick young infants' registers in the primary health care units (PHCUs). In the second phase of the study, semi-structured interviews with open-ended questions were conducted through focus group discussions (FGDs) with HWs and HEWs to explore factors affecting the effectiveness of neonatal health care services in the PHCUs.

With the purpose of providing a full sense of the study findings from the two methods, the integration of the key findings from the two methods were done through a weaving narrative integration and joint displays approaches in a separate chapter.

8.3 CONCLUSIONS

The conclusion of this chapter is synthesized from the key findings from the quantitative and qualitative methods, and integration of the key findings by mixing the two methods. Thus, the key findings are described below to provide the full insight of the study results.

8.3.1 Neonatal healthcare service provision

8.3.1.1 *Basic emergency obstetric and newborn care*

The findings indicated that the higher-level of health facilities was in the better settings for the readiness and performance of basic emergency obstetric and newborn care (BEmONC) signal functions. Primary hospitals (PHs) had the highest mean score of 6.7 out of the seven basic signal functions than the rural health centres (RHCs); i.e. 3.5 mean score from the seven expected.

8.3.1.2 *Emergency newborn care services*

The likelihood of getting emergency newborn care services (EmNeC) signal functions to save the lives of the sick young infants in the RHCs was critically low and the services provision was better in PHs. Among the key EmNeC signal functions, the highest score was for newborn resuscitation with bag and mask with 56 (71.8%); and the second highest coverage in the quantitative study among the EmNeC signal functions was the provision of injectable antibiotics for newborn sepsis with 85 (61.6%) of the health facilities. However, the kangaroo mother care (KMC) services provision at health centres (HCs) level is very low and most of the time it is only initiated in cases of referral of very /low preterm or low birth weight newborns to hospitals. The provision of corticosteroids for preterm labour is very low or none in most of the HCs; and the HCs are not equipped to provide the services.

G2/P3: “ No service [for preterm labour]. There is some concept during in some training, but not practically available. And dexamethasone service is not available. We refer to higher facility if preterm labour occurred.”

Consequently, if the HC is experiencing preterm labour, referring the pregnant woman at risk of preterm to the higher-level facility is the usual practice.

8.3.2 Quality of neonatal healthcare services

8.3.2.1 *Quality of immediate essential newborn care services*

The mean score for quality of newborn care with the domains of newborn resuscitation, follow-up care after resuscitation and thermal care for newborns from 30 score ranged below 10 for HPs, 15.9 for RHCs, 18.7 for UHCs and about 20 for PHs. In addition, the quality of newborn care services is not provided as per the standard due to different supply side factors. In addition to that, the availability of essential equipment is significantly associated with the quality of neonatal care provision in the health facilities.

Among the immediate essential newborn care practices, the application of chlorohexidine (CHX) in the umbilical cord was reported by 28 (35.4%) of health facilities. Though the coverage is reported low in the quantitative study, the HCs staff confirmed that the application of CHX has started in HC after delivery and the mother takes away the remaining to apply at home every day for 6-days.

G4/P1: "It [CHX] is available. We [HC staffs] apply once and demonstrate to them then they apply the remaining 6 days."

8.3.2.2 *Care of very small/low birth weight babies*

From the recommended actions for the care of very small/low birth weight babies, PHs reported 83.3 percentage mean score of their provision of the actions; on the contrary, only half (50.8 percentage) of the HPs practiced actions for the care of very small/low birth weight babies. Likewise, slightly more than half of the RHCs, 54.5 and 61.5 urban health centres (UHCs) provided actions for the care of very small/low birth weight babies. In addition, KMC is only initiated in cases of referral of very /low preterm or low birth weight newborns to hospitals. Otherwise admission of KMC in the HC and/or initiating KMC at HC and linking to continue the services at the HP level is not a routine practice. Overall, the key findings indicated that, the quality of care for immediate care

and breastfeeding advice for very low birthweight babies was found to be high to moderate at PHs, urban health centres (UHCs) and RHCs; and low at lower health facilities, health posts (HPs) level. The lower level health facilities including HPs and RHCs had had a lower essential quality of care score.

G2/P1: The section [in the maternity ward] and the beds are very few in numbers. Only 1 bed available for post-natal care; and this is one limitation for KMC service provision.”

8.3.3 Early discharge from the health facilities after delivery

Most mothers and their newborns are discharged from the health facilities before 12 hours of delivery; and even a considerable number of delivered women and their babies are discharged within 6 hours of delivery. Among the frequently mentioned factors for early discharge were: lack of enough space in the health facilities; lack of beds; once the mother gave birth the family members and the accompanies think that there is no problem after birth and they want to practice some celebration at home; and the health providers are not also providing the required counselling to the family members and the supporting family members on the issues following the early discharge after delivery. This implies that, even though the women gave birth in the health facilities this is a huge missed opportunity to provide the high impact care to save the lives of the newborns.

G2/P3: “Early discharge takes place because of absence of enough space. There is problem of having the necessary rooms... we [HC staffs] discharge them within six hours after birth. We give them necessary service within 6 hours after birth then discharge them. There is also understanding problem among the community, they think that as if there is no problem after mothers give birth, and they ask immediately for discharge after birth”.

8.3.4 Early postnatal (PNC) home visit

The finding indicated that, often, the early postnatal care (PNC) home visit for neonate and mother is delayed; and nevertheless, the experience of PNC service provision was not addressing all expected content of the PNC home visit for newborn. In addition, the lack of attention and not providing priority by HEWs to care-out the early PNC home visit; lack of a robust birth notification system from HCs/hospitals after health facility delivery

to HPs, and communities to HPs after home delivery or when the mother and baby arrived at home from health facility were some of the worth reasons for the delay or absence of PNC home visit. It was also noted that, HEWs are not often carrying the weight measurement scale, thermometer, sample register book, timer and essential medicines during their home for PNC. Moreover, chlorhexidine (4%) jel, is lacking in HPs. Despite home delivery as one of the top indication to receive the Chlorhexidine (4%) jel application on the umbilical stump of the baby immediate after delivery. The mother who gave birth at home, their newborns will not get chlorhexidine (4%) jel from the HEWs during their home visits. In summary, the practice of home visit by HEWs was found to be highly superficial. As a result, the critical component of essential newborn care services which supposed to be provided thorough the PNC home visit for the newborn was usually missed.

8.3.5 Knowledge of healthcare providers in neonatal health care services

From the ten different newborn care knowledge domains asked from health providers at each facility level to estimate their overall knowledge score on newborn care. Health workers (HWs) who were working in PHs were found to be at a scale of 5 form 10; HWs in UHCs had a relatively higher knowledge scale from the rest of health facilities at a point of 5.4 followed by RHCs with a knowledge scale of 5.3. Relatively below half of the knowledge scale were HEWs in HPs level, with the scale point of 4.2. Overall, the finding indicated that the knowledge of HWs and HEWs on different domain of newborn health knowledge is low; much difference was not documented among HWs and HEWs working a different level of health care facilities in the primary health care.

8.3.6 Status of healthcare providers training in neonatal health care services

The integrated management of newborn and childhood illnesses (IMNCI) training at HCs and PHs in past 12 months was found to be 57 percent; 36.7 percent of HCs and HPs staff trained in community based newborn care (CBNC) including the management of neonatal sepsis. Only 6.3 percent of HWs at HCs trained on newborn corner management, and among the interviewed HWs in three hospitals, none of them were trained on management of newborns in the intensive care unit.

8.3.7 Availability of essential equipment for post-delivery newborn care

Among the selected tracer essential equipment for post-delivery newborn care, the highest, 82.3 mean percentage score of functional essential equipment and supplies were available in PHs; followed by 72.4 in UHCs and 61.9 in the RHCs. In fact, the lowest mean percentage score was documented for HPs at 36.3. Among the supplies to keep the thermal care of the newborn immediately after delivery, the availability of towels for drying babies and hats or caps for head covering was only available at 3.7% and 1.5% of health facilities including health posts. The qualitative findings also indicated that:

G3/P2: "...there is a shortage of weighing scale, and there is only one thermometer [in the HP]"

Overall, findings indicated that HPs and RHCs were facing a shortage of essential equipment and supplies to provide the key intended services for mothers and newborns. The stock-out and or lack of supplies was also the supply side factor that was affecting the quality of neonatal health care services including the early PNC.

8.3.8 Availability of essential medicines for newborn and maternal health linked to newborn survival

Among the ten selected tracer medicines such as injectable oxytocics, ampicillin, gentamicin (20 mg/2 ml or 80 mg/2 m), anticonvulsant (magnesium sulphate or diazepam), dexamethasone, and vitamin K (phytomethadione), intravenous (IV) fluids with infusion sets, amoxicillin (dispersible tablet or syrup), nevirapine, and small size syringe and needles at PHs and HCs; a mean percentage score of 86.7, 81.5 and 74.8 of essential medicines were available at PHs, UHCs and RHCs respectively. In addition, a 70-percentage mean of HPs were equipped with the three-selected tracer essential medicines including amoxicillin, gentamicin injection and small syringe and needles. The qualitative finding also indicated that there was stockout of medicines like: G3/P2: *"Gentamycin is not available currently"*

8.3.9 Programme specific supportive supervision

The findings indicated that 43.1% and 73.2% of maternity units in PHs and HCs, and HPs reported that they had received supportive supervision (SS) related to maternal and newborn health services, and the sick young infant case management tasks. However, focus group discussions, revealed that, the programme monitoring visits from HCs to HPs to improve the competency and case management skills of HEWs on the management of sick young infants was not regular and well-coordinated.

Often, supervision to improve the case management skill of HEWs was considered as an additional or optional task to the supervisor so that adequate time is not provided. The assigned supervisor might not be trained or equipped with the case management and SS skill, and the supervision could be done without checklist; and the provision of on-site feedback and hands-on training with an agreed joint action plan was inconsistent or reported as not practiced at all. For example, one of HEW FGD indicated that: G7/P3:

“Sometimes they [HC staff] come [to HPs] but they couldn’t assist us as expected. For example, our [HP] register is far better than the register at the HC.”

Within this experience of having SS, the visit will not be a problem solver, lacks depth to identify the bottlenecks of the HEWs or HPs or couldn’t be effective to improve the case management skills of HEWs to reach a higher-level of quality of care for sick young at community level.

8.3.10 Referral linkage and communication

8.3.10.1 Health facilities readiness and experience of referral

The findings indicated that 95.6% and 91.3% health facilities had an experience of referring obstetric and newborn complications to other higher health facilities. Overall, from the ten referral communications actions, 81.5, 66.7 and 62 the mean percentage score and prerequisites reflected in UHCs; PHs and RHCs respectively. On the contrary, the mean referral communication at HPs level was very low, with a percentage mean of 31.3.



8.3.10.2 Referral communication

There was also an experience of using referral slips as a referral communication mechanism among health facilities, but not often practiced. Sometimes health care providers are not adhering with the standard referral slip due to shortage of printed copies of referral slips. Moreover, other ways of referral mechanisms were rarely practiced despite 35.5% and 40% of health facilities including HPs had access to a functioning landline telephone and cellular telephone (including a private cellular telephone).

In addition, the provision and receiving of feedback about the referred cases from the referring and receiving health facilities was not also a frequent practice among health facilities. Overall, the referral interface within the PHCUs was weak and not systematic as well.

8.3.10.3 Ambulance for sick young infants' referral

With regard to using ambulance for sick young infants, only 37% HFs were providing newborn emergency transport service through the motorized vehicle or ambulance even if 76% PHs and HCs possessed a functional motorized vehicle or ambulance for emergency transport. Despite ambulances being available in the woreda which are providing mainly transportation services for pregnant women from their village to HCs or hospitals; critical sick young infants are not getting the emergency referral services.

Overall, using ambulance for the transportation of sick young infants during referral was not common at all. In most of the occasion, transport arrangement for referred sick young infants is the responsibility of the families, thus, reaching critically ill young infants from remote rural village to the distant hospital would be difficult. For example: G6/P1: *“Ambulance service is not available for the newborn.”* Consequently, this will be one of the critical reasons for poor referral compliance, and the life of sick young infants would be in danger.

8.3.11 Quality of case management of sick young infants

The quality of sick young infants' case management was computed by considering the successful performance of all three quality proxy indicators from all sick young infants' case management tasks of assessment versus classification, classification versus treatment, and classification versus stated follow-up. More than forty percent of health facilities were not meeting the quality of case management tasks for sick young infants. Even though HEWs and HWs were trained on treatment of sick young infants and seriously advised on adhering and referring their job-aids particularly the community based newborn care (CBNC) and integrated management of newborn and childhood illnesses (IMNCI) chart booklet during the assessment, classification and treatment of every sick young infant. However, some of the HEWs and HWs were not regularly adhering with their job-aids so that the quality case management tasks are compromised.

Overall, the newborn care knowledge of health providers working in under-five clinics is significantly associated with the quality of sick young infants' management.

8.3.12 Services utilization of sick young infants

The sick young infants service utilization in the existing health facilities in zone was only 6.3 percent from the expected sick young infants' population; it ranged from 0.8 up to 11.9 percent. With this critically low service utilization practice, infection management for sick young infants at primary healthcare level might not contribute to the reduction of neonatal mortality in Ethiopia.

In addition, among the sick young infants treated in the health facilities, 75.2% of them reported as completion of treatment and 23% of treated sick young infants' outcome was unknown due to incomplete documentation in the register. In addition, it was indicated that 1.6 percent of the cases did not complete their prescribed treatment.

G2/P1: "Regarding HEWs, one HP should be open full day; but in reality, this is not functional here. If they stay [in the HP], they provide service and develop their skill daily, ...now they become forgetting their skills and the community can't get quality service."

8.3.13 Availability of basic amenities in health facilities

The finding revealed that only 29.7 percent and 23.4 percent of health facilities had access to clean water source and reliable electric supply all the time. But the availability of water and electric power was very low in RHCs when compared to PHs and UHCs; and severely lacking at HPs. Lacking these basic amenities in health care is also affecting the service provision and quality of care for the newborns.

8.3.14 Factors affecting the effectiveness of neonatal healthcare services

The key finding of the study indicated that the effectiveness of the neonatal healthcare services has a significant association with the health facilities readiness. For every unit regarding the increase of the facility readiness score, there was a corresponding average of 0.45 percentage points [95%CI:0.134-0.768] increase in the effectiveness of the newborn care services. In addition, from qualitative method, factors which are affecting the overall services provision, quality and utilization of neonatal health care services in the PHCUs are described below as supply and demand side factors.

8.3.14.1 Supply side factors

- Lack of adequate number of equipped and trained healthcare providers in the health facilities.
- Adherence on using the job-aids as service delivery standards.
- Weak referral linkage within the health facilities.
- Lack of space to demonstrate and use KMC service at health centres.
- Stock-out of essential medicines and supplies.
- Weak programme monitoring and evaluation system.
- High workload for HEWs.
- Poor commitment of healthcare providers.
- Unplanned and urgent requested activities for HEWs which comprise the routine essential activities.
- Interruptions of services due to close of the HPs.

- Lack of attention and priority for early PNC home visit for newborns.
- HEWs being bored and demotivated.
- Lack of coordination in the program implementation specially at HPs level.
- Lack of enough standard rooms for service delivery both at HCs and HPs.

8.3.14.2 Demand side factors

- Community perception on the neonatal health care service, such as, radical cure gets from traditional healers, and lack of trust on the HEWs services provision for sick young infants' management.
- Lack of awareness on danger signs of the sick young infants by the caregivers.
- Considering local infection is not illness by the families.
- Families are not frequently checking their newborns conditions.
- Preference of traditional healers for seeking care for sick newborns.
- Misconception on the danger signs with other locally given names.
- Caregivers are not being aware of the neonatal health care services availability at HPs level.

8.4 RECOMMENDATIONS

Taking into consideration of all the key results of the study, the below summarized recommendations are presented by the researcher to improve the quality, services utilization and overall effectiveness of the neonatal health care services in the primary health care units in Ethiopia. It is also consistent with the key strategies included in the developed guidelines.

8.4.1 Improving the quality of the essential newborn care services

- The improvement in the quality of immediate essential newborn care services provision at HCs and PHs is highly essential. Like encouraging peer-based clinical mentoring and self-evaluation within the health facility to improve the quality of care and this helps to ensure adherence to the use of the national services delivery standards; and easily identify the skill gaps among the health workers.

- The health facilities should be well prepared to improve the provision of the emergency newborn care signal functions to save lives across the neonatal period at all level of care particularly at rural health centres as highly essential. The health facility readiness should be improved by retaining the required skills and avoid the interruption of essential medicines and supplies at health facilities.
- Improve the health facility readiness to delay the early discharge and providing the full package of the early postnatal care (PNC) for the newborn in the health facility within 24 hours after delivery. This immediate service is necessary since most of newborn death occurs within the first day of birth.
- Ensure that all health facility to have an appropriate physical environment, with adequate water supply, handwashing facilities, housekeeping tools and consumables, sanitation facilities, electricity supplies, waste disposal facilities and other infection prevention practices as standard of care.

8.4.2 Ensuring the provision and quality of early PNC home visit for the newborn

- Since the majority of newborns are dying in the first one week of their life, the required attention should be given for the early postnatal care (PNC) home visit and the quality of services as a top priority for the health extension workers (HEWs). Adequate preparation should be done before the visit and all the visit should be done with checklist.
- A robust birth notification system should be established from HC/PHs to HP and women development armies/ volunteers (WDAs) to HPs in line with the continuum of care. Active birth surveillance for home deliveries by HEWs and WDAs needs to be in placed to offer the early PNC home visits.

8.4.3 Improving the quality of sick young infants' case management tasks

- The quality of sick young infants' case management tasks including the agreement between assessment versus classification, classification versus treatment and classification versus stated follow-up visit, needs to be improved at all levels of health facilities.

- It requires an accountability mechanism to adhere on the national services delivery standards, provision of on-job refresher training, pre-service and on-site training.
- It needs a culture of exercising for peer-based clinical mentoring and self-evaluation within the health facility, conducting regular catchment based programme specific mentorship/supervision and catchment based clinical review meeting.

8.4.4 Accelerating the service utilization of sick young infants

- The service utilization of sick young is alarmingly low at each facility in the zone. It requires a locally adapted social behaviour communication tools, using multi-media and multi-sectoral approach to create demand and mobilize each household for neonatal health care services.
- A series of consultation is required with the community representatives and traditional healers to avert the caregivers' preference of the traditional healers to seek care for their sick newborns and young infants.
- The supply side factors including ensuring the availability of the services by the opening of the HPs in most of the time, establishing a functional supply chain system to ensure the availability of essential medicines and supply, and uplifting the motivation of HEWs by responding to the administration related questions.

8.4.5 Strengthening the referral linkage and communication between health facilities

- Strengthening the referral linkage and communication within health facilities.
- Development of a standard operation procedure (SOP) and agree on its implementation. For example; issuing the referral slip often as a main referral communication to the referral receiving health facilities and supplement with advance call, provision of feedback or counter-referrals and advocate for using ambulance for the transportation of referred sick young infants to health facilities to save the lives of newborns.

8.4.6 Strengthening the programme specific supportive supervision

- The programme specific supportive supervision on the management of sick young infants at PHs, HCs and HPs level to improve the competency and case management skills of HEWs and HWs shall be regular and focused. The supportive supervision should be supported with checklist, and on-site feedback during the supportive visit and a follow-up joint action plan needs to develop for each visit.
- The supportive supervision should be followed by periodic performance review meetings coordinated by woreda health offices with the presence of PHs, HCs and HPs staff to evaluate management of newborns and young infants. This will be a forum for experience sharing of best practices among health facilities.

8.4.7 Strengthening the planning, monitoring and evaluation system of the neonatal health services

- The planning, monitoring and evaluation system of the neonatal health services needs to be strengthened. It requires a regular planning from the expected target which involves the HP, HCs and PHs staff, and followed by a regular reviewing of the plan and performance of sick young infant in each health facilities and develop an action plan to improve the coverage.
- The local administration and community representatives to engage in the planning, implementation and monitoring process of newborn health services.

8.5 CONTRIBUTION OF THE STUDY

The key findings of this study provided insight on the quality, and services utilization of neonatal health care services provision; and factors affecting the neonatal health care service provision in the primary health care units (PHCUs). In addition, based on the key findings of this study, the guideline developed considering the PHCUs and woreda health offices as primary target. It is expected to contribute to the reduction of neonatal mortality and improve the wellbeing of the newborns by improving the quality and service utilization of the neonatal healthcare services in the PHCUs of Ethiopia. In addition, this research addressed the neonatal health issues and provides a unique

knowledge on the effectiveness of neonatal health care services for programme managers, health care providers and researchers. Hence, it expected to contribute for redesigning of the policy and programmes, job-aids and further operational research.

8.6 LIMITATION OF THE STUDY

Because of the resource limitation, the neonatal health care provision from the women and family perspective is not included as part of this study. Having in-depth interviews with mothers who have newborns would have given more information on the practice of essential newborn care and types of factors that are affecting the care seeking behaviors for their newborns.

In addition, since the quantitative method employed survey with the cross-sectional nature of data collection, the study may not explain the temporal relationship between the dependent variables and some of the independent variables.

8.7 STRENGTH OF THE STUDY AND IMPLICATION OF THE FUTURE RESEARCH

The study addressed an important public health problem and employed a mixed method design; and extensive data analysis for both quantitative and qualitative research to understand the effectiveness of the neonatal health care services in the primary health care. In addition, based on the gaps identified, the guidelines developed with adapting the Delphi method as contribution to improve the body of knowledge.

In addition, the result of this research will contribute to carry-out additional research on effectiveness of neonatal health care services at secondary and tertiary hospitals and to understand factors affecting the quality and utilization of services for the family and community side.

8.8 CONCLUDING REMARKS

The research findings indicated that neonatal healthcare services are provided at community level by health posts, health centers and primary hospitals. However, with the current level of sub-optimal quality care and low service utilization of sick young

infants the significant reduction of neonatal mortality in study area might not be achieved in the coming few years. As the previous trends, the neonatal morality might continue as a bigger contributor for under-five deaths.

Therefore, as stipulated in the developed guideline in the chapter-7 of this study and recommendation section of this chapter, a holistic approach that is tailored to the identified gaps needs to be implemented with a well thought strategy to improve the quality and service utilization of neonatal service provision at health posts, health centers and primary hospitals of Ethiopia.

Finally, the lower health facilities in the primary health care units, including the rural health centers and health posts which are close to the communities and offering most of promotive and curative health care services for the newborns, should be prioritized as a target for the implementation of the developed guidelines.

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ANNEXURES

Annexure A: Ethical clearance from the Department of Health Studies, UNISA



**UNIVERSITY OF SOUTH AFRICA
Health Studies Higher Degrees Committee
College of Human Sciences
ETHICAL CLEARANCE CERTIFICATE**

REC-012714-039

HS HDC/489/2015

Date: 9 December 2015

Student No: 5766-337-8

Project Title: The effectiveness of neonatal health care services in the primary health care units in the North-West of Ethiopia.

Researcher: Bizuhan Gelaw Birhanu

Degree: D Litt et Phil

Code: DPCHS04

Supervisor: Dr JM Mathibe-Neke

Qualification: PhD

Joint Supervisor: -

DECISION OF COMMITTEE

Approved



Conditionally Approved



**Prof L Roets
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE**

**Prof MM Moleki
ACADEMIC CHAIRPERSON: DEPARTMENT OF HEALTH STUDIES**

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES

Annexure B: Letter granting to conduct the study on the effectiveness of neonatal health care series in the primary health care units



02 DECEMBER, 2015

UNISA-ET/KA/ST/29/02-12-15

AMHARA REGIONAL HEALTH BUREAU

BAHIR DAR

Rectangular Snip

Dear Madam/Sir,

This is to confirm that Mr. Bizuhan Gelaw Birhanu (student number 57663378) is a PhD student in the Department of Health Studies at the University of South Africa (UNISA). Currently, he is finalizing his Doctoral research proposal entitled "*The effectiveness of Neonatal Health Care Services in the Primary Health Care Units in the North-West of Ethiopia.*"

For Mr. Bizuhan to get ethical clearance from Unisa, he has to get a preliminary acceptance from his data sources which include Health Centers, Health Posts and Hospitals under your administration. This is therefore to kindly ask you to please give the student a support letter that testifies that he can collect data for his research provided that he gets ethical clearance from Unisa as well as from your Bureau.

Sincerely,

Tsige GebreMeskel Aberra



Deputy Director – Academic and ICT Support

UNISA – ETHIOPIA Centre of Graduate Studies

Annexure C: Letter requesting permission to conduct the study

Bizuhan Gelaw Birhanu
Addis Ababa, Ethiopia
13898
2 December 2015

The Amhara Region Health Bureau Research Committee
Amhara Region Health Bureau
Bahir Dar
495

REQUEST FOR PERMISSION TO CONDUCT A STUDY

I am currently studying towards a degree of Doctor of Literature and Philosophy degree in Health Studies (DLitt et Phil) at the University of South Africa. In order to meet the requirements of this qualification, I am undertaking a research paper with the title: “the effectiveness of Neonatal Health Care Services in the Primary Health Care Units in North-West of Ethiopia.”

I would like to get your approval to conduct such a research at selected hospital, health centres and health posts to rendering Neonatal Health Care Services in the Primary Health Care Units in West Gojjam Zone. Please find my Research Proposal attached for your perusal.

Yours Sincerely

B.G Birhanu
Researcher

Annexure D: Letter of permission to conduct the study from Amhara regional health bureau


በአማራ ብሔራዊ ክልላዊ መንግስት
Amhara National Regional State
ጤና ጥበቃ ቢሮ
Health Bureau

ቁጥር _____
Ref.no. HRST/11/12/6108
ቀን _____
Date 4-12-2015

UNISA-Ethiopia Center of Graduate Studies
Addis Ababa

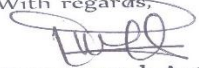
Dear Madam/Sir;

It is confirming that we have received a requesting support letter to Mr. Bizuhan Gelaw Birhanu a PhD student in the Department of Health Studies at the University of South Africa (UNISA) through the letter written on the date December 2, 2015. We are requested to provide an authorization to carry-out his research in our region when he got ethical clearance from UNISA. His research proposal is timely and not researched previously; therefore, the regional health bureau is expecting the result of this research to understand the provision of the neonatal health care services in the region and improve the services in the primary health care units. As a result, the regional health bureau will give to Mr. Bizuhan Gelaw Birhanu any support needed to accomplish his research.

Considering the importance of the research proposal title, the regional health bureau has provided permission to collect the necessary data from the health posts, health centers and hospitals accordingly his research protocols.

Hence, we kindly ask your good office to facilitate the ethical clearance on the research proposal to carry-out the research on time.

With regards,


Tenagnework Antefe
ጥናትና ቴክኖሎጂ
ጥናትና ቴክኖሎጂ
Health Research and
Technology Transfer
Core Process Owner



☒ 495

Tell. 0582201698
0582220191

Fax. 0582266701 : 0582262396
Take care from AIDS

Annexure E: Letter of permission to conduct the study from the West Gojjam Zone Health Department


የጤና ሚኒስቴር ስልጣን ያላቸው የዕቅድ ማረጋገጫ ዘርፍ

ቁጥር - 19/ሀ.ሰ.1
ቀን - 12/08/09

ምዕራፍ ስም ዜግ ስም መምሪያ

ፍ/ሰላም

ለ ደንበር ወረዳ ሙሉ/ጽ/ቤት

ደንበር

ጉዳይ: ትብብርን ይመለከታል

አቶ ብዙሃን ገላው በደቡብ አፍሪካ ዩኒቨርሲቲ የ PHD ተማሪ ሲሆኑ "effectiveness of neonatal health care services in the primary health care units in the northern West- of Ethiopia" በሚል ርዕስ ላይ በዩኒቨርሲቲው በተመረጠ ወረዳዎች ጤና ጣቢያዎች እና ሌሎች ጥናት ለማካሄድ ፕሮፖዛልቸውን በዩኒቨርሲቲው የጥናት ኮሚቴ አስረግጦል ይዘው ተርጉሞታል። እንዲሁም በክልላችን ሙሉ በሙሉ ምርምርና ቴክኖሎጂ ሽግግር የስራ ሂደት ታይቶ ለትብብር የተላላፍ መሆኑን ቢሮው በቁጥር ሙ/ም/ቴ/ሰ/01/392/09 እና በቀን 26/3/2009 ዓ/ም አሳውቋል። ስለሆነም ለጥናቱ መሳካት የበኩላችሁን ድርሻ እንድትወጡ በአክብሮት እየጠየቅን የጥናቱ የመጨረሻ ዉጤት ጥቅም ላይ እንዲውል ለማድረግና መከታተል እንዲቻል አንድ ቅጽ በዞኑ ስር እንደሚቀመጥ ከወዲሁ ለመግለጽ እንወዳለን።

ግልጻ፡

ለአቶ ብዙሃን ገላው


ከሰላምታ ጋር
ም/ሚኒስቴር: ጌታ

Annexure F: Consent form for interviewer administrated questionnaire

Study title: The Effectiveness of Neonatal Health Care Services in the Primary Health Care Units in North-West of Ethiopia

Researcher: Bizuhan Gelaw Birhanu

Bizuhan Gelaw Birhanu is a newborn and child health expert, and public health professional currently pursuing a Doctoral degree from the University of South Africa conducting a study in the title of the effectiveness of Neonatal Health Care Services in the Primary Health Care Units in North-West of Ethiopia. The research being done is for the fulfilment of the requirements for the degree of Doctor of Literature and Philosophy degree in Health Studies (DLitt et Phil). This study will be conducted in West Gojjam zone, Amhara region in one primary hospital, and 71 primary health care units (71 each health centres and health posts).

The purpose of this study is to assess the effectiveness of the neonatal health care services in the primary health care units of north-west Ethiopia. The researcher intends to use the findings from this research to improve the implementation of neonatal health care services in the primary health care units.

Your facility is selected randomly for this study; and you are selected to participate for this study in this facility is because you are working either in maternity ward or under-5 clinic. We will be asking you questions about various maternal and neonatal health services and will ask to see document review. No patient names from the registers will be reviewed, recorded, or shared. The reports that use this facility's data will only present information in aggregate so that the facility cannot be identified. The information that you give me will be kept strictly confidential. Over all, it will take about one hour to accomplish the interview and data abstraction.

In addition, your name will not be asked and unique identification is not required. You have the right not to discuss issues that you do not want to. If you want to withdraw from the study any time along the discussion process, you will not be obliged to continue or give reasons for doing so.

In case you need any clarification, you can ask the research assistants discussing with you. Or you can contact the researcher with the following address. Bizuhan Gelaw Birhanu: Tel:+2519196387024; e-mail: 57663378@mylife.unisa.ac.za.

I have read this form and voluntarily consent to participate in this study.

Participant's signature: _____

Date: _____

I have explained this to the above participant and have sought his/her understanding for informed consent.

Researcher/ research assistant's signature: _____

Date: _____

Annexure G: Consent form for focus group discussions

Study title: The Effectiveness of Neonatal Health Care Services in the Primary Health Care Units in North-West of Ethiopia

Researcher: Bizuhan Gelaw Birhanu

Bizuhan Gelaw Birhanu is a newborn and child health expert, and public health professional currently pursuing a Doctoral degree from the University of South Africa conducting a study in the title of the effectiveness of Neonatal Health Care Services in the Primary Health Care Units in North-West of Ethiopia. The research being done is for the fulfilment of the requirements for the degree of Doctor of Literature and Philosophy degree in Health Studies (DLitt et Phil). This study will be conducted in West Gojjam zone, Amhara region in one primary hospital, and 71 primary health care units (71 each health centres and health posts).

The purpose of this study is to assess the effectiveness of the neonatal health care services in the primary health care units of north-west Ethiopia. The researcher intends to use the findings from this research to improve the implementation of neonatal health care services in the primary health care units.

You are selected to participate in this study. We will be asking you questions about factors affecting the neonatal health care services. The information that you give me will be kept strictly confidential. I would like also to ask for your consent to audio record this focus group discussion. The purpose of the audio record is to ensure I have complete documentation of the discussion and to assist me in my analysis and write up. Your participation is completely voluntary. Over all; it will take about thirty minutes to accomplish the discussion.

In addition, your name will not be asked and unique identification is not required. You have the right not to discuss issues that you do not want to. If you do not wish to participate, you may individually or collectively stop the focus group discussion at any time. Your refusal to participate, to answer some questions or to withdraw during the course of the focus group discussions will not involve any penalty or will not be informed for the head of the health facility.

I have read this form and voluntarily consent to participate in this focus group discussion.

Participant's Signature: _____

Date: _____

Annexure H: Data collection tool

Annexure H.1: Interviewer administered questionnaire - English

Thesis title: The Effectiveness of Neonatal Health Care Services in the Primary Health Care Units in North-West of Ethiopia

Interviewer administered questionnaire for health workers and health extension workers in the primary health care units in north-west of Ethiopia

Name of interviewer: _____

Health facility code: _____

Q #	Part I: Background and health facility identification		
101.	District/Woreda		
102.	Facility name		
103.	Facility type	Hospital	1
		Urban health centre	2
		Rural health centre	3
		Health post	4
104.	Date of visit (DD, MM, YY)	[][] [][] [][]	
105.	Ask: The head or deputy head of the health facility for the following questions		
106.	Catchment population of the health facility in this year	[][][][][][]	
107.	How this health facility is far from the district/woreda town in Km? If it is within the same town write 00		

Part II: Maternity unit (Antenatal care , delivery and post natal care)							
201.	Position of respondent				Head of the maternity unit	1	
					Staff of the maternity unit	2	
					Head/deputy of the health facility	3	
					Head of MCH	4	
					Staff of the health post	5	
					Other specify_____	88	
202.	Staff category of respondent?				Nurse (degree)	1	
					Nurse (diploma)	2	
					Midwife (degree)	3	
					Midwife(diploma)	4	
					Health officer	5	
					Doctor	6	
					Health extension worker	7	
					Other specify_____	88	
203.	Sex of respondent				Male	1	
					Female	2	
204. 4	Age of the respondent (YY)						
205.	Since when have you worked at this health facility? (MM, YY)						
206.	Staffing: Record the number of all health providers at this health facility who are involved in maternity care <i>Confirm this response with the head of the health facility or technical coordinator</i>						
	Category	No work in facility	No present today	No conducting deliveries	No trained to manage delivery complication (BEmoNC for HC & BEmONC or CEmONC for Hosp)	No formally trained in newborn resuscitation	No conducting C-section

a.	Doctors (GP)						
b.	Obstetrician/Gynaecologist/ trained on Emergency Surgery						
c.	Health Officers						
d.	Midwives (degree)						
e.	Midwives (Diploma)						
f.	Nurse (degree)						
g.	Nurse (diploma)						
h.	Health Extension Workers						
i.	Pharmacist (all types)						
j.	Laboratory technician (all types)						
k.	Environmental health professionals						
l.	Other specify _____						
ANTENATAL CARE							
207.	Does this facility offer antenatal care services	Yes				1	
		No				2→skip to delivery care Q 228	
208.	Do you provide Tetanus toxoid immunization?	Yes				1	
		No				2	
209.	Do you do ultrasound scan for pregnant women in this facility?	Yes				1	
		No				2	
		Not applicable				3	
210.	Do you routinely measure the blood pressure at ANC clinic?	Yes				1	

		No	2
211.	Do you offer haemoglobin testing at your ANC?	Yes	1
		No	2
		Not applicable	3
212.	Do you routinely measure women's weight at ANC?	Yes	1
		No	2
213.	Do you routinely measure women's height at ANC?	Yes	1
		No	2
214.	Do you routinely palpate the abdomen at ANC?	Yes	1
		No	2
215.	Do you routinely listen to fetal heart beat at ANC?	Yes	1
		No	2
216.	Do you routinely do symphyseal fundal (SF) height measurement at ANC?	Yes	1
		No	2
217.	Do you provide iron and folate to pregnant women?	Yes	1
		No	2
218.	Do you provide presumptive deworming to pregnant women?	Yes	1
		No	2
219.	Is your facility able to conduct urine protein testing at ANC?	Yes	1
		No	2
		Not applicable	3
220.	Is your facility able to conduct urine sugar testing at ANC?	Yes	1
		No	2
		Not applicable	3

221.	Syphilis screening part of ANC in this facility?	Yes	1
		No	2
		Not applicable	3
222.	Do you provide bed nets against malaria at ANC in this facility?	Yes	1
		No	2
223.	Is your facility able to diagnose and treat malaria in pregnant women?	Yes	1
		No	2
224.	Does your facility provide counselling and testing for HIV at ANC?	Yes	1
		No	2
		Not applicable	3
225.	Does your facility provide PMTCT (prevention of mother to child transmission)?	Yes	1
		No	2
		Not applicable	3
226.	Is your facility able to treat STIs (sexually transmitted infections)?	Yes	1
		No	2
		Not applicable	3
227.	Does your facility routinely offer family planning counselling at ANC?	Yes	1
		No	2
228a	Does your facility routinely offer newborn related counselling services at ANC?	Yes	1
		No	2
228b	Does your facility routinely offer birth preparedness counselling services at ANC?	Yes	1
		No	2
	DELIVERY CARE		
228.	Does the facility offer delivery care services?	Yes	1

		No	2 → Skip to Q 247		
229.	How many days per month the delivery service is provided at the facility? If all weekdays, write "20" If all days including weekends, write "30" If one time per week, write "4"				
230.	How many delivery beds do you have in this facility? <i>Count by observation</i>				
231.	Can women choose to have their husband, other family member or a friend with them in the delivery room in this facility?	Yes	1		
		No	2		
232.	Do you monitor labour with a partograph in this facility	1. Yes, always	2. Yes, often	3. Yes, sometimes	4. No
			5. No applicable		
233.	Do you use measures of infection prevention (gloves, sterile instruments) during deliveries?	1. Yes, always	2. Yes, often	3. Yes, sometimes	4. No
234.	Do you measure blood pressure in women coming to deliver at this facility?	1. Yes, always	2. Yes, often	3. Yes, sometimes	4. No
235.	Dose this facility have a maternity waiting home?	Yes	1		
		No	2		
		No applicable	3		

236.	If a functional maternity waiting home is available? Check whether the key items are available or not?		Yes-1	No-2
		1. A house with a minimum of two rooms accommodating a maximum of 6 mothers each.		
		2. Pit Latrine within 50-60 metric distance		
		3. Electric light		
		4. Kitchen with having cooking stoves and necessary utensils.		
		5. Bed, mattress, pillow, bed sheets and blankets		
		6. Water containers and bottles		
		7. Chairs		
		8. Health teaching posters		
		9. Bed nets (for areas with malaria)		
		10. Eating utensils		
		11. Clay pots, and tea and coffee cups		
EMERGENCY OBSTETRIC CARE – Q 238-244-Not applicable for Health Posts				
238.	How many providers are trained on BEmONC?	Midwives (all types)	[][]	
		Health officers	[][]	
		Nurses (all types)	[][]	
239.	How many providers are trained on CEmONC?	Doctors	[][]	
		Health officers	[][]	

	<i>This question applies only for hospital</i>	Other specify_____	[][]
240.	How many providers are trained on newborn corner (NBC) management?	Midwives (all types)	[][]
		Health officers	[][]
		Nurses (all types)	[][]
241.	How many providers are trained on newborn intensive care unit (NICU) <i>Ask this questions for hospital only</i>	Midwives (all types)	[][]
		Health officers	[][]
		Nurses (all types)	[][]
		Doctors	[][]
242.	Of the providers currently working in the maternity unit, how many providers are on duty on the day of the visit?	Midwives (all types)	[][]
		Health officers	[][]
		Nurses (all types)	[][]
		Pharmacy (all types)	[][]
		Laboratory (all types)	[][]

		Doctors	[][]

243.	Is the person skilled in conducting deliveries present at the facility or on call at all times (24 hours a day), including weekends, to provide delivery care? <i>If yes, ask to see a duty poster/call list or schedule for 24-hour staff assignment</i>	Yes, present, schedule observed	1
		Yes, present, schedule reported not seen	2
		Yes, on call, duty scheduled observed	3
		Yes, on call, duty scheduled reported not seen	4
		Resident health worker duty schedule not maintained	5
		No 24-hour coverage	6

244.	Please tell me if the facility is currently able to provide any of the following services; if any of the following services have ever been carried out by providers as part of their work in this facility; and, if ever done, whether the intervention has been carried out at least once during the past 6 and 3 months DK: refers to don't know NB: Verifying with referring documents	a) Able to provide			b) Provided in the past 6 months			c) Provided in the past 3 months		
		Yes=1	No=2	DK=8	Yes=1	No=2	DK=8	Yes=1	No=2	DK=8
a)	<i>Parenteral administration of antibiotics (IV or IM) for sepsis</i>	1→b	2	8	1→C	2	8	1	2	8
b)	<i>Parenteral administration of oxytocic (Oxytocin, Ergometrine) (IV or IM) for post-partum bleeding</i>	1→b	2	8	1→C	2	8	1	2	8
c)	<i>Parenteral administration of anitconvultant (diazepam or MgSO4) for hypertensive disorders of pregnancy (IV or IM) for eclampsia/pre-eclampsia</i>	1→b	2	8	1→C	2	8	1	2	8
d)	<i>Assisted vaginal delivery/Instrumental delivery (vacuum or forceps)</i>	1→b	2	8	1→C	2	8	1	2	8
e)	<i>Manual removal of retained placenta</i>	1→b	2	8	1→C	2	8	1	2	8
f)	<i>Manual removal of retained products of conception after abortion complication</i>	1→b	2	8	1→C	2	8	1	2	8
g)	<i>Removal of retained products after delivery</i>	1→b	2	8	1→C	2	8	1	2	8

h)	<i>Injectable quinine or arthemeter for complicated malaria</i>	1→b	2	8	1→C	2	8	1	2	8
i)	<i>Blood transfusion</i>	1→b	2	8	1→C	2	8	1	2	8
j)	<i>Caesarean delivery</i>	1→b	2	8	1→C	2	8	1	2	8
k)	<i>Intravenous fluid administration (I.V. drips) for shock (e.g. due to postpartum bleeding)</i>	1→b								
l)	<i>Neonatal resuscitation with bag and mask</i>	1→b	2	8	1→C	2	8	1	2	8
m)	<i>Corticosteroids (dexamethasone) for pre-term labor</i>	1→b	2	8	1→C	2	8	1	2	8
IMMEDIATE POSTPARTUM CARE-Q 245-246-Not applicable for Health Posts										
245.	Management of the 3 rd stage of labour: Do you do the following procedures?									
a)	Controlled cord traction?	1. Yes, always	2. Yes, often			3. Yes, sometimes	4. No			
b)	Injection oxytocin on the thigh within 1 minute after the delivery of the baby?	1. Yes, always	2. Yes, often			3. Yes, sometimes	4. No			
c)	Uterine massage after the delivery?	1. Yes, always	2. Yes, often			3. Yes, sometimes	4. No			
246.	Handling of the baby:									
a.	Once the baby is delivered, where is (s)he placed?	1. Mother's abdomen	2. Clean mat or bed in ward			3. Other, specify: _____				
b.	How soon after delivery is the	1. Immediately	2. Within	3. Within 30 mins	4. After	5. Baby usually not dried				

	baby dried?		10 mins		more than 30 mins	
c.	How long after delivery is the baby first put to the breast?	1. Immediately	2. Within one hour of birth	3. Later than 1 hour after birth		
d.	Is the baby weighed in the facility?	1. Yes, always	2. Yes, often	3. Yes, sometimes	4. No	
e.	What is done to the baby's eyes?	1. Antibiotic eye ointment applied	2. Wiped with cloth/gauze	3. Nothing done		
f.	What is done to the baby's cord	1. Nothing applied/dry cord care	2. Chlorhexidine (CHX) ointment applied	3. Covered with cloth/gauze		4. Cleaned with genital violet
g.	How soon after delivery is the baby first bathed if normal weight?	1. Immediately after birth	2. Within 6 hours of birth	3. Later than 6 hrs after birth		After 24 hours
h.	Do you give BCG to newborn babies?	1. Before 24 hours	2. Within 2 days of birth	3. At a later date		4. Not at all
i.	When are women expected to bring their babies for growth monitoring (weighing) after birth?	1. Earlier than 2 wks	2. At 2 wks	3. Later than 2 wks	4. at 6 weeks	5. NA, no growth monitoring done here
NEWBORN EMERGENCY CARE						
247.	Does this facility provide the following newborn emergency functions, and were they performed in the last six months. Note: verify with referring documents					
a.	Newborn resuscitation with bag and mask?	1. Yes, done in past 6 months	2. Yes, but not done in past 6	3. No	4. No case	

			months		
b.	Newborn resuscitation with bag and mask with oxygen?	1. Yes, done in past 6 months	2. Yes, but not done in past 6 months	3. No	4.No case
					5. No applicable
c.	Injectable antibiotics for newborn sepsis?	1. Yes, done in past 6 months	2. Yes, but not done in past 6 months	3. No	4.No case
					5. No applicable
d.	Intravenous fluids for newborns?	1. Yes, done in past 6 months	2. Yes, but not done in past 6 months	3. No	4.No case
					5. Not applicable
e.	Teach mother skin-to-skin / Kangaroo Mother Care for premature and very small babies?	1. Yes, done in past 6 months	2. Yes, but not done in past 6 months	3. No	4.No case
f.	Teaching mother to express breast milk and feed with small cup / spoon if newborn is unable to breastfeed?	1. Yes, done in past 6 months	2. Yes, but not done in past 6 months	3. No	4.No case
g.	Dexamethasone to the mother if you anticipate the baby is going to be born prematurely?	1. Yes, done in past 6 months	2. Yes, but not done in past 6 months	3. No	4.No case
					5. Not applicable
CARE FOR VERY SMALL/LOW BIRTH WEIGHT BABIES					
248.	What is your facility's definition of low birth weight in terms of kilograms?			_____Kg	
a.	What is your facility's definition of <u>very</u> low birth weight in terms of kilograms?			_____Kg	
b.	Are any of the following special procedures done for low birth weight babies in this facility?				

c.	Observation for at least a day	Yes	1
		No	2
d.	Kept at facility longer than usual	Yes	1
		No	2
		No applicable	3
e.	Placed in an incubator	Yes	1
		No	2
		No applicable	3
f.	Delayed first bath for at least 24 hours		
		Yes	1
		No	2
g.	Placed in radiant heater	Yes	1
		No	2
		No applicable	3
h.	Kept in kangaroo mother care	Yes	1
		No	2
i.	Is there up-to-date clinical protocols for the care of small and/or preterm babies in the childbirth areas of the maternity unit? Check the protocols	Yes	1
		No	2
	REFERRAL		
249.	Does this facility refer obstetric complications to another facility if needed?	Yes	1
		No	2
250.	Does this facility have a functional ambulance or other vehicle for emergency	Yes	1

	transport?			No	2	
251.	Does the ambulance or vehicle providing service for newborn emergency?			Yes	1	
				No	2	
252.	Does this facility have a functioning land line telephone that is available to call outside at all times?			Yes	1	
				No	2	
253.	Does this facility have a functioning cellular telephone or a private cellular phone?			Yes	1	
				No	2	
254.	Does this facility refer newborns with complications to another facility if needed?		Yes	1		
			No	2		
254a	Does this facility has up-to-date referral protocols and guidelines-observe it		Yes	1		
			No	2		
<i>If no referral is done from this facility, skip to Q 262)</i>						
255.	Did this facility or the referral facility provide transport last time you had a patient who needed referral?		1. This facility	2. The referral facility	3. No transport provided	
256.	Does this facility have a functioning motorised vehicle on site for such an emergency transfer? Is fuel available?		1. Yes, functioning with fuel	2. Yes, but not functioning or no fuel	3. No vehicle available in the health facility	
					4. Vehicle will be available by call	
257.	Who apart from the driver usually accompanies such an emergency referral patient to the hospital?	1. Nurse or midwife	2. Other health personnel	3. Only family members	4. Nobody, only driver	5. Other, specify
						6. Other trained paramedic including who are trained by Red Cross Society
258.	To which facility do you refer severely ill <u>newborns</u>		1. Specialized hospital	2. secondary hospital/zonal	3. Primary hospital	4. Health Centre

	from this facility?		hosp		5. Others specify
259.	Once you have decided to refer, how long do you estimate will it take for the baby to arrive there if in the <u>dry</u> season?	_____ hour	_____ minute		
260.	And how long approximately will it take for the baby to arrive there if in the <u>rainy</u> season?	_____ hour	_____ minute		
261.	To which facility do you refer <u>women</u> with complications of pregnancy or delivery from this facility?	1.Specialized hospital	2.secondary hospital/zonal hosp	3.Primary hospital	4.Health Centre
					5. Others specify
AUDIT SECTION- verify the below questions with referring documents					
262.	Does this facility routinely conduct audit for maternal deaths?	1.Yes	2.No	9. Not applicable	
263.	Does this facility routinely conduct audit for early neonatal deaths?	1.Yes	2.No	9. Not applicable	
264.	Does this facility routinely conduct audit for stillbirths?	1.Yes	2.No	9. Not applicable	
265.	When was the last time a bag-and-mask resuscitation was attempted here? RECORD DAYS 999=NA (DD, MM, YY)				
266.	When was the last time a fresh stillbirth was delivered here? RECORD DAYS 999=NA (DD, MM, YY)				

267.	Was resuscitation attempted for this stillbirth?	1.Yes	2.No	9.NA, no delivery care
	CLINICAL SENARIO			
	I am now going to read out one clinical case history and I would like you to tell me how you would usually handle them at this facility. This will NOT be used to judge your personal skills or have any consequences for you. It is not a test! We just want to know what types of services are provided at this facility.			
	CASE A			
268.	A woman in labour presents at this facility. The Fetal Heart Rate is more than 160bpm. On examination, her cervix is fully dilated and the baby has the head in the perineum. How would you first manage her? DON'T PROMPT!			
a.	Prepare her for immediate delivery	Mentioned	1	
		Not mentioned	2	
b.	Prepare to resuscitate the baby	Mentioned	1	
		Not mentioned	2	
269.	The baby is delivered and is normal weight, but it does not cry after delivery. What would you do for this baby? DON'T PROMPT!			
a.	Dry quickly and vigorously	Mentioned	1	
		Not mentioned	2	
b.	Examine and suction the mouth	Mentioned	1	
		Not mentioned	2	
c.	Ensure extra warmth for the baby	Mentioned	1	
		Not mentioned	2	
d.	Use bag and mask to ventilate if baby does not cry after suctioning	Mentioned	1	
		Not mentioned	2	
e.	Apply cardiac massage if ventilation alone does not help	Mentioned	1	
		Not mentioned	2	
270.	Suppose the resuscitation was successful, what would you do next? DON'T PROMPT!			

a.	Initiate breastfeeding immediately	Mentioned	1
		Not mentioned	2
b.	Keep in <u>skin-to-skin</u> contact with the mother	Mentioned	1
		Not mentioned	2
c.	Ensure and encourage hygiene	Mentioned	1
		Not mentioned	2
271.	During routine checking on the baby after about 2 hrs, you see the baby sleeping alone and the mother is sleeping not in touch with baby. There is no covering on the baby since it wriggled out of the mother's cloth. What would you do? <i>DON'T PROMPT!</i>		
a.	Feel if baby is too cold	Mentioned	1
		Not mentioned	2
b.	Take the temperature with a thermometer	Mentioned	1
		Not mentioned	2
c.	Give skin to skin contact/KMC by mother or put in incubator /radiant warmer for rewarming	Mentioned	1
		Not mentioned	2
d.	Prevent draught in the room: check if windows are closed, switch off any fans on the ward	Mentioned	1
		Not mentioned	2
e.	Ask mother to breastfeed the baby	Mentioned	1
		Not mentioned	2
EQUIPMENT, SUPPLIES AND DRUGS			
	I will now ask some questions about availability of equipment, utilities etc. We only want to count those that are available for maternity and newborn care and that are functioning. I would like you to take us round the facility to look at the delivery room and some drugs and equipment.		
	Equipment and supplies		
272.	I would like to know if the	a. Available	b. Functioning

	following items are available in the maternity area and are functioning <i>Observed and accessible in delivery room within 1 minute*</i>	Observed*	Reported not seen	Not available	Yes	No	Don't know
a.	Newborn bag and mask (two sizes of neonatal mask))	1→b	2→b	3	1	2	8
b.	Resuscitation table with heat source	1→b	2→b	3	1	2	8
c.	Infant/bay weighing scale	1→b	2→b	3	1	2	8
d.	Timer (watch with second hand, clock)	1→b	2→b	3	1	2	8
e.	Sink with soap or hand disinfectant for hand washing	1	2	3			
f.	Towel for drying babies	1	2	3			
g.	Electric autoclave or dry heat sterilizer	1→b	2→b	3	1	2	8
h.	Refrigerator/Freezer/Fridge for storage or cold box for storing tetanus toxoid vaccines	1→b	2→b	3	1	2	8
i.	Blood pressure machine/Syhgmanometer	1→b	2→b	3	1	2	8
j.	Oxygen concentrator/cylinder	1→b	2→b	3	1	2	8
k.	Cord ties	1	2	3			
l.	Cord clamp	1	2	3			

m.	Electronic fetal heart monitor(Tocometer, Sonicaid)	1→b	2→b	3	1	2	8
n.	Fetoscope	1	2	3			
o.	Head covering the newborns	1	2	3			
p.	Surgical gloves	1	2	3			
q.	Graduated cup to measure expressed breast milk	1	2	3			
r.	Suction machine/nasal aspirator	1→b	2→b	3	1	2	8
s.	Suction catheter	1→b	2→b	3	1	2	8
t.	Radiant heater	1→b	2→b	3	1	2	8
u.	Incubator	1→b	2→b	3	1	2	8
v.	Manual vacuum aspiration (MVA set or E&C /D&E set	1→b	2→b	3	1	2	8
w.	Thermometer	1→b	2→b	3	1	2	8
x.	Vaccum extractors (for deliveries)	1→b	2→b	3	1	2	8
y.	Resuscitation guidelines posted on wall	1	2	3			
z.	Pulse oximeter	1→b	2→b	3	1	2	8
aa.	Forceps (for instrumental deliveries)	1→b	2→b	3	1	2	8
bb.	Infant weighing scale	1→b	2→b	3	1	2	8
cc.	Ultrasound machine	1→b	2→b	3	1	2	8
dd.	Blood	1	2	3			
273.	Does the facility have a separate space (apart from the delivery	Yes, mothers/newborns together			1		
		Yes, for newborns only			2		

	room) for mothers and newborns together or for newborns only (a partpartum or postnatal area/ward)?	No			3	
274.	Is there electric system/power supply currently functioning in the labor, delivery and post-partum rooms?	1. Always available	2. Available sometimes			3. Not available
275.	Is there clean water source/system currently functioning in the labor, delivery and post-partum rooms?	1. Always available	2. Available sometimes			3. Not available
276.	Partographs filled in correctly (check the recent 3 filled partographs)	1. Correctly				
		2. Incorrectly				
		3. Not seen				
		4. Not applicable				
277.	Ask to see the following drugs are available in this facility? If the item is located in a different part of the facility, go there to observe it. <i>Visit the pharmacy to confirm the answer of this questions</i>					
		Observed available			not observed	
		At least one valid	Available none valid	Reported available not seen	Not available today/dk	No, or never available
a.	Tetanus toxoid vaccines	1	2	3	4	5
b.	Iron/folic acid	1	2	3	4	5
c.	First line oral antimalarial (quinine or arthemether	1	2	3	4	5

d.	Insecticide Treated Net (ITN)	1	2	3	4	5
e.	IV/IM Oxytocics (Syntometrine/Ergo) in fridge	1	2	3	4	5
f.	IV fluids with infusion sets	1	2	3	4	5
g.	Hydralazine IV/ Nifedipine SL/Labetalol (fast acting anti-hypertensive drugs)	1	2	3	4	5
h.	Canula	1	2	3	4	5
i.	IV/IM Ampicillin	1	2	3	4	5
j.	Injectable gentamicin 20 mg/2 ml	1	2	3	4	5
k.	Injectable gentamicin 80 mg/2 ml	1	2	3	4	5
l.	Injectable Benzyl penicillin	1	2	3	4	5
m.	Amoxacillin syrup	1	2	3	4	5
n.	Amoxacillin dispensable tablet	1	2	3	4	5
o.	Cotrimoxazole syrup or tablet	1	2	3	4	5
p.	Misoprostol (Cytotec)	1	2	3	4	5
q.	IV Magnesium sulphate (MgSO4)	1	2	3	4	5
r.	IV Diazepam	1	2	3	4	5
s.	Calcium gluconate	1	2	3	4	5
t.	IV/IM analgesics	1	2	3	4	5
u.	Dexamethasone (parenteral)	1	2	3	4	5
v.	Nevirapine for PMTCT	1	2	3	4	5
w.	Small syringes & needles for babies	1	2	3	4	5
x.	Ceftriaxone injection	1	2	3	4	5
y.	Injectable metronidazole	1	2	3	4	5

z.	Metronidazole tablet/capsul	1	2	3	4	5
aa.	Vitamin K(phytomethadione)	1	2	3	4	5
278.	Observe for items prepared to attended birth				Yes=1	No=2
		Disinfectant			1	2
		Sterile Gloves			1	2
		Gauze			1	2
		Emergency drugs including uterotonic drug			1	2
		Clean clothes for drying and wrapping the newborns			1	2
		Head covering of the newborns			1	2
		Sterile blade/forceps			1	2
		Cord ties			1	2
		Soap			1	2
		Eye ointment (TTC)			1	2
		Chlorhexidine (CHX)			1	2
		Sufficient sterilized delivery set (Scissors)			1	2
		Sterilized forceps set			1	2
		Vacuum extractor			1	2
		Newborn resuscitation set/bag & mask (with 2 size masks)			1	2
		Suction device			1	2
		Stethoscope			1	2

		Timer (Clock, watch)	1	2	
		Vitamin K(phytomethadione)	1	2	3
		Syringe with needle	1	2	
		Water	1	2	
		Oxygen supply	1	2	3
		IV fluids	1	2	3
		Sphygmomanometers	1	2	
279.	Which of the following laboratory tests are available at the facility? (visit the laboratory to confirm these testes)-Not applicable for Health Posts	1=Observed	2=reported not observed		3=not available
a.	Hemoglobin/HCT	1	2	3	
b.	VDRL/Syphilis test	1	2	3	
c.	Malaria testing supplies (RDT/BF)	1	2	3	
d.	Urine analysis-protein	1	2	3	
e.	Blood group	1	2	3	
f.	HIV test for PMTCT	1	2	3	
g.	Bilirubin test	1	2	3	
h.	Blood glucose,	1	2	3	
280.	Is toilet available for the patient?	Yes, available & seen		1	
		Yes, available but not seen		2	
		Not available		3	

281.	Is toilet facility clean?	Yes	1	
		No	2	
282.	Is water available to wash hands	Yes	1	
		No	2	
283.	Is there a shower in functioning condition that is available for mothers?	Yes, available in maternity ward	1	
		Yes, available in compound of the health facility	2	
		No	3	
284.	Observe how infection prevention in the maternity unit (ANC, delivery and PNC) is practiced Specify (1=Yes 2=No)	Compound is clean	1	2
		Cleaning regularly done after attending birth	1	2
		Soap available at all sinks	1	2
		Housekeeping staff has personal protective barriers	1	2
		Disinfectant and cleaning solutions area available	1	2
		Disinfectant solution prepared and used as per standard	1	2
		Instrument processing area and sets are available	1	2
		Puncture proof container for sharps is available	1	2
		Providers practice hand washing	1	2

		Quality mechanism for standard of sterilization (functional steam sterilizer)	1	2
		Guideline and job aid for infection prevention (IP) is available	1	2
		Waste disposal system in place (Leak proof containers, waste is sorted, incinerator, placenta pit)	1	2
		Staff consistently uses personal protective barrier (PPB)	1	2
285.	When was the last time this maternity ward received a supervision visit from the higher-level (Woreda health office, Zonal health department, and Regional health bureau, ministry of health or partners)?	This month	1	
		In the last 3 months	2	
		More than 3 months ago	3	
		Don't know	99	
286.	How many on-site mentoring visits have been received from experts in the last 12 months	[][]		
287.	Do you have the national guidelines for comprehensive emergency obstetric care (CEMOC)?	Yes, observed	1	
		Yes, reported, not seen	2	
		No guideline available	3	
	Ask this question for hospital only			

	If yes, ask to see the guidelines.		
288.	Do you have the national guidelines for comprehensive emergency obstetric care (BEmoNC)? If yes, ask to see the guidelines.	Yes, observed	1
		Yes, reported, not seen	2
		No guideline available	3
		Not applicable	4
289.	Do you have guidelines or protocols on management of pre-term labor? If yes, ask to see the guidelines	Yes, observed	1
		Yes, reported, not seen	2
		No guideline available	3
		Not applicable	4
290.	Is there a register where client information from attended births is recorded, i.e., a delivery register? If yes, ask to see the register	Yes, observed	1
		Yes, reported, not seen	2
		No register available	3
291.	Scan the register for the past 10 births and indicate if birth outcome for infant and birth weight recorded.	Birth outcome for the infant and birth weight recorded for the past 10 births	1
		One or more of the past 10 births missing birth outcome and/or birth weight	2
292.	Indicate the most recent day, month, and year when a delivery was attended in this facility	DD MM YY DK....98	
293.	How many hours the recently delivered	< 6 hours	1

	mothers and babies will stay in the health facility for postnatal care before discharging? Check the documents at least for 3 mothers	6-12 hours	2
		13-24 hours	3
		25-72 hours	4
		Do not know	5
294.	Is there any evidence of looking at service data for monitoring of postnatal care for newborns? <i>If yes, ask to see any reports, wall graphs or charts that show service data has been reviewed. Circle all relevant type of reports observed.</i>	Observed written report/minutes	1
		Observed wall chart/graph	2
		Other _____	3
		No observed evidence	4
295.	Assess the most recent date where there is evidence of data being reviewed	Within the past 3 months	1
		More than 3 months ago	2
		Don't know	3
	Part II: Neonatal health services and management of sick neonates in under-five clinic		
296.	Position of respondent	Head of under-five clinic	1
		Staff of under-five clinic	2
		Staff of MCH	3
		Head/Deputy head of the health facility	4
		Head of MCH	5
		Staff of the health post	
		Others specify _____	6

297.	Profession of the respondent	Nurse (All types)	1
		Midwife (All types)	2
		Health officer	3
		Doctor	4
		Health Extension Worker	5
		Other specify_____	6
298.	Sex of respondent	Male	1
		Female	2
299.	Age of respondent (YY)		
300.	Since when have you worked at this health facility (MM, YY)		
301.	Have you ever trained on IMNCI or sick newborn management	Yes	1
		No	2
302.	If yes, when you attended the training	Yes within the past 12 months	1
		Yes over 12 months ago	2
		Do not know or remember	3
303.	What are the signs and symptoms of infection, or sepsis, in the newborn? CIRCLE ALL SPONTANEOUS ANSWERS <u>Probe: What else?</u>	Less movement / Movement when stimulated or movement when stimulated	1
		Poor or no breastfeeding well	2
		Hypothermia or hyperthermia	3
		Severe chest indrawing	4
		Fast breathing	5

		Red umbilicus or draining pus	6
		Skin pustules	7
		Convulsions	8
304.	When the newborn presents signs of infection, what initial steps do you take? CIRCLE ALL SPONTANEOUS ANSWERS <u>Probe:</u> What else?	Explain the situation to the mother	1
		Place the newborn face up	1a
		Continue to breastfeed or give breast milk that has been expressed with NG tube if necessary to prevent low blood sugar	2
		Give first dose of antibiotic and refer	3
		Begin antibiotics and admit in the health facility	4
		Begin antibiotics and send to the health post to follow the treatment	5
		Begin antibiotics at the health post and continue the treatment	6
		Warm the baby with skin to skin contact	7
		Refer to higher-level (hospital)	8
305.	When a newborn weighs less than 2.5kgs, what special care do you provide? CIRCLE ALL SPONTANEOUS ANSWERS <u>Probe:</u> What else?	Make sure the baby is warm	1
		Provide extra support to the mother to establish breastfeeding	2
		Kangaroo mother care if it is less than 2 kg	3
		Monitor ability to breastfeed	4

		Monitor baby for the first 24 hours/provide more frequent follow-up visit	5
		Ensure infection prevention	6
306.	Please describe how you would diagnose birth asphyxia. CIRCLE ALL SPONTANEOUS ANSWERS <u>Probe:</u> What else?	No breathing	1
		Gasping	2
		Breathing poorly/< 30 breaths/minute	3
		Heart rate below 100 beats per minute	4
		Central cyanosis (blue tongue, lips)	5
307.	Please describe the sequential steps of neonatal resuscitation. CIRCLE ALL SPONTANEOUS ANSWERS <u>Probe:</u> What else?	Call for help	1
		Explain to mother condition of baby	2
		Place the newborn face up	3
		Wrap or cover baby, except for face and upper portion of chest	4
		Position baby's head so neck is slightly extended	5
		Suction mouth then nose with suction device to clear the air ways	6
		Start ventilation using bag and mask	7
		Monitor/watch for signs of breathing	8
308.	If resuscitating with bag and mask or tube and mask, what do you do?	Place mask so it covers baby's chin, mouth, and nose	1
		To ensure a firm seal extend the head, place mask on the chin then over the mouth and nose	2
		Ventilate 2 or 3 times and see if chest is rising	3

	CIRCLE ALL SPONTANEOUS ANSWERS <u>Probe:</u> What else?	Ventilate 40 times per minute for 1 minute with bag and mask	4
		Observe the chest while ventilating	5
		Pause and determine whether baby is breathing spontaneously	6
309.	If baby is breathing and there is no sign of respiratory difficulty (intercostal retractions or grunting), what do you do? CIRCLE ALL SPONTANEOUS ANSWERS <u>Probe:</u> What else?	Keep baby warm	1
		Initiate breastfeeding	2
		Continue monitoring the baby	3
310.	If baby does NOT begin to breathe or if breathing is less than 30 breaths per minute, or if there is intercostal retraction or grunting, after resuscitation what do you do? CIRCLE ALL SPONTANEOUS ANSWERS <u>Probe:</u> What else?	Continue to ventilate	1
		Administer oxygen, if available	2
		Assess the need for special care	3
		Explain to the mother what is happening	4
		Intubate per adrenal resuscitation guidelines	5
		Refer the newborn	6
311.	Tell me what are the signs of unwell or sick newborn baby?	Weights less than 1500 gms	1
		Has signs of fast breathing or chest indrawing	2
		Has signs of temperature < 35.5°c or > 37.5°c	3

	CIRCLE ALL SPONTANEOUS ANSWERS <u>Probe:</u> What else?	No feeding	4
		No movement	5
		Convulsions	6
		Do not know	8
312.	What do you do for keeping small babies warm? CIRCLE ALL SPONTANEOUS ANSWERS <u>Probe:</u> What else?	Continuous skin to skin contact	1
		Using incubator	2
		Using Radiant warmer	3
		Do not know	8
313.	Does this facility practice Kangaroo Mother Care for low birth weight babies? Kangaroo Mother Care is the early, prolonged, and continuous skin-to-skin contact between the mother (or substitute) and her baby with support for positioning, feeding (ideally exclusive breastfeeding), and prevention and management of infections and breathing difficulties.	Yes	1
		No	2 →Skip to 311
314.	Is there a separate room or space for kangaroo mother care or it is integrated into another space (eg, postnatal ward)?	Yes, separate room	1
		Yes, integrated	2
315.	Do you have guidelines or protocols on referral of	Yes, observed	

	sick newborns? <i>If yes, ask to see the guidelines. Acceptable if a part of another guideline.</i>	Yes, reported, not seen	
		No guideline available	
316.	How many sick newborns referral have you received from health posts or health centres in last 12 months/1 year. Check and confirm the referral letter	_____	
317.	Do you have the national guidelines for treatment of sick newborn/sick newborn (IMNCI)/sick newborn management (CBNC)? If yes, ask to see the guidelines.	Yes, observed	
		Yes, reported, not seen	
		No guideline available	
	CLINICAL SENARIO		
	I am now going to read out one clinical case histories and I would like you to tell me how you would usually handle them at this facility. This will NOT be used to judge your personal skills or have any consequences for you. It is not a test! We just want to know what types of services are provided at this facility.		
	CASE B		
318.	A 17-year old woman pregnant for 8 months delivered a baby at home. A trained health extension worker found it while she was doing home visit and weighed the baby and she found it be 1.4 kg. As a result, she referred the baby to your facility. How do you manage this baby? DON'T PROMPT		
a.	Detain to thorough examination	Mentioned	1
		Not mentioned	2
b.	Ensure breastfeeding is established and provide support if necessary	Mentioned	1
		Not mentioned	2

c.	Put the baby in an incubator or skin-to-skin with the mother	Mentioned	1
		Not mentioned	2
d.	Teach the mother to keep baby skin-to-skin/kangaroo mother care position (if in incubator, when taken out)	Mentioned	1
		Not mentioned	2
e.	Check cord dressing and other potential sources of infection	Mentioned	1
		Not mentioned	2
f.	Encourage and ensure hygiene in care	Mentioned	1
		Not mentioned	2
g.	Refer to other health facility	Mentioned	1
		Not mentioned	2
319.	Later the mother says the baby is not breastfeeding and was contemplating giving glucose solutions. What would you do?		
a.	Watch her breastfeed her baby and teach her good positioning and attachment	Mentioned	1
		Not mentioned	2
b.	Examine the baby's mouth to ensure there are no anatomical deformities	Mentioned	1
		Not mentioned	2
c.	If the baby is not breast feeding, teach her to express the milk & feed with a clean cup	Mentioned	1
		Not mentioned	2
d.	Encourage infant formula only if exclusive breast milk is not possible and mother can afford	Mentioned	1
		Not mentioned	2
e.	Educate her and encourage her to practice exclusive breast feeding for the first 6 months of the baby's life	Mentioned	1
		Not mentioned	2
320.	Are standard protocols for sick newborn referral (for who to refer, when and where) available?	Yes	1
		No	2
	RECORD OBSERVATION		

321.	Does this facility have standardized referral slips in place?		Yes	1
	Record observation		No	2
322.	Is there a system for this facility to receive a feedback from the receiving facility/referral hospital?		Yes	1
			No	2
323.	If so, which system?		Verbal	1
	CIRCLE ALL THAT APPLY		Section of referral form filled out and sent back	2
			Separate counter-referral form	3
			Blank slip of paper	4
			Telephone	5
			Other, specify _____	88
324.	Have you received any training or updates either on or off-site in any of the following topics [READ TOPIC]	Yes within the past 12 months	Yes over 12 months ago	No training or updates
	IF YES, ASK: Was the training within the past 12 months or more than 12 months ago?			
	a. Neonatal resuscitation using bag and mask	1	2	3
	b. Breastfeeding (early and exclusive)	1	2	3
	c. Newborn infection management (including injectable antibiotics)	1	2	3
	d. Thermal care (including immediate drying and skin-to-skin care)	1	2	3
	e. Sterile cord cutting and appropriate cord care	1	2	3

f.	Kangaroo mother care /KMC for low birth weight babies	1	2	3
g.	Integrated Management of Newborn and childhood illnesses (IMNCI)	1	2	3
h.	Community based newborn care (CBNC)	1	2	3
i.	Newborn care /NBC management	1	2	3
j.	Newborn intensive care unit (NICU)	1	2	3
k.	Special delivery care practices for preventing mother-to-child transmission of HIV	1	2	3
l.	Caring of low birth weight and/or small babies	1	2	3
325.	Now I would like to ask you some questions about supervision you have personally received. This supervision may have been from a supervisor either at this facility, or from outside the facility. Do you receive technical support or supervision in your work? If yes, ask: When was the most recent time?	Yes, in the past 3 months		1
		Yes, in the past 4-6 months		2
		Yes, in the past 7-12 months		3
		Yes, more than 12 months ago		4
		No		5
326.	Did that supervision include observation of you providing newborn care?	Yes		1
		No		2
327.	Please tell me whether the service is offered by your facility, and if so, how many days per month the service is provided at the facility			
	Consultation or curative services for sick newborns If non, write "00" If all weekdays, write "20" If all days including weekends, write "30" If one time per week, write "4"			

328.	Is there a sick newborn consultation register?	Observed register	1
		Reported, not seen	2
		No register	3
329.	Does the register contain complete information on age, diagnosis, treatment for every case listed in last 3 months? Circle all that apply. <i>For instance, for an age to be counted as complete Every patient must have their age written. The same applies for diagnosis and treatment.</i>	Age information complete	1
		Diagnosis or symptom information complete	2
		Treatment information complete	3
		None of above complete	4
330.	How recent is the date of the most recent entry in the sick newborn register?	Within the past seven days	1
		7 days-15 days	2
		16 days -<1 month	3
		1 month -<2 months	4
		2-3 months	5
		>3 months	6
331.	Which of the following newborn classifications or diseases reported to the district /woreda health office or zonal health department? Circle all that apply after confirmation with the monthly report	Preterm and low birth Weight Cases	1
		Very Preterm and or Very low birth	2
		Birth asphyxia Cases	3
		Severe Jaundice Cases	4
		Jaundice Cases	5
		Diarrhea With No Dehydration Cases	6
		Severe Persistent Diarrhea Cases	7
		Dysentery Cases	8

		Local Bacterial Infection Cases	9
		Very severe diseases/Neonatal Sepsis /pneumonia	10

Thank you very much for your contribution!!

Annexure H.2: Interviewer administered questionnaire - Amharic

የጥናቱ ርዕስ: በመሰረታዊ የጤና ክብካቤ አሃዶች የሚሰጡ የጨቅላ ሕጻናት ጤና ክብካቤ አገልግሎቶች ውጤታማነት በሰሜን ምዕራብ ኢትዮጵያ

በሰሜን ምዕራብ ኢትዮጵያ በሚገኙ መሰረታዊ የጤና ክብካቤ አሃዶች ውስጥ ለሚሰሩ የጤና ባለሙያዎችና ጤና ኤክስቴንሽን ሠራተኞች የተዘጋጀ መጠይቅ

የመረጃ ሰብሳቢው ስም: _____

የጤና ድርጅቱ ኮድ: _____

የጥያቄ ቁጥር	ክፍል አንድ: የጤና ድርጅቱ መሠረታዊ መረጃዎችና መለያዎች		
101	ወረዳ		
102	የጤና ድርጅቱ ሥም		
103	የጤና ድርጅቱ ዓይነት	ሆስፒታል	1
		የከተማ ጤና ጣቢያ	2
		የገጠር ጤና ጣቢያ	3
		ጤና ኬላ	4
104	ቃለ መጠይቁ የተደረገበት ቀን(ቀን፣ወር፣ዓ.ም)	/ / / /	
105	የጤና ድርጅቱን ኃላፊ/ተወካይ የሚተሉትን ጥያቄዎች ጠይቅ/ቂ		
106	የጤና ድርጅቱ ተገልጋይ ሕዝብ ብዛት	/ / / / / / / /	
107	ጤና ድርጅቱ ከወረዳው ከተማ በምን ያህል ርቀት		

	ይገኛል?(ከተማው ውስጥ ከሆነ 00 ይጻፉ)		
	ክፍል ሁለት፡ የእናቶች ጤና ዩኒት (ቅድመ-ወሊድ፣ወሊድና ድኅረ-ወሊድ)		
201	የተጠያቂው የሥራ ኃላፊነት/ድርሻ	የእናቶች ጤና ዩኒት ኃላፊ	1
		የእናቶች ጤና ዩኒት ባለሙያ	2
		የጤና ድርጅቱ ኃላፊ/ምክትል ኃላፊ	3
		የእናቶችና ሕፃናት ክፍል ኃላፊ	4
		የጤና ኬላው ባለሙያ	5
		ሌላ(ይገለጽ)	88
202	የተጠያቂው የሙያ ዓይነት	ነርስ(ዲግሪ)	1
		ነርስ(ዲፕሎማ)	2
		ሚድ ዋይፍ(ዲግሪ)	3
		ሚድ ዋይፍ(ዲፕሎማ)	4
		ጤና መኮንን	5
		ሃኪም(ዶክተር)	6
		የጤና ኤክ/ ሠራተኛ	7
		ሌላ (ይገለጽ)	88
203	የተጠያቂው ጾታ	ወንድ	1
		ሴት	2
204	የተጠያቂው ዕድሜ(ዓመት)		
205	እዚህ ጤና ድርጅት ሥራ		

	የጀመርከው/ከመቼ ጀምሮ ነው?(ወር፣ዓ.ም)						
206	የጤና ባለሙያ ዓይነትና ብዛት-በጤና ድርጅት በእናቶች ጤና አገልግሎት ክፍል የሚሠሩ ሁሉንም ይመዝግቡ፤ (ስለትክክለኛነቱ ከኃላፊው ወይም ቴክኒክ ክፍል አስተባባሪ ያረጋግጡ)						
	የሙያው ዓይነት	በጤና ድርጅቱ ውስጥ የሚሰሩ ብዛት	በዕለቱ ሥራ ላይ ያሉ ብዛት	የማዋለድ አገልግሎት የሚሰጡ ብዛት	የወሊድ መወሰን ላይ ሥልጠና የወሰዱ ብዛት (BEmoNC for HC & BEmONC or CEmONC for Hosp)	በጨቅላ ሕፃን ሪሴሲቴሽን ላይ ሥልጠና የወሰዱ ብዛት	በቀዶ ጥገና(C-section) ማዋለድ የሚችሉ ብዛት
ሀ	ሃኪም(ጠቅላላ)						
ለ	የማኅፀንና ፅንሰ ስፔሻሊስት/በድንገተኛ ቀዶ ጥገና ላይ ሥልጠና የወሰደ						
ሐ	ጤና መኮንን						
መ	ሚድ ዋይፍ(ዲግሪ)						
ሠ	ሚድ ዋይፍ(ዲፕሎማ)						
ረ	ነርስ(ዲግሪ)						

ሰ	ነርስ(ዲፕሎማ)						
ሸ	ጤና ኤክስቴንሽን ሠራተኛ						
ቀ	የፋርማሲ ባለሙያ(ሁሉም ዓይነት)						
በ	የላብራቶሪ ባለሙያ(ሁሉም ዓይነት)						
ተ	የአካባቢ ጤና ባለሙያ						
ቸ	ሌሎች(ይገለጹ)						
	ቅድመ ወሊድ ክብካቤ አገልግሎት						
207	በጤና ድርጅቱ የቅድመ ወሊድ ክብካቤ አገልግሎት ይሰጣል?	አዎን				1	
		የለም				2→ወደ ወሊድ ክብካቤ ጥያቄ ቁጥር 228 ይሂዱ	
208	በጤና ድርጅቱ ለእርጉዝ እናቶች የመንጋጋ ቆልፍ መከላከያ ክትባት ይሰጣል?	አዎን				1	
		የለም				2	
209	በጤና ድርጅቱ ለእርጉዝ እናቶች የአልትራሳውንድ ምርመራ ይደረግላቸዋል?	አዎን				1	
		የለም				2	
		አይመለከትም				3	

210	በጤና ድርጅቱ ለእርጉዝ እናቶች የደም ግፊት ልኬት በመደበኛነት ይደረግላቸዋል?	አዎን	1
		የለም	2
211	በጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች የሄሞግሎቢን ምርመራ ይደረግላቸዋል?	አዎን	1
		የለም	2
		አይመለከትም	3
212	በጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት የእርጉዝ እናቶች ክብደት በመደበኛነት ይለካል?	አዎን	1
		የለም	2
213	በጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት የእርጉዝ እናቶች ቁመት በመደበኛነት ይለካል?	አዎን	1
		የለም	2
214	በጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት የእርጉዝ እናቶችን ሆድ በመዳሰስ አካላዊ ምርመራ ይደረግላቸዋል?	አዎን	1
		የለም	2
215	በጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች በሆዳቸው ውስጥ ያለን ፅንሰ የልብ ምት	አዎን	1
		የለም	2

	የማዳመጥ ምርመራ ይደረጋል ?		
216	በጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች የሆድ ቁመት(SF) ልኬት ይደረጋል ?	አዎን	1
		የለም	2
217	በጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች የአይረን እና ፎሌት እንክብል ይሰጣል?	አዎን	1
		የለም	2
218	በጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች የሆድ ትላትል ማስወገጃ መድኃኒት ይሰጣል?	አዎን	1
		የለም	2
219	በጤና ድርጅቱ በቅድመ ወሊድ ክትትል ወቅት ለእርጉዝ እናቶች ለፕሮቲን የሽንት ምርመራ ይደረጋል?	አዎን	1
		የለም	2
		አይመለከትም	3
220	በጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች ለስኳር የሽንት ምርመራ ይደረጋል?	አዎን	1
		የለም	2
		አይመለከትም	3
221	በጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች የቂጥኝ ምርመራ ይደረጋል?	አዎን	1
		የለም	2
		አይመለከትም	3

222	ጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች የአልጋ አገልግሎት ይሰጣል?	አዎን	1
		የለም	2
223	ጤና ድርጅቱ ለእርጉዝ እናቶች የወባ በሽታ ምርመራና ህክምና አገልግሎት ይሰጣል?	አዎን	1
		የለም	2
224	ጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች የኤች አይ ቪ የምክርና የደም ምርመራ አገልግሎት ይሰጣል?	አዎን	1
		የለም	2
		አይመለከትም	3
225	ጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች ኤች አይ ቪ ከእናት ወደ ፅንሰ እንዳይተላለፍ የመከላከል(PMTCT) አገልግሎት ይሰጣል?	አዎን	1
		የለም	2
		አይመለከትም	3
226	ጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች የአባላዘር በሽታዎች ህክምና አገልግሎት ይሰጣል?	አዎን	1
		የለም	2
		አይመለከትም	3

227	ጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች የቤተሰብ ምጣኔ ምክር አገልግሎት በመደበኛነት ይሰጣል?	አዎን	1
		የለም	2
228ሀ	ጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች በጨቅላ ሕፃንነት ጤና ጉዳዮች ላይ የምክር አገልግሎት ይሰጣል?	አዎን	1
		የለም	2
228ለ	ጤና ድርጅቱ በቅድመወሊድ ክትትል ወቅት ለእርጉዝ እናቶች በወሊድ ዝግጅት ዙሪያ የምክር አገልግሎት በመደበኛነት ይሰጣል?	አዎን	1
		የለም	2
የወሊድ ክብካቤ አገልግሎት			
228	ጤና ድርጅቱ የወሊድ አገልግሎት ይሰጣል?	አዎን	1
		የለም	2→ወደ ጥያቄ ቁጥር 247 ይሂዱ
229	በጤና ድርጅታችሁ የወሊድ አገልግሎት በወር ውስጥ መቼ መቼ ይሰጣል? በሁሉም የሥራ ቀናት ከሆነ 20 ይጓፉ በሁሉም የሥራ ቀናት ቅዳሜና እሁድን		

	ጨምሮ ከሆነ 30 ይጻፉ በሳምንቱ ውስጥ አንድ ቀን ብቻ ከሆነ 4 ይጻፉ		
230	በጤና ድርጅታችሁ ስንት የማዋለጃ አልጋዎች አሉ?(ቆጥረው ያረጋግጡ)		
231	ወላጆች በምጥ ወቅት ባሎቻቸውን፤ ሌላ ዘመዳቸውን ወይም ጓደኞቻቸው በማዋለጃ ክፍሉ አብረዋቸው እንዲሆኑ ማድረግ ይችላሉ?	አዎን	1
		የለም	2
232	ፓርቶግራፍ በመጠቀም የምጥ ክትትል ይደረጋል?	1.አዎን፤ ሁል ጊዜ	2.አዎን፤ ብዙውን ጊዜ
		3.አዎን፤ አንዳንዴ	4. የለም 5. አይመለከትም
233	በማዋለድ ወቅት የእንፌክሽን መከላከያዎችን (ጓንት፣ንጹሕ መሣሪያዎች)ትጠቀማላችሁ?	1.አዎን፤ ሁል ጊዜ	2.አዎን፤ ብዙውን ጊዜ
234	ጤና ድርጅቱ ለወሊድ አገልግሎት የሚመጡ እናቶች የደም ግፊት መጠናቸው ይለካል?	1.አዎን፤ ሁል ጊዜ	2.አዎን፤ ብዙውን ጊዜ
235	ጤና ድርጅቱ ለወሊድ አገልግሎት የሚመጡ እናቶችን የሚያቆይበት የእናቶች ማቆያ/Marnity waiting home/ አለው?	አዎን	1
		የለም	2
		5. አይመለከትም	5. አይመለከትም
236	አገልግሎት የሚሰጥ የእርጉዝ እናቶች	አዎን	1

	ማቆያ ካለ፤ አልጋ፤መብራት፤የምግብ ማዘጋጃ ቁሳቁሶች መኖራቸውን ያረጋግጡ	የለም	2
ድንገተኛ የወሊድ ክብካቤ አገልግሎት- Q 238-244-Not applicable for Health Posts			
238	በመሠረታዊ ድንገተኛ የወሊድና ጨቅላ ክብካቤ አገልግሎት(BEmONC) ሥልጠና የወሰዱ ስንት ባለሙያዎች አሉ?	ሚድ ዋይፍ(ሁሉም ዓይነት)	
		ጤና መኮንን	
		ነርስ(ሁሉም ዓይነት)	
239	በአጠቃላይ ድንገተኛ የወሊድና ጨቅላ ክብካቤ አገልግሎት(CEmONC) ሥልጠና የወሰዱ ስንት ባለሙያዎች አሉ?(ለሆስፒታሎች ብቻ የሚጠየቅ)	ሃኪም	
		ጤና መኮንን	
		ሌላ(ይገለጽ)	
240	በጨቅላ ሕጻናት ኮርነር(NBC) ላይ ሥልጠና የወሰዱ ስንት ባለሙያዎች አሉ?	ሚድ ዋይፍ(ሁሉም ዓይነት)	
		ጤና መኮንን	
		ነርስ(ሁሉም ዓይነት)	
241	በጨቅላ ሕጻናት ጥብቅ ክብካቤ(NICU) ላይ ሥልጠና የወሰዱ ስንት ባለሙያዎች አሉ?(ለሆስፒታሎች ብቻ የሚጠየቅ)	ሚድ ዋይፍ(ሁሉም ዓይነት)	
		ጤና መኮንን	
		ነርስ(ሁሉም ዓይነት)	
		ሃኪም	
242	በእናቶች ጤና ክብካቤ ክፍል	ሚድ ዋይፍ(ሁሉም ዓይነት)	

	ከተመደቡት ባለሙያዎች መካከል በዕለቱ ስንቱ በሥራ ላይ ናቸው?	ጤና መኮንን		[][]					
		ነርስ(ሁሉም ዓይነት)		[][]					
		ፋርማሲ(ሁሉም ዓይነት)		[][]					
		ላቦራቶሪ(ሁሉም ዓይነት)		[][]					
		ሃኪም		[][]					
243	በጤና ተቋሙ በማዋለድ አገልግሎት የተካነ ባለሙያ በማንኛውም ጊዜ ቅዳሜና እሁድን ጨምሮ (ለ24 ሰዓት) አገልግሎቱን ለመስጠት ከጤና ተቋሙ ውስጥ ወይም በቅርበት አለ? አዎን ከሆነ፣ የተረኞች ምደባ ዝርዝር መረጃ በማየት ያረጋግጡ፤	አዎን፣ አለ፣ መርሀ ግብሩም ታይቷል			1				
		አዎን፣አለ፣ መርሀ ግብሩ ግን አልታየም			2				
		አዎን በጥሪ ይመጣል፣መርሀ ግብሩም ታይቷል			3				
		አዎን በጥሪ ይመጣል፣መርሀ ግብሩ ግን አልታየም			4				
		እጤና ተቋሙ ውስጥ ይኖራል፣ መርሃ ግብሩ የለም			5				
		ዘወትር 24 ሰዓት አገልግሎት የለም			6				
244	እባክዎ ጤና ድርጅቱ የሚከተሉትን አገልግሎቶች መስጠት ይችላል /ይሰጥ እንደሆነ ይንገሩኝ(አገልግሎቶቹ አሁን ወይም በማናቸውም ጊዜ ተሰጥተው ያውቃሉ? አዎን ከሆነ አገልግሎቶቹ ባለፉት 6 ወይም 3 ወራት ውስጥ ቢያንስ አንዴም ቢሆን ተሰጥተው	ሀ) መስጠት ይችላል		ለ) ባለፉት 6 ወራት ውስጥ ተሰጥቷል			ሐ) ባለፉት 3 ወራት ውስጥ ተሰጥቷል		
		አዎን-1→ለ	የለም-2	አላውቅም-8	አዎን-1	የለም-2	አላውቅም-8	አዎን-1	የለም-2

	ያውቃሉ?) DK: refers to don't know NB: Verifying with referring documents									
ሀ	በመርፌ (በጡንቻ ወይም በደም ሥር) በሚሰጡ ፀረ ባክቴሪያ መድኃኒቶች የመመረዝ(Sepsis) ህክምና	1→ለ	2	8	1→ሐ	2	8	1	2	8
ለ	በመርፌ (በጡንቻ ወይም በደም ሥር) በሚሰጡ oxytocic(oxytocin, ergometrine)መድኃኒቶች ከወሊድ በኋላ ለሚከሰት የደም መፍሰስ ህክምና	1→ለ	2	8	1→ሐ	2	8	1	2	8
ሐ	በእርግዝና ወቅት በሚከሰት የደም ግፊት(pre eclamsia/eclamsia)ምክንያት ለሚመጣ ማንዘፍዘፍ የሚሰጡ anticonvulsant መድኃኒቶች ህክምና	1→ለ	2	8	1→ሐ	2	8	1	2	8
መ	በመሣሪያ እገዛ ወሊድ(vacuum/forceps) አገልግሎት	1→ለ	2	8	1→ሐ	2	8	1	2	8
ሠ	በእጅ በመታገዝ የቀረ የእንግዶ ልጅ ቅሪት ማውጣት	1→ለ	2	8	1→ሐ	2	8	1	2	8

ረ	ከፅንስ ማቋረጥ ምክንያት በማኅፀን ውስጥ የቀረን የፅንስ ቅሪት በእጅ እገዛ ማውጣት	1→ለ	2	8	1→ሐ	2	8	1	2	8
ሰ	ከወሊድ በኋላ በማኅፀን ውስጥ የቀሩ ነገሮችን በእጅ እገዛ ማውጣት	1→ለ	2	8	1→ሐ	2	8	1	2	8
ሸ	የተወሳሰበ ወባን በመርፌ በሚሰጥ ኩይኒን ወይም አርትሜትር ማከም	1→ለ	2	8	1→ሐ	2	8	1	2	8
ቀ	ደም የመተካት ህክምና	1→ለ	2	8	1→ሐ	2	8	1	2	8
በ	በቀዶ ጥገና(C-Section)ማዋለድ	1→ለ	2	8	1→ሐ	2	8	1	2	8
ተ	ከወሊድ በኋላ በሚከሰት የደም መፍሰስና የመሳሰሉ ምክንያቶች ለሚከሰት ራስን መሳት ህክምና ፈሳሽ መድኃኒቶችን(IV drips) መስጠት	1→ለ	2	8	1→ሐ	2	8	1	2	8
ቸ	የመተንፈስ ችግር ላለባቸው ጨቅላዎች አየር የመስጠት ህክምና	1→ለ	2	8	1→ሐ	2	8	1	2	8
ኀ	ያለጊዜ ለጀመረ ምጥ corticosteroids (Dexamethasone)መስጠት	1→ለ	2	8	1→ሐ	2	8	1	2	8
ወዲያውኑ የሚደረግ የድኅረ ወሊድ ክብካቤ- Q 238-244-Not applicable for Health Posts										
245	ሦስተኛ የምጥ ደረጃ(third stage of labour) ማኔጅመንት፣ የሚከተሉት ተግባራት ይከናወናሉ?									
ሀ	‘Controlled cord traction’	1.አዎን፣	2.አዎን፣ ብዙውን ጊዜ				4.የለም			

		ሁል ጊዜ	3.አዎን፣ አንዳንዴ	
ለ	ለወላድዎ በታፋዋ ላይ Oxytocin መርፌ ሕጻኑ በተወለደ በአንድ ደቂቃ ውስጥ መስጠት	1.አዎን፣ ሁል ጊዜ	2.አዎን፣ ብዙውን ጊዜ 3.አዎን፣ አንዳንዴ	4.የለም
ሐ	ከወሊድ በኋላ የወላድዎን ማኅፀን/ሆድ ማሸት	1.አዎን፣ ሁል ጊዜ	2.አዎን፣ ብዙውን ጊዜ 3.አዎን፣ አንዳንዴ	4.የለም
246	የጨቅላ አያያዝ			
ሀ	ጨቅላው እንደተወለደ የት ነው የምታስቀምጡት?	1.እናትየው ሆድ ላይ	2.ንጹህ መኝታ ላይ 3. ሌላ(ይገለጽ)_____	
ለ	ሕጻኑን የምታደራርቁት ከተወለደ ምን ያህል ቆይታችሁ ነው?	1.ወድያውኑ	2.በ10 ደቂቃ ውስጥ 3.በ30 ደቂቃ ውስጥ	4.ከ30 ደቂቃ በላይ ከቆየ በኋላ 5.ጨቅላ ሕጻኑን ማደራረቅ አልተለመደም
ሐ	ለሕጻኑ ጡት እንዲሰጥ የምታደርጉት ከተወለደ ምን ያህል ቆይታችሁ ነው?	1.ወድያውኑ	2.በተወለደ አንድ ሰዓት ውስጥ	3. ከተወለደ ከአንድ ሰዓት በላይ ቆይቶ
መ	የተወለዱ ጨቅላዎች ከብደታቸው ይለካል?	1.አዎን፣ ሁል ጊዜ	2.አዎን፣ ብዙውን ጊዜ	3.አዎን፣ አንዳንዴ 4.የለም
ሠ	በጨቅላው ዓይን የሚደረግ ነገር ምን	1. ፀረ ባክቴሪያ	2. በልብስ/ጎዝ ይጠረጋል	3. ምንም አይደረግም

	አለ?	የዓይን ቅባት			
ረ	በጨቅላው እትብት ላይ የሚደረግ ነገር ምን አለ?	1.ምንም አይደረግም/ደረቅ የእትብት ክብካቤ	2.ክሎርሄግዚዲን ቅባት	3.በልብስ/ጎዝ መሸፈን	4.በጂሺ ማጽዳት
ሰ	ክብደቱ ተገቢ የሆነ ጨቅላ ሰውነቱን እዲታጠብ የምታደርጉት ከተወለደ ምን ያህል ቆይታችሁ ነው?	1.ወድያው እንደተወለደ	2.በተወለደ 6 ሰዓት ውስጥ	3.ከተወለደ ከ6 ሰዓት በላይ ቆይቶ	4.ከ24 ሰዓት በኋላ
ሸ	አዲስ ለተወለዱ ጨቅላዎች የቢሲጂ ክትባት መቼ ይሰጣቸዋል?	1.ከ24 ሰዓት በፊት	2.በሁለት ቀናት ውስጥ	3.ዘግይቶ ባሉት ቀናት	4. በጭራሽ አይሰጥም
ቀ	እናቶች ልጆቻቸውን ለዕድገት ክትትል(ክብደት ምዘና) ከሰንት ዕድሜያቸው ጀምሮ ማምጣት ይጠበቅባቸዋል?	1.ከ2 ሣምንት በፊት ጀምሮ	2. በ2ኛው ሣምንት	4.በ6ኛው ሣምንት	5. አይመለከትም/አይሠራም
			3.ከ2 ሣምንት በኋላ		
	የጨቅላ ድንገተኛ ክብካቤ				
247	ጤና ተቋሙ የሚከተሉትን የጨቅላ ሕጻናት ክብካቤ ተግባራት ያከናውናል?፣ ባለፉት 6ወራት ውስጥ ተተግብሮ ያውቃል? Note: verify with referring documents				
ሀ	ለታፈነ ጨቅላ በባግና ማስክ አየር/ትንፋሽ መስጠት	1.አዎን፣ ባለፉት 6 ወራት ውስጥም	2.አዎን፣ ግን ባለፉት 6 ወራት ውስጥ አልተሠራም	3. የለም	4. ህመምተኝና አላጋጠመም

		ተሠርቶ ያውቃል			
ለ	ለታፈነ ጨቅላ ኦክስጂን ባግና ማስከ በመጠቀም አየር/ትንፋሽ መስጠት	1.አዎን፣ ባለፉት 6 ወራት ውስጥም ተሠርቶ ያውቃል	2.አዎን፣ ግን ባለፉት 6 ወራት ውስጥ አልተሠራም	3. የለም	4. ህመምተኝና አላጋጠመም
					5. አይመለከትም
ሐ	ለጨቅላ መመረዝ/ሴፕሲስ ፀረ ባክቴሪያ በመርፌ መስጠት	1.አዎን፣ ባለፉት 6 ወራት ውስጥም ተሠርቶ ያውቃል	2.አዎን፣ ግን ባለፉት 6 ወራት ውስጥ አልተሠራም	3. የለም	4. ህመምተኝና አላጋጠመም
መ	ለታመመ ጨቅላ በደም ሥር የሚሰጡ ፈሳሾችን መስጠት	1.አዎን፣ ባለፉት 6 ወራት ውስጥም ተሠርቶ ያውቃል	2.አዎን፣ ግን ባለፉት 6 ወራት ውስጥ አልተሠራም	3. የለም	4. ህመምተኝና አላጋጠመም
					5. አይመለከትም
ሠ	ያለጊዜያቸው ለተወለዱ/በጣም ትንሽ ለሆኑ ጨቅላዎች እናቶች ጨቅላውን ከገላዋ አስጠግታ ስለማቀፍ ወይም የካንጋሮ እናት አስተቃቀፍ ምክር	1.አዎን፣ ባለፉት 6 ወራት ውስጥም ተሠርቶ ያውቃል	2.አዎን፣ ግን ባለፉት 6 ወራት ውስጥ አልተሠራም	3. የለም	4. ህመምተኝና አላጋጠመም
ረ	መጥባት ለማይችል ጨቅላ የጡትዋን ወተት አልባ በኩባያ/ማንኪያ ስለማጠጣት ምክር መስጠት	1.አዎን፣ ባለፉት 6 ወራት ውስጥም ተሠርቶ ያውቃል	2.አዎን፣ ግን ባለፉት 6 ወራት ውስጥ አልተሠራም	3. የለም	4. ህመምተኝና አላጋጠመም
					5. አይመለከትም
ሰ	ያለጊዜው ምጥ ለመጣባት እናት Dexamethasone መስጠት	1.አዎን፣ ባለፉት 6 ወራት ውስጥም ተሠርቶ ያውቃል	2.አዎን፣ ግን ባለፉት 6 ወራት ውስጥ አልተሠራም	3. የለም	4. ህመምተኝና አላጋጠመም
					5. አይመለከትም

በጣም ትንሽ/ከብደታቸው ዝቅተኛ ለሆኑ ጨቅላዎች የሚደረግ ክብካቤ			
248	በጤና ድርጅታችሁ ዝቅተኛ ክብደት የሚባለው የጨቅላው ክብደት ስንት ሲሆን ነው?	_____ ኪ.ግ	
ሀ	በጤና ድርጅታችሁ በጣም ዝቅተኛ ክብደት የሚባለው የጨቅላው ክብደት ስንት ሲሆን ነው?	_____ ኪ.ግ	
ለ	ከሚከተሉት ለዝቅተኛ ክብደት ላለው ጨቅላ ከሚደረጉ ልዩ ክብካቤዎች የትኞቹ በጤና ድርጅታችሁ ይሠራሉ?		
	ቢያንስ ለአንድ ቀን ክትትል ማድረግ	አዎን	1.
		የለም	2.
ለ.1	ከተለመደው ረዘም ላለ ጊዜ በጤና ተቋም ማቆየት	አዎን	1.
		የለም	2.
		አይመለከትም	3.
ለ.2	በኢንኩቤተር ውስጥ ማቆየት	አዎን	1.
		የለም	2.
		አይመለከትም	3.
ለ.3	የመጀመሪያውን የገላ እጥበት ለ 24 ሰዓት ማዘግየት	አዎን	1.
		የለም	2.
ለ.4	በራዲየንት ሂተር ውስጥ ማቆየት	አዎን	1.
		የለም	2.
ለ.5	በካንጋሮ እናት አስተቃቀፍ ማቆየት	አዎን	1.
		የለም	2.

ለ.6	በጣም ትንሽ/ከብደታቸው ዝቅተኛ ለሆኑ ጨቅላዎች		
	ሪፈራል		
249	ጤና ድርጅታችሁ ከወሊድ ጋር የተያያዘ መወሳሰብ ያለባቸውን እናቶች አስፈላጊ ሆኖ ሲገኝ ወደ ሌላ ተቋም ይልካል?	አዎን	1.
		የለም	2.
250	ጤና ድርጅቱ ለድንገተኛ ትራንስፖርት የሚሆን አምቡላንስ ወይም ሌላ ተሽከርካሪ አለው?	አዎን	1.
		የለም	2.
251	አምቡላንሱ/ተሽከርካሪው ለድንገተኛ የጨቅላ ሪፈራል ያገለግላል?	አዎን	1.
		የለም	2.
252	ጤና ድርጅቱ በማንኛውም ጊዜ ወደ ሌላ ቦታ ለመደወል የሚሰራ የስልክ መስመር አለው?	አዎን	1.
		የለም	2.
253	ጤና ድርጅቱ በማንኛውም ጊዜ ወደ ሌላ ቦታ ለመደወል የሚያስችል የመ/ቤት ወይም የግል ተንቀሳቃሽ ስልክ አለው?	አዎን	1.
		የለም	2.
254	ጤና ድርጅታችሁ የተወሳሰበ ችግር ያለባቸውን የታመሙ ጨቅላዎች አስፈላጊ ሆኖ ሲገኝ ወደ ሌላ ተቋም ይልካል? ጤና ድርጅቱ ሪፈራል የማያደርግ ከሆነ ወደ ጥያቄ ቁጥር 262 ይሂዱ→	አዎን	1.
		የለም	2.
255	ባለፈው ሪፈራል ለተደረገው ህመምተኛ በናንተ ጤና ድርጅት ወይም በተቀባዩ ጤና ድርጅት የትራንስፖርት አገልግሎት	1.ይህ ጤና ተቋም	2.ተቀባዩ ጤና ተቋም
			3.የትራንስፖርት አገልግሎት የለም

	ተሰጥቶታል?					
256	ይህ ጤና ደርጅት ለመሰል ድንገተኛ ሪፈራል የተዘጋጀ በሞተር የሚሰራ ተሽከርካሪ አለው? ነዳጅስ አለው?		1.አዎን፣የሚሰራ ነው ፣ነዳጅ አለው	2.አዎን፣ግን አይሰራም/ነዳጅ የለውም	3.ተሽከርካሪ የለም	
					4. ተሽከርካሪ የሚገኝዉ በስልክ ጥሪ ነዉ	
257	ድንገተኛ ሪፈራል ህመምተኞችን ከሾፌሩ ሌላ ማን ነው የሚሸኘው?	1.ነርስ/ሚድ ዋይፍ	2.ሌላ ባለሙያ	3.ቤተሰብ ብቻ	4.ሾፌሩ ብቻ	5. ሌላ (ይገለጽ)
						6. ባለሙያ ያልሆነ በድንገተኛ አገልግሎት የሰለጠነ
258	በከፍተኛ ሁኔታ የታመሙ ጨቅላዎችን ከዚህ ተቋም ወደ የትኛው ደረጃ ተቋም ነው የምትልኩት?	1.ስፔሻላይዝድ ሆስፒታል	2.ዞናል ሆስፒታል	3.መጀመሪያ ደረጃ ሆስፒታል	4.ጤና ጣቢያ	
259	አንድ ጨቅላ ከዚህ ጤና ድርጅት ሪፈራ ተደርጎ ወደ ተላክበት ተቋም ለመድረስ በግምት በበጋ(ደረቅ ወቅት) በምን ያህል ሰዓት ውስጥ ይደርሳል ብለው ይገምታሉ?		_____ ሰዓት		_____ ደቂቃ	
260	በክረምት ወቅትስ ምን ያህል ሰዓት ይወስዳል ብለው ይገምታሉ?		_____ ሰዓት		_____ ደቂቃ	
261	ከእርግዝናና ወሊድ ጋር በተያያዘ የመወሳሰብ አደጋ		1.ስፔሻላይዝድ	2.ዞናል	3.መጀመሪያ	4.ጤና ጣቢያ

	ያለባቸውን እናቶች ከዚህ ተቋም ወደ የትኛው ደረጃ ተቋም ነው የምትልኩት?	ሆስፒታል	ሆስፒታል	ደረጃ ሆስፒታል	5. ሌላ(ይገለጽ)_____
	የእናቶችና ጨቅላ ሕጻናት ሞት አዲት				
262	ጤና ተቋሙ በመደበኛነት የእናቶች ሞት አዲት ያከናውናል?	1.አዎን	2.የለም	3.አይመለከትም	
263	ጤና ተቋሙ በመደበኛነት የጨቅላ ሕጻናት ሞት አዲት ያከናውናል?	1.አዎን	2.የለም	3.አይመለከትም	
264	ጤና ተቋሙ በመደበኛነት ሞቶ የተወለደ ፅንሰ(still birth)አዲት ያከናውናል?	1.አዎን	2.የለም	3.አይመለከትም	
265	በዚህ ተቋም ውስጥ ለመጨረሻ ጊዜ ለታፈነ ጨቅላ በባግና ማስክ በመታገዝ ሪሴሲቴሽን የተሰራው መቼ ነበር? ቀን፣ወርና ዓ.ም ይመዝግቡ፤ ካልታወቀ 999 ይጻፉ				
266	በጤና ተቋሙ ለመጨረሻ ጊዜ ሞቶ የተወለደ ፅንሰ(still birth) ያዋለዳችሁት መቼ ነበር?ቀን፣ወርና ዓ.ም ይመዝግቡ፤ ካልታወቀ 999 ይጻፉ				
267	ለዚህ ሞቶ ለተወለደ ፅንሰ(still birth) በሪሴሲቴሽን አየር መስጠት ተሞክሮ ነበር?	1.አዎን	2.የለም	3.አይመለከትም/የማዋለድ አገልግሎት አይሰጥም	
	ክልኒካል ሴናሪዮ (Clinical Senario)				
	ቀጥሎ አንድ ክልኒካል ኬዝ ሰቴዲ(Clinical Study) አነብልህ/ሽ እና እንዴት አድርገህ/ሽ ከብካቤ እንደምታደርግ/ጊ ደረጃ በደረጃ ትነግረኛለህ/ሪፖርትህ፤				

	ይህ ጥያቄ በምንም ዓይነት ሁኔታ ያንተን/ቺን የክህሎት ደረጃ ለመገምገም ወይም ለመፈተን ሳይሆን በጤና ተቋሙ ምን ምን አገልግሎቶች እንደሚሰጡ ለማወቅ ያህል ብቻ ነው።		
	ህመምተኛ ሀ		
268	አንዲት ምጥ የያዛት ሴት ወደ ጤና ተቋማችሁ ትመጣለች። የፅንሱ የልብ ምት በደቂቃ ከ160 ጊዜ በላይ ነው። ምርመራ ሲደረግም ማህፀኗ ሙሉ በሙሉ የከፈተና የሕፃኑ ጭንቅላት መታየት የጀመረ መሆኑን አስተዋልክ/ሽ። ስለዚህ ይህችን እናት እንዴት ነው እገዛ የምታደርገው? ፍንጭ አትስጥ/ጭ		
ሀ	እናቶን ወዲያውኑ ለወሊድ ማዘጋጀት	ተጠቅሷል	1.
		አልተጠቀሰም	2.
ለ	ጨቅላውን ሪሴሲቴት ለማድረግ መዘጋጀት	ተጠቅሷል	1.
		አልተጠቀሰም	2.
269	ሕጻን ተወለደ፤ ክብደቱም ተገቢ ነው። ነገር ግን ሲወለድ አላለቀሰም። ስለዚህ ምን ታደርጋለህ/ጊያለሽ? ፍንጭ አትስጥ/ጭ		
ሀ	በፍጥነትና በደንብ ማደራረቅ	ተጠቅሷል	1.
		አልተጠቀሰም	2.
ለ	አፉ ውስጥ ፈሳሽ ካለ ማውጣት	ተጠቅሷል	1.
		አልተጠቀሰም	2.
ሐ	ተጨማሪ ሙቀት እንዲያገኝ ማድረግ	ተጠቅሷል	1.
		አልተጠቀሰም	2.
መ	በዚህም መተንፈስ ባይጀምር በባግና ማስክ ሪሴሲቴት ማድረግ	ተጠቅሷል	1.

		አልተጠቀሰም	2.
ሠ	ሪሴሲቴሽን ብቻውን ለውጥ ካላመጣ ካርዲያክ ማሳጅ ማድረግ	ተጠቅሷል	1.
		አልተጠቀሰም	2.
270	እንበልና ሪሴሲቴሽኑ ተሳካልህ/ሽ፤ ቀጥሎስ ምን ታደርጋለህ/ጊያለሽ?		
ሀ	ወዲያውኑ ጡት መጥባት እንዲጀምር ማድረግ	ተጠቅሷል	1.
		አልተጠቀሰም	2.
ለ	ከእናቱ ጋር ገላ ለገላ ተገናኝቶ እንዲታቀፍ ማድረግ	ተጠቅሷል	1.
		አልተጠቀሰም	2.
ሐ	ንፅሕናው የተጠበቀ እንዲሆን ማድረግ	ተጠቅሷል	1.
		አልተጠቀሰም	2.
271	ከሁለት ሰዓት በኋላ ሲታይ ጨቅላው ከእናቱ ተለይቶ ብቻውን መተኛቱንና ሰውነቱ በደንብ አለመሸፈኑን ተገነዘብህ/ሽ። ምን ታደርጋለህ/ጊያለሽ?		
ሀ	ሕጻኑ በጣም ቀዝቅዞ እንደሆነ ማየት	ተጠቅሷል	1.
		አልተጠቀሰም	2.
ለ	የሰውነቱን ሙቀት መለካት	ተጠቅሷል	1.

		አልተጠቀሰም	2.				
ሐ	በገላ ለገላ ንክኪ፣ በካንጋሮ እናት አስተቃቀፍ ወይም በኢንኩቤተር/ራዲንት ሂተር ማሞቅ	ተጠቅሷል	1.				
		አልተጠቀሰም	2.				
መ	ንፋስ ወደ ክፍሉ እንዳይገባና አንዳይቀዘቅዝ መስኮት መዝጋት	ተጠቅሷል	1.				
		አልተጠቀሰም	2.				
ሠ	እናት ጨቅላውን ጡትዋን እንድታጠባ ማድረግ	ተጠቅሷል	1.				
		አልተጠቀሰም	2.				
መሣሪያዎች፣ ግብዓቶችና መድኃኒቶች							
አሁን ከመሣሪያዎችና ቁሳቁሶች አቅርቦት ጋር የተያያዙ ጥያቄዎችን እጠይቃለሁ። ለእናቶችና ጨቅላዎች ክብካቤ አገልግሎት የሚጠቅሙትንና የሚሰሩትን ብቻ እንቆጥራለን። ስለዚህ ማዋለጃ ክፍል አካባቢ ዞር ዞር እያልን እናያለን።							
መሣሪያዎች እና ግብዓቶች							
272	የሚከተሉት ዕቃዎች በእናቶች ክፍል መኖራቸውንና የሚሰሩ መሆናቸውን ማወቅ እፈልጋለሁ። በማዋለጃ ክፍሉ ውስጥ በአንድ ደቂቃ ውስጥ ሊገኝ በሚችል ሁኔታ አለ?	ሀ. አለ			ለ. አገልግሎት ይሰጣል		
		1.ታይቷል	2.አልታየም	3.የለም	1.አዎን	2.የለም	8..አላውቅም
ሀ	ባግና ማስክ(ሁለቱም መጠን)	1→ለ	2→ለ	3	1	2	8
ለ	የሙቀት ምንጭ ያለው አስተኝቶ አየር መስጫ ጠረጴዛ	1→ለ	2→ለ	3	1	2	8
ሐ	ክብደት መለኪያ ሚዛን	1→ለ	2→ለ	3	1	2	8
መ	ሰዓት (ሰከንድ ቆጣሪ ያለው)	1→ለ	2→ለ	3	1	2	8

ሠ	የእጅ መታጠቢያ ሲንክ ከሳሙና ጋር/hand disfictnat	1	2	3			
ረ	የጨቅላ ሕጻንፎጣ	1	2	3			
ሰ	የኤሌክትሪክ አውቶክሌቭ/ድራይ ሂት ስቴሪላይዘር	1→ለ	2→ለ	3	1	2	8
ሸ	የመንጋጋ ቆልፍ ክትባት ለማስቀመጫ የሚሆን ፈሪጅ/የበረዶ ሣጥን	1→ለ	2→ለ	3	1	2	8
ቀ	የደም ግፊት መለኪያ መሳሪያ	1→ለ	2→ለ	3	1	2	8
በ	አክሲጂን ኮንሴንትሬተር/ሲሊንደር	1→ለ	2→ለ	3	1	2	8
ተ	እትብት ማሰሪያ ክር	1	2	3			
ቸ	እትብት መቆንጠጫ	1	2	3			
ኀ	በኤሌክትሪክ የሚሰራ የፅንሰ የልብ ምት መከታተያ(ቶኮሜትር/ሶኒካይድ)	1→ለ	2→ለ	3	1	2	8
ነ	የፅንሰ ልብ ምት ማዳመጫ(ፈቶስኮፕ)	1	2	3			
ኘ	ለጨቅላው ራስ መሸፈኛ የሚሆን ኮፊያ	1	2	3			
አ	ሳርጂካል የእጅ ጓንቶች	1	2	3			
ከ	የታለበ የጡት ወተት መለኪያ ጀግ	1	2	3			
ሽ	ከአፍንጫ ፈሳሽ መምጠጫ ሳክሽን ማሸን/ናዛል አስፒሬተር	1→ለ	2→ለ	3	1	2	8
ወ	ሳክሽን ካቴተር	1→ለ	2→ለ	3	1	2	8

ዘ	ራዲዩንት ሂተር	1→ለ	2→ለ	3	1	2	8
ዝ	ኢኮቤተር	1→ለ	2→ለ	3	1	2	8
የ	ማኑዋል ቫክዩም አስፒሬሽን(MVA or E & C/D & E set)	1→ለ	2→ለ	3	1	2	8
ደ	ቴርሞሜትር	1→ለ	2→ለ	3	1	2	8
ጀ	ቫኪዩም ኤክስትራክተር(ለወሊድ)	1→ለ	2→ለ	3	1	2	8
ገ	በግድግዳ ላይ የተለጠፈ የጨቅላ ሪሴሲቴሽን መመሪያ	1	2	3			
273	ጤና ድርጅቱ (ከወሊድ ክፍል ሌላ) የተለየ ለወለዱ እናቶችና ጨቅላዎቻቸው ወይም ለጨቅላዎቹ ለብቻ ማቆያ የሚሆን የድኅረ ወሊድ ክፍል አለው?	አዎን፣ ለእናትና ጨቅላው በጋራ			1		
		አዎን፣ ለጨቅላ ሕጻናት ብቻ			2		
		የለም			3		
274	የምጥ፣ወሊድና ድኅረ ወሊድ ክፍሎች የመብራት አገልግሎት አላቸው?	1 .ሁል ጊዜ አለ	2. አንዳንድ ጊዜ አለ	3. የለም			
275	የምጥ፣ወሊድና ድኅረ ወሊድ ክፍሎች የውኃ አገልግሎት አላቸው?	1 .ሁል ጊዜ አለ	2. አንዳንድ ጊዜ አለ	3. የለም			
276	በምጥ ወቅት ፓርቶግራፍ በትክክል ይሞላል?	1. በትክክል ተሞልቷል 2. በትክክል አልተሞላም 3. አልታየም 4. አይመለከትም					
277	የሚከተሉት መድሃኒቶች በጤና ተቋሙ መኖራቸውን በመጠየቅና በማየት አረጋግጥ/ጪ። መድኃኒቶቹ ያሉበት ቦታ የተለየ ከሆነ እዚያው በመሄድ						

	ተመልከት/ቺ፡፡(ትክክል ስለመሆኑ ለማረጋገጥም የመድኃኒት ክፍሉን በመጎብኘት ያረጋግጡ፡፡)					
ሀ	የመንጋጋ ቆልፍ ክትባት	ቢያንስ አንድ ቫሊድ ዶዝ አለ	ቫሊድ ያልሆነ ዶዝ አለ	አለ ተብሏል፤ ግን አልታየም	ዛሬ የለም/አላውቅም	የለም/ኖሮ አያውቅም
ለ	አይረን/ፎሊክ አሲድ	1	2	3	4	5
ሐ	የመጀመሪያ ደረጃ የወባ መድኃኒት	1	2	3	4	5
መ	በፀረ ወባ ኬሚካል የተነከረ የአልጋ አጎበር	1	2	3	4	5
ሠ	በመርፌ የሚሰጡ አክሲቶሲክ መድኃኒቶች	1	2	3	4	5
ረ	በደም ሥር የሚሰጡ ፈሳሽ መድኃኒቶች(ከነሴቶቻቸው)	1	2	3	4	5
ሰ	ሃይድራላዚን /ኒፌድፒን/ላቤታሎል	1	2	3	4	5
ሸ	ካኑላ	1	2	3	4	5
ቀ	በመርፌ የሚሰጥ አምፒሲሊን	1	2	3	4	5
በ	በመርፌ የሚሰጥ ጀንታማይሲን ባለ20ሚ.ግ/2ሲሲ	1	2	3	4	5
ተ	በመርፌ የሚሰጥ ጀንታማይሲን ባለ80ሚ.ግ/2ሲሲ	1	2	3	4	5
ቸ	በመርፌ የሚሰጥ ቤንዛይል ፔኒሲሊን	1	2	3	4	5
ኀ	አሞክሳሲሊን ሽሮፕ	1	2	3	4	5

ነ	አምክሳሊሊን በቅጽበት የሚሟሟ ክኒን	1	2	3	4	5	
ኘ	ኮትሪሞክሳዞል ክኒን/ሸሮፕ	1	2	3	4	5	
አ	ሚሶፕሮስቶል	1	2	3	4	5	
ከ	በደም ሥር የሚሰጥ ማግኒዢየም ሳልፌት	1	2	3	4	5	
ኸ	በደም ሥር የሚሰጥ ዲያዜፓም	1	2	3	4	5	
ወ	ካልሺየም ጉሉኮኒት	1	2	3	4	5	
ዘ	በመርፌ የሚሰጡ ሕመም ማስታገሻዎች	1	2	3	4	5	
ዠ	በመርፌ የሚሰጥ ደክሳሜታሶን	1	2	3	4	5	
የ	ኔቪራፒን	1	2	3	4	5	
ደ	ለሕጻናት የሚሆኑ ትንንሽ መጠን ያላቸው መርፌና ሲሪንጆች	1	2	3	4	5	
278	የሚከተሉት ለወሊድ አገልግሎት የተዘጋጁ ነገሮች መኖራቸውን ተመልከት/ቺ።				አዎን =1	የለም =2	3.አይመለከትም
		ዲስኢንፌክታንት ኬሚካሎች			1	2	
		የእጅ ጓንቶች			1	2	
		ጎዝ			1	2	
		ድንገተኛ መድኃኒቶች(ዩተሮቶኒክ መድኃኒቶችን ጨምሮ)			1	2	
		ጨቅላ ሕጻናት ለመሸፈኛ የሚሆኑ ንፁህ ጨርቆች			1	2	
		ለጨቅላው ጭንቅላት መሸፈኛ የሚሆን ኮፊያ			1	2	

		ንፁህ/አዲስ ምላጭ ወይም ፎርሴፕሽን	1	2	
		የእትብት ማሰሪያ ክር	1	2	
		ሣሙና	1	2	
		ቴትራሳይክሊን የዓይን ቅባት	1	2	
		ክሎርሄግዚዲን የ እትብት ቅባት	1	2	
		በቂ ንፁህ የማዋለጃ ሴቶች(መቀሶች)	1	2	
		ንፁህ ፎርሴፕሽን ሴቶች	1	2	3
		ቫኪየም ኤክስትራክተር	1	2	3
		የጨቅላ አየር መስጫ(ሪሴሲቴሽን) ሴት(ባግና ማስክ)	1	2	
		የጨቅላ አፍና አፍንጫ ማፅጃ	1	2	
		ስቴቶስኮፕ	1	2	
		ታይመር(ሰዓት)	1	2	
		ቫይታሚን ኬ	1	2	3
		ሲሪንጅና መርፌ	1	2	
279	ከሚከተሉት የላብራቶሪ ምርመራዎች የትኞቹ እዚህ ጤና ተቋም ውስጥ አሉ?(ለማረጋገጥ የላብራቶሪ ክፍሉን ይጎብኙ)-Not applicable for Health Posts	1. አለ፣ ተገኝቷል	2. አለ ተብሏል፣ ግን አልተገኘም	3. የለም	

ሀ	ሄሞግሎቢን/HCT	1	2	3
ለ	የቂጥኝ ምርመራ(VDRL)	1	2	3
ሐ	የወባ ምርመራዎች(RDT/BF)	1	2	3
መ	የሽንት ምርመራ	1	2	3
ሠ	የደም ግሩፕ	1	2	3
ረ	የኤች አይ ቪ ምርመራ	1	2	3
280	ለተገልጋዮች መፀዳጃ ቤት አለ?	1.አዎ፣ ታይል	2.አዎ፣ ግን አልታይም	3. የለም
281	መፀዳጃ ቤቱ ንፁህ ነው?	1.አዎ፣ ታይል	2.አዎ፣ ግን አልታይም	3. የለም
282	እጅ መታጠቢያ ለህመማት/ተገልጋይ አለ?	1.አዎ፣ ታይል	2.አዎ፣ ግን አልታይም	3. የለም
283	ለእናቶቹ አገልግሎት የሚሰጥ ገላ መታጠቢያ አለ?	1.አዎ፣ ታይል	2.አዎ፣ ግን አልታይም	3. የለም
284	በእናቶች ጤና ክፍሎች(ቅድመ ወሊድ፣ወሊድና ድኅረ ወሊድ)የእንጫክሽን መከላከል ሥርዓት አተገባበርን ተመልከት/ቺ፡፡(1=አዎን፣ 2=የለም)	ግቢው ንፁህ ነው?	1	2
		ክፍሉ ከያንዳንዱ ወሊድ አገልግሎት በኋላ ይፀዳል?		
		በሁሉም የእጅ መታጠቢያዎች ሣሙና ተቀምጧል?	1	2
		የፅዳት ሠራተኞች ራሳቸውን የሚከላከሉባቸው ልብሶች አሏቸው?	1	2
		የንፅህና ፈሳሾችና ኬሚካሎች አሉ?	1	2
		የንፅህና ፈሳሾች በተገቢው ስታንዳርድ መሰረት	1	2

		ተዘጋጅተው ይጠቀማሉ?		
		የዕቃዎች ማዘጋጃ ቦታ ተዘጋጅቷል?	1	2
		ለሹል ነገሮች የሚሆን የማይበሳ መያዣ አለ?	1	2
		አገልግሎት የሚሰጡ ባለሙያዎች እጃቸውን ይታጠባሉ?	1	2
		ዕቃዎችን በተገቢ ሁኔታ የሚቀቅሉበት ስቲም ስቴሪላይዘር አለ?	1	2
		የእንጫክሽን መከላከል መመሪያዎችና መርጃ መሳሪያዎች አሉ?	1	2
		የቆሻሻ አወጋገድ ሥርዓት አለ?(የማያንጠባጥብ ማጠራቀሚያ፣ ቆሻሻ ልዩታ፣ ኢንሲኔረተር፣ የእንግዴ ልጅ ጉድጓድ)	1	2
		ባለሙያዎች ዘወትር ራስ መከላከያዎችን ይጠቀማሉ?	1	2
285	ይህ የእናቶች ክፍል በበላይ አካል(ጤና ጥበቃ፣ክልል፣ዞን፣ወረዳ ወይም ሌላ አጋር ድርጅት) ድጋፋዊ ክትትል ለመጨረሻ ጊዜ የተደረገለት መቼ ነበር?	በዚህ ወር		
		በለፉት 3 ወራት ውስጥ		
		ከ 3 ወራት በፊት		
		አላውቅም		
286	ባለፉት 12 ወራት ውስጥ ስንት ጊዜ በኤክስፐርት የሥራ ላይ ድጋፍ(ሜንተርንግ)	_____		

	ተደርጎላችኋል?		
287	የአጠቃላይ ድንገተኛ የወሊድና ጨቅላ ክብካቤ(CEmONC) ብሔራዊ መመሪያ አላችሁ? ይህ ጥያቄ ለሆስፒታሎች ብቻ ይጠየቅ፤ አለ ከተባለ መመሪያውን እንዲያሳዩ ጠይቅ/ቂ።	አለ፤ ታይቷል	1
		አለ ተብሏል፤ ግን አልተገኘም	2
		የለም	3
288	የመሠረታዊ ድንገተኛ የወሊድና ጨቅላ ክብካቤ(BEmONC) ብሔራዊ መመሪያ አላችሁ? አለ ከተባለ መመሪያውን እንዲያሳዩ ጠይቅ/ቂ።	አለ፤ ታይቷል	1
		አለ ተብሏል፤ ግን አልተገኘም	2
		የለም	3
		አይመለከትም	4
289	ያለጊዜ የመጣን ምጥ(preterm labor) ለማዋለድ የሚያግዝ መመሪያ(ፕሮቶኮል) አላችሁ? አለ ከተባለ መመሪያውን እንዲያሳዩ ጠይቅ/ቂ።	አለ፤ ታይቷል	1
		አለ ተብሏል፤ ግን አልተገኘም	2
		የለም	3
		አይመለከትም	4
290	የወሊድ አገልግሎት ያገኙ እናቶች መረጃ መመዝገቢያ መዝገብ አላችሁ?	አለ፤ ታይቷል	1
		አለ ተብሏል፤ ግን አልተገኘም	2

	አለ ከተባለ መዝገቡን እንዲያሳዩ ጠይቅ/ቂ።	የለም	3
291	በመጨረሻ የተመዘገቡ 10 ወላጆችን መረጃ በማየት የወሊዱ ውጤት(birth outcome) እና የጨቅላው ክብደት ተመዝግበው እንደሆነ ተመልከት/ቺ።	ለአሥሩም እናቶች የወሊድ ውጤት(birth outcome) እና የጨቅላው ክብደት ተመዝግቧል	1
		ከታዩት አሥር እናቶች መካከል አንድ/ ከዚያ በላይ የወሊዱ ውጤት(birth outcome) እና/ወይም የጨቅላው ክብደት አልተመዘገበላቸውም	2
292	በጤና ተቋሙ በቅርቡ የወሊድ አገልግሎት የተሰጠበትን ቀን፣ ወርና ዓ.ም ይጻፉ። አላውቅም ከሆነ 98 ይጻፉ	____/____/____/ ቀን ወር ዓ.ም _____	
293	የወለዱ እናቶችና ጨቅላዎች ለድኅረ ወሊድ ክትትል ከመውጣታቸው በፊት በተቋሙ ስንት ሰዓት ያህል ይቆያሉ?	ከ6 ሰዓት ያነሰ	1
		ከ6 – 12 ሰዓት	2
		ከ 13-24 ሰዓት	3
		ከ25 – 72 ሰዓት	4
		አላውቅም	5

294	የአልግሎት መረጃን በመጠቀም የጨቅላ ሕጻናት የድኅረ ወሊድ አገልግሎትን አፈፃፀም የመገምገም ሁኔታ አለ? አዎን ከሆነ፣ ሪፖርት፣ የግድግዳ ቻርት/ግራፍ፣ ካለ እይ/ዪ፡፡ የታዩትን ሁሉ አክብብ/ቢ፡፡	የጽሑፍ ሪፖርት/ቃለ ጉባዔ	1
		የግድግዳ ቻርት/ግራፍ	2
		ሌላ	3
		ምንም የተገኘ መረጃ የለም	4
295	በቅርቡ መረጃው የተገመገመበት ጊዜ መቼ ነበር?	ባለፉት 3 ወራት ውስጥ	
		ከ3 ወራትበፊት	
		አላውቅም	
ክፍል ሁለት፡ የጨቅላ ጤና አገልግሎቶችና የታመሙ ጨቅላዎች ሕክምና			
296	የተጠያቂው የሥራ ኃላፊነት	ከ5 ዓመት በታች ሕጻናት ሕክምና ክፍል ኃላፊ	1
		ከ5 ዓመት በታች ሕጻናት ሕክምና ክፍል ባለሙያ	2
		የእናቶችና ሕጻናት ክፍል ባለሙያ	3
		የጤና ተቋሙ ኃላፊ/ ምክትል ኃላፊ	4
		የእናቶችና ሕጻናት ክፍል ኃላፊ	5
		የጤና ኬላው ሠራተኛ	6
		ሌላ(ይገለጽ)_____	6
297	የተጠያቂው የሙያ ዓይነት	ነርስ	1

		ሚድ ዋይፍ	2
		ጤና መኮንን	3
		ሃኪም(ዶክተር)	4
		የጤና ኤክስቴንሽን ሠራተኛ	5
		ሌላ(ይገለጽ)_____	6
298	የተጠያቂው ፆታ	ወንድ	1
		ሴት	2
299	የተጠያቂው ዕድሜ(በዓመት)	_____	
300	እዚህ ጤና ተቋም ሥራ የጀመርከው መቼ ነው?(ወርና ዓ.ም)	_____/_____	
301	በተቀናጀ የጨቅላዎችና ሕጻናት ህክምና (IMNCI)/CBNC-Community Newbon Care ሥልጠና ወስደህ/ሽ ታውቃለህ/ቂያለሽ?	አዎን	1
		የለም	2
302	አዎን ከሆነ መቼ ነበር የሰለጠንክ/ሽው?	ባለፉት 12 ወራት ውስጥ	1
		ከ12 ወራት በፊት	2
		አላስታውሰውም	3
303	በጨቅላ ሕጻናት ላይ የእንፌክሽን(ሴፕሲስ) ምልክቶች ምን ምንድናቸው? ሁሉንም መልሶች አክብብ/ቢ) ሌላስ እያልክ	የእንቅስቃሴ መቀነስ(ሲነኩት ብቻ መንቀሳቀስ/ሲነኩትም ያለመንቀሳቀስ)	1
		ደካማ የጡት አጠባብ/ያለመጥባት	2
		የሰውነት መቀዝቀዝ/መቀት	3

	ጠይቅ/ቂ::	ከባድ የደረት መሰርጎድ	4
		ፈጣን አተነፋፈስ	5
		የእንብርት መቅላት ወይም መምገል	6
		መግል የቋጠሩ የቆዳ ሽፍታዎች	7
		መንዘፍዘፍ	8
304	ዐንድ ጨቅላ የኢፌክሽን ምልክቶች ሲኖሩት በቅድሚያ ምን ታደርጋ/ጊያለሽ? ሁሉንም መልሶች አክብብ/ቢ) ሌላስ እያልክ ጠይቅ/ቂ::	ሁኔታውን ለእናቱ ማስረዳት	1
		ጡት ማጥባትን በመቀጠል/የታለበ የጡት ወተት በማጠጣት ካስፈለገም በNG tube በመስጠት የደም ስኳር ማነስን መከላከል	2
		የመጀመሪያውን ዶዝ ፀረ ባክቴሪያ መስጠትና ሪፈር ማድረግ	3
		ፀረ ባክቴሪያ መስጠት መጀመርና በጤና ተቋሙ ማስተኛት	4
		ፀረ ባክቴሪያ መስጠት መጀመርና	5

		ለህክምናው ክትትል ወደ ጤና ኬላ መላክ	
		በጤና ኬላው ፀረ ባክቴሪያ መስጠት መጀመርና ለህክምናውን መቀጠል	6
		ገላ ለገላ አስጠግቶ በማቀፍ የሰውነቱን መቀት መጠበቅ	7
		ወደ ከፍተኛ ደረጃ(ሆስፒታል) ሪፈር ማድረግ	8
305	የጨቅላው ክብደት ከ2.5 ኪ.ግ በታች ቢሆን ምን የተለየ ክብካቤ ትሰጠ/ጨዋለህ/ሽ? ሁሉንም መልሶች አክብብ/ቢ)ሌላስ እያልክ ጠይቅ/ቂ::	የጨቅላው መቀት የተጠበቀ መሆኑን ማረጋገጥ	1
		እናትየው ጡት እንዲታጠባ ተጨማሪ ድጋፍ ማድረግ	2
		ክብደቱ ከ2 ኪ.ግ በታች ከሆነ የካንጋሮ እናት አስተቃቀፍ ማድረግ	3
		የጡት አጠባብ ሁኔታውን መከታተል	4
		በመጀመሪያዎቹ 24 ሰዓታት ቶሎ ቶሎ በማየት ለጨቅላው ክትትል ማድረግ	5
		ከኢንፌክሽን የተጠበቀ መሆኑን ማረጋገጥ	6

306	የጨቅላ ሲወለድ መታፈን(Birth Asphyxia) እንዴት ነው የምትለየ/ዩው? ሁሉንም መልሶች አክብብ/ቢ ሌላስ እያልክ ጠይቅ/ቂ።	ምንም ያለመተንፈስ	1
		እያጣጣረ መተንፈስ	2
		ደካማ አተነፋፈስ/ከ30 ትንፋሽ በደቂቃ በታች መሆን	3
		የልብ ምት ከ100 በደቂቃ በታች መሆን	4
		Cetral cyanosis(ማዕከላዊ የአክሲጂን እጥረት/የከንፈርና ምላስ ሰማያዊ መሆን)	5
307	የጨቅላ ሕጻን አየር አሰጣጥ/ሪሴሲቴሽን ቅደም ተከተላዊ ደረጃዎች እስኪ ንገረ/ሪኝ? ሁሉንም መልሶች አክብብ/ቢ ሌላስ እያልክ ጠይቅ/ቂ።	ለእርዳታ ጥሪ ማድረግ	1
		የጨቅላውን ሁኔታ ለእናትየው ማስረዳት	2
		ጨቅላውን በጀርባው አንጋልሎ ማስተኛት	3
		ጨቅላውን ከፊቱና ደረቱ በስተቀር በደንብ መጠቅላል/ማልበስ	4
		ጨቅላውን አንገቱን በትንሹ ዘንበል በማድረግ አስተካክሎ ማስተኛት	5
		የአየር ቧንቧውን ለማጽዳት አፍና	6

		አፍንጫውን በመምጠጫ(suction device) ማጽዳት	
		ባግና ማስክ በመጠቀም አየር መስጠት	7
		አተነፋፈሉን ማየትና ከትትል ማድረግ	8
308	በባግና ማስክ በመጠቀም አየር መስጠት/ሪሴሲቴት እንዴት ታደርጋ/ጊለህ/ሽ?ንገረ/ሪኝ? ሁሉንም መልሶች አክብብ/ቢ ሌላስ እያልክ ጠይቅ/ቂ።	ማስኩ የጨቅላውን አገጭ፣አፍና አፍንጫ በደንብ እንዲሸፍን አድርጎ ማስቀመጥ	1
		ማስኩ አፍና አፍንጫውን በደንብ እንዲይዝ ጨቅላውን ከአንገቱ ዘንበል ማድረግና ማስኩን በቅድሚያ አገጩ ላይ ከዚያም አፉንና አፍንጫውን መሸፈን	2
		2 ወይም 3 ጊዜ አየር ከሰጡ በኋላ ደረቱ ከፍና ዝቅ ይል እንደሆነ ማየት	3
		በባግላ ማስክ በደቂቃ 40 ጊዜ አየር መስጠት	4
		አየር በሚሰጡበት ጊዜ የደረቱን እንቅስቃሴ ማስተዋል	5
		አየር መስጠትን ቆም ማድረግና ጨቅላው በራሱ ጊዜ መተንፈስ መጀመሩን ማየት	6
309	ጨቅላው መተንፈስ ከጀመረና ሌላ የአነፋፈሉ ችግር ከሌለበት ቀጥለህ/ሽ ምንድነው	የጨቅላው መቀት እንዲጠበቅ ማድረግ	1
		ጡት መጥባት እንዲጀምር ማድረግ	2

	የምታደርገው?ንገረ/ሪኝ? ሁሉንም መልሶች አክብብ/ቢ ሌላስ እያልክ ጠይቅ/ቂ።	ጨቅላውን መከታተል መቀጠል	3
310	ጨቅላው መተንፈስ ካልጀመረ ወይም ትንፋሹ በደቂቃ ከ30 ጊዜ በታች ከሆነ ወይም የጎድን አጥንቶቹ መካከል መሰርጎድ ወይም ማቃሰት ካለ ምን ታደርጋለህ/ጊያለሽ? ሁሉንም መልሶች አክብብ/ቢ ሌላስ እያልክ ጠይቅ/ቂ።	አየር መስጠት መቀጠል	1
		አክሲጂን ካለ መስጠት	2
		የተለየ ክብካቤ እንደሚያስፈልገው ማጣራት	3
		ስለሁኔታው ለእናትየው ማስረዳት	4
		በአድሬናል ሪሴሲቴሽን(adrenal resuscitation) መመሪያ መሠረት ኢቲቤቤት(intubate) ማድረግ	5
311	የጨቅላ ሕጻን ጤነኛ ያለመሆን/ሕመም ምልክቶችን ንገረ/ሪኝ። ሁሉንም መልሶች አክብብ/ቢ ሌላስ እያልክ ጠይቅ/ቂ።	ክብደቱ ከ1500 ግራም በታች መሆን	1
		ፈጣን አተነፋፈስ ወይም የደረት መሰርጎድ መኖር	2
		የሰውነቱ ሙቀት ከ35.5 ዲግሪ በታች ወይም 37.5 ዲግሪ እና ከዚያ በላይ መሆን	3
		አለመጥባት/አለመመገብ	4
		አለመስቀሳቀስ	5
		መንዘፍዘፍ	6

		አላውቅም	8
312	የትንንሽ ጨቅላ ሕጻናትን የሰውነት ሙቀት ለመጠበቅ ምን ምን ታደርጋለህ/ጊያለሽ?	ገላ ለገላ አስጠግቶ ማቀፍን መቀጠል	1
		ኢንኩቤተር በመጠቀም	2
		ራዲዩንት ምርመር	3
		አላውቅም	4
313	ጤና ተቋማችሁ ሲወለዱ ዝቅተኛ ክብደት ላላቸው/ ከቀናቸው በፊት ለተወለዱ ጨቅላዎች የካንጋሮ እናት አስተቃቀፍን ይተገብራል	አዎን	1
		የለም	2→ወደ ጥያቄ ቁጥር 315 ይሂዱ
314	ለካንጋሮ እናት አስተቃቀፍ የተለየ ክፍል አለ ወይስ ከሌሎች አገልግሎቶች(ለምሳሌ፡- ድኅረ ወሊድ) ጋር ተቀናጅቶ ይሰጣል?	አዎን፣ የተለየ ክፍል	1
		አዎን፣ ከሌላ ጋር ተቀናጅቶ	2
315	የታመሙ ጨቅላ ሕጻናትን ሪፈር ስለማድረግ መመሪያ/ፕሮቶኮል አላችሁ? ካለ መመሪያውን እይ፤ (በሌላ መመሪያ ውስጥ ካለም ተቀባይነት ይኖረዋል፡፡)	አለ፤ መመሪያው ታይቷል	1
		አለ ተብሏል፤ ግን መመሪያው አልተገኘም	2
		መመሪያው የለም	3
316	ባለፉት 3 ወራት ስንት የታመሙ ጨቅላዎች		

	ከጤና ኬላ ወይም ከሌላ ጤና ጣቢያ ተቀብላችኋል?		
317	የጨቅላ ሕጻናት ህክምና(IMNCI) ወይም (CBNC) መመሪያ አላችሁ? ካለ መመሪያውን እይ::	አለ፤ መመሪያው ታይቷል	1
		አለ ተብሏል፤ ግን መመሪያው አልተገኘም	2
		መመሪያው የለም	3
	ክሊኒካል ሴናሪዮ(Clinical Senario)		
	ቀጥሎ አንድ ክሊኒካል ኬዝ ሰቴዲ(Clinical Study) አካባቢ/ሽ እና እንዴት አድርገህ/ሽ ክብካቤ እንደምታደርግ/ረ ትነግረኛለህ/ሪኛለሽ፤ ይህ ጥያቄ በምንም ዓይነት ሁኔታ ያንተን/ቺን የክህሎት ደረጃ ለመገምገም ወይም ለመፈተን ሳይሆን በጤና ተቋሙ ምን ምን አገልግሎቶች እንደሚሰጡ ለማወቅ ያህል ብቻ ነው::		
	ኬዝ ለ(VCase B)		
318	አንዲት የ17 ዓመት እርጉዝ ሴት በ8 ወሯ በቤት ውስጥ ወልዳለች:: የቀበሌዋ ጤና ኤክስቴንሽን ሠራተኛ የቤት ለቤት ጉብኝት በምታደርግበት ወቅት አግኝታ ሕጻኑን ስትመዝን 1.4 ኪ.ግ ሆኖ አገኘች:: ለዚሁም ወደናንተ ጤና ተቋም ሪፈር አደረገችው:: ይህንን ጨቅላ በናንተ ተቋም እንዴት ታከሙታላችሁ?		
ሀ	አጠቃላይ ምርመራ ማድረግ	ተጠቅሷል	1
		አልተጠቀሰም	2
ለ	ጡት እየጠባ መሆኑን ማረጋገጥና ድጋፍ ካስፈለገውም ማድረግ	ተጠቅሷል	1
		አልተጠቀሰም	2
ሐ	ሕጻኑን በኢንኩቤተር ውስጥ ወይም ገላ ለገላ በማገናኘት ማቆየት	ተጠቅሷል	1
		አልተጠቀሰም	2
መ	እናትየው የጨቅላውን ገላ ከገላዋ አገናኝታ	ተጠቅሷል	1

	እንድታቆፈው ማስተማር	አልተጠቀሰም	2
ሠ	የእትብት አያያዝና ሌሎች እንፌክሽንን ሊያስከትሉ የሚችሉ አለመኖራቸውን ማረጋገጥ	ተጠቅሷል	1
		አልተጠቀሰም	2
ረ	የጨቅላው ንጽህና እንዲጠበቅ ማድረግ	ተጠቅሷል	1
		አልተጠቀሰም	2
ሰ	ወደ ሌላ ጤና ተቋም ሪፈር ማድረግ	ተጠቅሷል	1
		አልተጠቀሰም	2
319	በኋላም እናትየው ጨቅላው ጡት እንደማይጠባና የስኳር ውኃ ለመስጠት እያሰበች እንደሆነ ገለፀች። ምን ታደርጋለህ/ጊያለሽ?		
ሀ	ጨቅላውን ጡትዋን ስታጠባ ማየትና አስተቃቀፍና ጡት አጎራረስን ለእናትየው ማስተማር	ተጠቅሷል	1
		አልተጠቀሰም	2
ለ	የጨቅላውን አፍ ውስጥ የአፈጣጠር ችግር እንዳለበት ማየት	ተጠቅሷል	1
		አልተጠቀሰም	2
ሐ	ጨቅላው የማይጠባ ከሆነ የጡትዋን ወተት አልባ በንጹህ ስኒ/ኩባያ እንድትሰጥ ማስተማር	ተጠቅሷል	1
		አልተጠቀሰም	2
መ	ጡት ብቻ ማጥባት የማይቻል ከሆነ የተዘጋጀ የህጻናት ወተት (መግዛት የሚችሉ ሲሆን ብቻ) እንዲጠቀሙ ማበረታታት	ተጠቅሷል	1
		አልተጠቀሰም	2
ሠ	ጨቅላው 6 ወር እስኪሞላው ድረስ የጡትዋን ወተት ብቻ እንድታጠባ ማስተማር/መምከር	ተጠቅሷል	1
		አልተጠቀሰም	2

320	የጨቅላ ሕጻናት ሪፈራል መመሪያ/ፕሮቶኮል አላችሁ?(በማየት ይመዝግቡ)	አዎን	1	
		የለም	2	
321	ጤና ተቋሙ ስታንዳርድ የሪፈራል ስሊፕ (referral slip) አለው? (በማየት ይመዝግቡ)	አዎን	1	
		የለም	2	
322	ጤና ተቋሙ ሪፈር የሚያደርጋቸው ህመምተኞች ግብረ መልስ ከተቀባይ ተቋሙ የሚላክበት ሥርዓት አለ?	አዎን	1	
		የለም	2	
323	ከሆነ ምን ዓይነት ሥርዓት ነው ያለው?(የሚመለከታቸውን በሙሉ ያክብቡ)	በቃል ይሰጣል	1	
		የሪፈራል ፎረም ጉራጅ ተሞልቶ ይላካል	2	
		የተለየ ግብረ መልስ ፎረም ይላካል	3	
		ነጭ ወረቀት ላይ ተጽፎ ይላካል	4	
		በስልክ ይሰጣል	5	
		ሌላ(ይገለጽ)	88	
324	በሚከተሉት ርዕሶች ላይ የሥራ ላይ/ከሥራ ውጭ ሥልጠና ወስደህ/ሽ ታውቃህ/ቂያለሽ? (ርዕሶቹን አንብብ/ቢ) አዎን ከሆነ በ12 ወራት ውስጥ ነው ወይስ ከ12 ወራት በፊት?	አዎን፣ በ12 ወራት ውስጥ	አዎን፣ ከ12 ወራት በፊት	ሥልጠና አልወሰድኩም
ሀ	ስለ ጨቅላ ሪፍሊቴሽን	1	2	3

ለ	ስለ ጡት ማጥባት	1	2	3	
ሐ	ስለ ጨቅላ እንፌክሽን ህክምና(በመርፌ የሚሰጡ ፀረ ባክቴሪያዎችን ጨምሮ)	1	2	3	
መ	ስለ ሙቀት አጠባበቅ(ወዲያው ማድረቅና ገላ ለገላ ማገናኘትን ጨምሮ)	1	2	3	
ሠ	እትብትን በንጽህና ስለመቁረጥና አያያዝ	1	2	3	
ረ	ዝቅተኛ ክብደት ላላቸቀወ ጨቅላዎች የካንጋሮ እናት አስተቃቀፍ ክብካቤ አሰጣጥ	1	2	3	
ሰ	የተቀናጀ የጨቅላዎችና የሕጻናት ህክምና(IMNCI)	1	2	3	
ሸ	ማኅበረሰብ አቀፍ የጨቅላ ሕጻናት ክብካቤ(CBNC)	1	2	3	
ቀ	የጨቅላ ክብካቤ ኮርነር(NBC) ማጅጅሜንት	1	2	3	
በ	የጨቅላ ሕጻናት ጥብቅ ክብካቤ ዩኒት(NICU)	1	2	3	
ተ	የኤች አይ ቪ ከእናት ወደ ፅንሰ ለመከላከል የሚደረጉ የወሊድ ክብካቤ ተግባራት	1	2	3	
325	አሁን ከድጋፋዊ ክትትል ጋር የተያያዙ ጥያቄዎችን እጠይቃለሁ፡፡ ድጋፋዊ ክትትሉ ከዚሁ ጤና ተቋም ወይም ከሌላ ሊሆን ይችላል፡፡ ቴክኒካዊ ድጋፍ ወይም ሱፐርቪዥን	አዎን፣ ባለፉት 3 ወራት ውስጥ			1
		አዎን፣ ባለፉት ከ4-6 ወራት ውስጥ			2
		አዎን ፣ ባለፉት 7-12 ወራት ውስጥ			3
		አዎን፣ ከ12 ወራት በፊት			4

	አግኝተህ ታውቃለህ/ቂያለሽ? አዎን ከሆነ በቅርቡ የተጎበኘሽው መቼ ነበር?	የለም	5
326	የተደረገው ሱፐርሺዥን ለጨቅላ ክብካቤ ስትሰጥ መመልከትን ያካተተ ነበር?	አዎን	1
		የለም	2
327	የሚከተሉት አገልግሎቶች በተቋማችሁ ይሰጡ እንደሆነና ከሆነም በወሩ ውስጥ ለስንት ቀናት እንደሚሰጡ ትነግረኛለህ/ሪፖርት::		
	ለጨቅላ ሕጻናት ጤንነት የማማከር ወይም የፈውስ ሕክምና አገልግሎት ምንም የማይሰጥ ከሆነ '00' በሁሉም የሥራ ቀናት ከሆነ '20' ቅዳሜና እሁድን ጨምሮ በሁሉም የሳምንቱ ቀናት ከሆነ '30' ከሳምንቱ ቀናት ውስጥ ባንዱ ከሆነ '4' ይጻፉ		
328	የታመመ ጨቅላ ሕጻናት ሕክምና መዝገብ አላችሁ?	አለ፣ ታይቷል	1
		አለ ተብሏል፣ አልታየም	2
		የለም	3
329	መዝገቡ ባለፉት 3 ወራት ለተመዘገቡት ጨቅላዎች ዕድሜውን ፣ የህመሙን ዓይነት፣ የጠሰጠውን ህክምና በተሟላ መልኩ ይዟል?(የሚመለከቱትን በሙሉ አክብብ) ለምሳሌ ዕድሜን የተሟላ ነው ለማለት ሁሉም የተመዘገቡ ጨቅላዎች ዕድሜያቸው የተመዘገበ እንደሆነ ነው፤ ለሌሎችም እንዲሁ፡፡	የዕድሜ መረጃ የተሟላ ነው	1
		የህመሙ ዓይነት መረጃ የተሟላ ነው	2
		የህክምና መረጃ የተሟላ ነው	3
		ከላይ የተጠቀሱት አንዳቸውም የተሟሉ አይደሉም	4

330	በመጨረሻው የተመዘገበው ህመምተኛ የተመዘገበው መቼ ነበር?	ባለፉት 7ቀናት ውስጥ	1
		ከ7-15 ቀናት ውስጥ	2
		ከ16 ቀናት - 1ወር ውስጥ	3
		ከ1 ወር - 2 ወራት ውስጥ	4
		ከ2-3 ወራት ውስጥ	5
		ከ3 ወራት በላይ	6
331	ከሚከተሉት የጨቅላ ሕጻናት ስያሜዎች/በሽታዎች መካከል ለወረዳ ጽ/ቤት ወይም ዞን ጤና መምሪያ ሪፖርት የምታደርጉት የትኞቹን ነው?(ከወርሃዊ ሪፖርቱ በማገገጥ ሁሉንም የሚመለከታቸውን አክብብ)	ከቀኑ በፊት የተወለዱ እና/ወይም ዝቅተኛ ክብደት	1
		በጣም ከቀኑ በፊት የተወለዱ እና/ወይም በጣም ዝቅተኛ ክብደት	2
		የአተነፋፈሉ ችግር	3
		ከባድ ጆንዲስ	4
		ጆንዲስ	5
		ዲሃይድሬሽን የለሌው ተቅማጥ	6
		ከባድና የቆየ ተቅማጥ	7
		የደም ተቅማጥ	8
		የተወሰነ የባክቴሪያ ኢንፌክሽን	9
		በጣም ከባድ በሽታ/የጭቅላ ሴፕሲስ/የሳንባ ምች	10

ለትብብርዎ በጣም አመሰግናለሁ!

Annexure H.3: Focus group discussions guide - English

Thesis title: The Effectiveness of Neonatal Health Care Services in the Primary Health Care Units in North-West of Ethiopia

Focus group discussions guide for frontline health workers

Serial number of FGD (write FG1, FG2, etc): _____

1. Name of health facility: _____
2. Name of moderator: _____
3. Name of note taker: _____
4. Date of discussion: _____
5. Start time: _____
6. Adjourned: _____
7. Health Worker profile

S.No	Category of health worker	Age	Sex	Total service years	Service years in this particular health facility	Unit/section in the health facility	Responsibility in the health facility
P1							
P2							
P3							
P4							
P5							
P6							
P7							
P8							

Note for the research assistant:

- Two- five minute introduction of the topic
- Ground rules (respect of each other's opinion, active participation , keeping the discussion short and to the point), and set including the duration of the discussion
- Aware that the interaction will be recorded and the researcher and research assistant will do some note taking.
- Give the consent form to participate and sign- Their participation is voluntary and they have the right to withdraw at any stage when they felt uncomfortable.

Neonatal Health Service Provision

8. What **kind of neonatal health interventions provided** in the primary health care units (Health post, health centre and hospital)?
 - What kind of interventions for newborn are provided along the continuum of care (before pregnancy, pregnancy, during labor and delivery, and after delivery, for the newborn/young newborns 1-2 months)?
 - What about in your health facility?
9. How **does a neonatal health service** provided in this catchment population as per your view?
 - What is the experience of health post, health centre and hospital in neonatal health service provision?
 - Where the parents/caretakers prefer to go when the neonate is sick?
10. What types of neonatal health care services are provided **sufficiently** in the primary health care units (Health post, health centre and hospital)?
 - Tell me what is the story/experience in your health facility?
11. Do you think the provision of neonatal health services in your health facility is **enough**?
 - If not, explain what types of services are provided sub-optimally or below sub-optimal or non-existent?
12. What are the **opportunities** for provision of neonatal health care services in your health facility?
13. How do you conduct early postnatal visit at household level for mothers and newborns?
 - Tell us your schedule of the PNC visit?
 - In average, what are the earliest days for visiting households for early PNC visit?
 - Are you using job-aids while you are doing the PNC visit?
 - How do you know whether the pregnant women gave birth or not?
 - What kind of tools you have been using for birth notification?
 - What do you think **postnatal visit within 48 hours is very low** when it compares with ANC coverage and professional assisted delivery?
14. Early discharge of mothers and newborns after delivery

- 93.7% of HFs discharging mothers and newborns within 12 hours
- What is the challenge for maintaining mothers and newborns in the health facility up to 24 hours/

15. CHX application

- CHX is available only in 22.4% of HFs and application is practicing only in 35% HFs
- What is the practice of Yimesrach application at your health facility?
- What is the challenge for applying Yimeseach application for all delivered babies?

Quality of neonatal health service

16. What do you **feel** about the **service quality** in general to the neonatal health service provision in your health facility?
17. In your opinion, how do you **evaluate the performance of health care** providers on neonatal health care services?
 - Is adequate essential supplies, medicine and job-aids available?
 - Is the health system supportive to provide neonatal health services?
18. What kind of **referral linkage** existing within the primary health care unit (hospital, health centre and health posts)?
 - Is two-ways referral?
 - Is it working, how?
 - Only 37% HFs facilitate ambulance services for sick newborns referral
 - How sick newborn referral managed?
 - Do you have guideline/protocols for sick newborn referral?
 - Are you always issuing referral slip for sick newborn?
 - Is there a system for receiving feedbacks from the referral receiving HF about the referred cases (only 19% HFs received feedbacks)
 - If there is practice, which system they are using?
19. Management of **preterm labor**, the survey data shows that only 6% of Hosps and HCs providing dexamethasone for pre-term labor
 - Is dexamethasone available (only 42% HCs and Hosp have)
 - Is guideline available for the management of pre-term labour (survey data shows only 10% of HCs and Hosp poses the guideline)
 - Is the guideline allow

- It training provided

20. Care of Small/pre-term babies

- How you are caring for very low birth weight
- Practicing of KMC at HP only 20% and 78% in HCs
- Keeping small babies in the incubator (22.4%)

21. Resuscitation for birth Asphyxia

- Only 50% HFs have knowledge for resuscitation
- Diagnosis for signs of birth asphyxia varies from 53% to 77%
- Actions (steps) for resuscitation – varies from 29% , 45%, 81%?
- What is the experience of birth asphyxia management?
- What is the challenge/barrier for resuscitation of birth asphyxia

22. Management of possible serious bacterial infections for sick young infants

- The practice and experience on the management of possible serious bacterial infections for sick young infants
- What are the factors affecting in the provision of quality of PSBI services
- What are the challenges for practicing PSBI management in your HF?
- What is working
- What is not working
- What needs improvement?

Service utilization of sick newborns

23. **Why most of sick newborns are not seeking care** in the health facility while sick? Where prefer to go?

What prevent them to seek care?

24. In your opinion, where do you think the **appropriate** health facility for the treatment of sick neonate?

Factors affecting the effectiveness of neonatal health care services in the PHCU

25. Tell us about **factors affecting the neonatal health care services** at health post, health centre and hospital level?

- Factors affecting over all the neonatal health care **service provision**
- Factors affecting the **quality** of neonatal health care services
- Factors affecting the service **utilization** of sick newborns

26. What are the **challenges** for provision of neonatal health care services in your health facility?



Key strategies established at PHCU level to provide effective neonatal health service

27. In your opinion, **what key strategies are established** in the health facility (hospital, health centres and health posts) to provide effective neonatal health service provision?

- What is the best working experience in this PHCU

28. What **comments** do you have to improve the neonatal health care service provision at health post, health centre and primary hospital level?

Thank you very much for your time and participation!

Annexure H.4: Document review checklist for neonatal health care services in the primary health care facilities - English

Instructions: <i>Identify sick neonates that are managed in the last one year from the health facility documents (registers or records), and review the neonatal service delivery</i>			
Q #	Part I: Background and health facility identification		
108.	District/Woreda		
109.	Facility name		
110.	Facility type	Hospital	1
		Urban health centre	2
		Rural health centre	3
		Health post	4
111.	Facility code		
112.	Date of review (DD, MM, YY)	[][]/[][]/[][]	
113.	Age of the neonate AGE IN COMPLETED DAYS		
114.	Sex of the neonate	Male	1
		Female	2
115.	Address of the neonate	Rural	1
		Urban	2
Part 2: Sick neonate classification/diagnosis and treatment given by reviewing the treatment registers for each sick neonate			
201.	Please specify the classification/diagnosis given to the sick neonate? CIRCLE ALL THAT APPLY	Very severe diseases/Neonatal sepsis/Neonatal pneumonia	1
		Local Bacterial Infection (umbilicus or skin)	2
		Very Preterm and or Very low birth weight	3
		Preterm and or low birth weight	4
		Birth asphyxia	5
		Severe jaundice	6
		Jaundice	7
		Diarrhea with no dehydration	8
		Diarrhea with some dehydration	9
		Diarrhea with severe dehydration	10

		Severe persistent diarrhea	11
		Dysentery	12
		Feeding problem	13
		Under weight	14
		HIV infected	15
		HIV exposed	16
		Other specify_____	17
202.	What was the plan to treat this sick neonate?	Pre-referral treatment given and referred	1
		Referred without given referral treatment	2
		Admitted in the health facility for inpatient care	3
		Treated at out-patient level	4
		Other specify_____	5
203.	What was the treatment given for this sick neonate? CIRCLE ALL THAT APPLY	Ampicillin and Gentamycin injections for 7 days	1
		Ampicillin and Gentamycin injection for pre-referral	2
		Gentamycin injection once per day and Amoxicillin dispersible tablet/syrup oral for 7 days	3
		Amoxicillin dispersible tablet/syrup oral for 5 days	4
		Oxygen given	5
		IV infusions	6
		ORS	7
		Skin-to-skin contact/Kangaroo mother care	8
		Amoxicillin dispersible tablet/syrup oral and Gentamycin injection for pre-referral	9
		Amoxicillin dispersible tablet/syrup oral for pre-referral	10
		Gentamycin injection for pre-referral	11
		Zinc tablet	12
		Ceftriaxone injection	13
		Benzyal/crystalline penicillin and Gentamycin injection	14
		Other specify_____	13a

204.	Did the sick neonate complete the treatment?	Yes	1
		No	2
		Unknown	3
205.	If the neonate was referred where did referred?	Health centre	1
		Primary hospital	2
		Secondary hospital	3
		Specialized hospital	4
		Other specify_____	5

Part 3: Sick neonate treatment outcome by reviewing the treatment registers for each sick neonate

301.	What was the outcome of this sick neonate after treatment/care provided?	Improved	1
		Same	2→q302
		Worsen	3→q302
		Died	4
		Unknown	5
		Not applicable /for referred case	6
302.	What action was taken for the same or worsen case? CIRCLE ALL THAT APPLY	The treatment changed into second line antibiotics	1
		Oral treatment changed into injectable	3
		Referred to other health facility	4
		The same treatment was continued	5
		Additional follow-up given	6
		Other specify_____	7

Part 4: Quality of case management: agreement between case management tasks by reviewing the treatment registers for each sick neonate

401.	Assess & classify	Agree	1
		Not agree	2
402.	Classify and treatment (dose, duration and schedule)	Agree	1
		Not agree	2
403.	Classify and stated follow-up date	Agree	1
		Not agree	2