ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCES

SCHOOL OF PUBLIC HEALTH

Level and Reasons for Misclassification of Very Early Neonatal Death into Stillbirth in Public Hospitals of Addis Ababa, Ethiopia.

BY: Hanna Feleke Gebremicheal

A Thesis Submitted to The School of Public Health, Addis Ababa University for the Partial Fulfillment of Masters of Public Health in Reproductive and Family Health.

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APPROVED BY THE BOARD OF EXAMINERS

This thesis, by Hanna Feleke is accepted in its present form by the board of examiners as fulfilling for the degree of Masters of public health in reproductive and family health.

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Acronyms and abbreviations

ENND----------Early neonatal death

SB----------Stillbirth

ICD----------International Statistical Classification of Diseases and Related Health Problems

WHO----------World Health Organization

MPDSR----------Maternal and perinatal death surveillance and response

HMIS----------Health Management Information Systems

LMICs----------low- and middle-income countries

PNM----------Perinatal mortality

RMC----------Respectful maternity care

IUFD----------Intrauterine fetal death

TASH----------Tikur anbesal specialized hospital

ZMH----------Zewditu memorial hospital

TBH---------- Tirunesh Beijing hospital

GMH----------Gandi memorial hospital

Y12H---------- Yekatit 12 hospital

TTC----------Tetracycline

B.Sc. ----------Bachelor in science

SD----------Standard deviation

CI----------Confidence interval

ANC----------Antenatal care

TT----------Tetanus toxoid

AOR----------Adjusted odds ratio

COR----------Crude odds ratio

Abstract

Background- Report on stillbirth and early neonatal deaths are susceptible for misreporting, misclassification and omission. The distinction between the two events is that the presence of faint sign of life after delivery. The accuracy and reliability of intrapartum mortality data is very essential for preventing deaths. There is evidence gap in knowing the exact magnitude and reason behind misclassification of very early neonatal death.

Objective- To assess Level of and reasons for misclassification of very early neonatal death into stillbirth from March, 2018 to March, 2019 in public hospitals of Addis Ababa, Ethiopia.

Method- Cross sectional study with qualitative and quantitative method was conducted among stillbirths and health care providers. 410 still births datawere collected from selected hospitals registration. Verbal autopsy was conducted among mothers who had stillbirth through household visits. The collected data was reviewed by three coders. Disagreement on cause of death among two initials coders were resolved by third physician's independent assessment. In depth interview was conducted among health care providers. The magnitude of misclassification was defined as percentage of stillbirth reported in HMIS registration book that was later classified as early neonatal death in verbal autopsy data. Frequency distribution and cross tabulation was done to measure the level of misclassification. Bivariate and multivariate analysis was done to see the association between misclassification status and health care provider characteristic. Qualitative data was analyzed using thematic analysis.

Result: The level of misclassification of very early neonatal death into still birth was 8.54% (35/410). Denial of safe traditional practice was significantly associated with misclassification of very early neonatal deaths, [AOR =0.21; 95% CI =0.05-0.93]. We found that confusion in understanding of the exact definition of perinatal loss, fear of blame, work load and medico legal issues drive health care providers to misclassify very early neonatal death into stillbirth at health facility level.

Conclusion and recommendation: This study shows significant number of very early neonatal death are misclassified into stillbirth. It also describes driving factors for misclassification such as personal, health facility and system related factor. Standard cause of death classification training, creating culture of accountability and favorable working environment are essential to prevent misclassification of very early neonatal death which occur immediately after birth.

INTRODUCTION

1.1 Background

Stillbirth or fetal death is a death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy; the death is indicated by the fact that after such separation the fetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles.(1) Very early neonatal deaths are neonates which are born alive and died within 24hours of delivery. (2)

The cause of deaths for stillbirth and very early neonatal death are different. stillbirths are caused by different causes and risk factors such as maternal and neonatal complication during pregnancy and labour, poor quality of care during labour, inappropriate management of complications during labour, poor maternal nutritional status from childhood up to pregnancy.(1)On the other hand, cause of death for early neonates with in the first day of life globally are congenital abnormalities, preterm complications, intrapartum related (birth asphyxia), infection (sepsis, meningitis, pneumonia). In developing countries birth asphyxia is the leading cause of death followed by prematurity, infection and congenital anomalies.(3)

Ethiopia, like most sub Saharan African countries is suffering from high perinatal mortality. Though the country achieved reduction of child mortality, the reduction of neonatal mortality has remained the same since 2016 EDHS. According to Ethiopian demographic health survey report Ethiopia has perinatal mortality rate of 30 per 1000 life birth (4) and lancet serious reported Ethiopia as one of the leading countries of the world as far as perinatal mortality rate is concerned**. (5)**The most common cause of neonatal morbidity in Ethiopia is neonatal sepsis which accounts 47%. Low birth weight and prematurity are the second and third leading causes of morbidity which accounts 16% and 15% respectively. Birth asphyxia is the least leading cause of morbidity but it is the third leading cause of mortality next to neonatal sepsis and prematurity.(6)

Misclassification and under reporting of perinatal death is a common problem. (7)There is no standard definition for event misclassification of perinatal deaths. Some individuals define event

misclassification of perinatal deaths as incorrect classification of perinatal death as stillbirth or the vice versa. (8)

The day of birth is the day of greatest risk of death. The risk of dying during the first day of life is close to 10 per 1000 live births (1%).In fact, this is likely to be an underestimate of the true proportion of deaths in the first 24 hours because of lack of disclosure of very early neonatal deaths, and misclassification as stillbirths or neonatal deaths after the first day as the result of inconsistencies in recording the 24-hour period after birth.(9)

Report on stillbirth and early neonatal deaths are susceptible for misreporting, misclassification and omission. The distinction between the two events is that the presence of faint sign of life after delivery. (10, 11)The accuracy and reliability of intrapartum mortality data is very essential for preventing deaths. however accurately measuring pregnancy outcomes is so challenging.(12) WHO is working to help countries improve their data on perinatal death.

There are different programs and strategies launched to improve perinatal death data quality among these some of them are ; *"WHO Application of the International Classification of Disease-10 to deaths during the perinatal period"* (ICD-PM), Maternal and perinatal death surveillance and response (MPDSR) is a system which is used to track maternal and perinatal death which occurs in the community as well as in health facility and *Making Every Baby Count: Audit and Review of Stillbirths and Neonatal Deaths"*, is a guide to help countries review and investigate individual deaths so they can recommend and implement solutions to prevent similar ones in the future(5, 13)

To facilitate reduction of perinatal death attention should be given for still births and early neonatal deaths. Urgent focus is needed to increase the quality of data on pregnancy outcomes collected through alternative data sources to track and improve key interventions.(14)

1.2 Statement of the problem

Misclassification is indicated by misreporting and under reporting of perinatal death in any data sources of perinatal mortality. Facility data tend to overestimate the stillbirth rate due to misclassification of early neonatal death which occur immediately after birth as stillbirth.(8)

The exact magnitude or estimation of misclassification is not clearly known but it is estimated that worldwide 60% of countries lack adequate systems for counting births and deaths.(15)Only 5% neonatal deaths and births are reported. In countries with incomplete reporting or misreporting of vital statistics, underestimation may vary between 20% and 40 %. (1)Nearly all babies who are stillborn and half of all newborn deaths who die do not receive a birth or death certificate, and thus have never been registered, reported or investigated by the health system. As a result, countries often do not know the true numbers of deaths or the causes of these deaths and thus are unable to take the right actions to prevent others babies and mothers from dying. (15)

Progress in neonatal mortality (first 28 days) remains slow, and in Africa almost no change was recorded.(16) Neonatal deaths now account for 41% of deaths in children younger than 5 years.(17)

The likelihood that signs of life in a newborn may go unnoticed and thus lead misclassification, early neonatal mortality risks reported should be interpreted with caution. Misclassification in level of care have led to underestimation of the effects of level of care on facility delivery and early neonatal mortality.(18)

The commonest reasons for misclassification of neonatal deaths which occur within the first hours of their life are fear of blame, inter-disciplinary mistrust and professional power hierarchies are some of work force challenges in implementation of audit and review of stillbirths and neonatal deaths. Health information system barriers include lack of a centralized database for compiling audit results, lack of system for notification of perinatal deaths at any level, lack of system for notification of perinatal death at any level, and poor capacity to use and interpret. (19)

Numbers of live births, stillbirths, and neonatal deaths are fundamental vital statistics to inform national and global policymaking and resource allocation for newborn survival. Improved counting of stillbirths and neonatal deaths help refine the estimation of live births and other demographic measures, such as neonatal mortality rate, infant mortality rate, under-five mortality rate, and life expectancy, which contribute to the ongoing efforts to improve vital statistics in low- and middle-income countries (LMICs). Better distinction between stillbirths and neonatal deaths could also improve the estimation of causes of stillbirths and neonatal deaths. (20)

Better counting of stillbirths and improved cause of death data are only a means to advocating for and prioritizing action. Systematic assessments of the effectiveness of interventions and costs are needed to better inform programmer.(21) Available measure of pregnancy outcomes has several problems such as under registration, misclassification and inaccurate ascertainment of gestational age or birth weight. Health facilities will have difficulty prioritizing areas for improvement. Merely improving the measurement of intrapartum deaths will not result in improvements in quality of care, rather, having reliable measurements of mortality is important to inform quality improvement effort. Conducting perinatal audit and knowing the magnitude of event and cause of death misclassification of perinatal death is very important in prevention of avoidable cause of death.(22) Without knowing the true number of deaths or the causes, countries are not able to adequately: allocate resources improve quality of care to prevent future deaths and reach global targets. The aim of this study was to assess the level and explore reasons of misclassification of very early neonatal death into stillbirth.

1.3 Significance and rationale

Data on the frequency and distribution of adverse birth outcomes are important for planning maternal and child health care services in developing countries, and knowledge of local patterns of morbidity and mortality is essential for improving antenatal and obstetric care. Research has been done to assess cause of death misclassification in different settings. There is less knowledge and evidence about the prevalence of event misclassification, thus the true burden of neonatal death and still birth has been unknown. (28) In Ethiopia there is evidence gap on the prevalence of event misclassification in perinatal deaths. This study aims to provide evidence about the level of misclassification of very early neonatal death and also factors associated with misclassification of these deaths so it will guide health care professional, government officials and others who work on neonatal survival in indicating the gaps in quality of perinatal mortality data and factors associated with the problems.

The result of this study will help policy makers by showing data quality gaps on perinatal mortality data because these data are important indicator which gives direction for public health planning, resource allocation and the impact of interventions. It also guides health system managers on how to improve health workers' capacity to meet the demand for emergency care and record-keeping practice by indicating the gap on misclassification of very early neonatal death. It will inform health care providers on level of misclassification of neonatal deaths which occur immediately after birth and reasons behind it. It will also help them to understand driving factors for misclassification and help them to improve data quality. Study will provide additional insight for research world by generating knowledge about the level and reason of misclassification. It could also be used as an input for health system for ensuring information revolution agenda of health sector transformation plan since quality of perinatal mortality data is one component.

LITERATURE REVIEW

2.1 Trend and cause of neonatal mortality

Globally the estimated number of neonatal deaths range from 2·4 million–2·8 million annually, of which 98% occur in low-income and middle-income countries and 75% in sub-Saharan Africa and south Asia. East and South Africa account for 18% of neonatal deaths globally.(23)Ethiopia has perinatal mortality rate of 30 per 1000 life birth. Neonatal mortality rate has showed decline each year. It was 58 death per1000 live birth in 2005, to 29 deaths per 1000 live birth in 2016. The rate has been the same in the last three years.(4)The cause of death for early neonatal death is different among developing and developed countries.

Maternal and neonatal complication during pregnancy and labour, poor quality of care during labour, inappropriate management of complications during labour, poor maternal nutritional status from childhood up to pregnancy are major risk factors for neonatal death. (1) Prematurity is the leading cause of neonatal mortality in developed countries followed by congenital anomalies, birth asphyxia and infection. In low and middle income countries infection is the leading cause of mortality followed by birth asphyxia, prematurity and congenital anomalies.(3) In Ethiopia the top five cause of death in early neonatal period are prematurity 37%, Birth asphyxia 29%, infection 8% and congenital anomaly 10%.(24)

2.2 Event misclassification

The main difference between stillbirths and early neonatal deaths is the presence of sign of life at the time of delivery. (25) Early neonatal death is death of a newborn with in the first seven days of life regardless of gestational age or birth weight. Gestational age and birth weight are used to distinguish still birth from early pregnancy loss.(26)The international classification of disease has terminology for stillbirth birth with gestational age and birth weight criteria to differentiate early and late fetal deaths. The general criteria of 28 weeks of gestation is used for late fetal death this is most applicable in low resource settings. The SB: ENND (stillbirth to early neonatal death) ratio is a measure of data quality that is used to assess potential misclassification of events. The application of still birth to early neonatal death ratio which is 1:2 still birth to early neonatal death is very important to assess the potential misclassification of perinatal mortality events.(12)

One million babies die on the day of birth, and these deaths are in addition to the 1.2 million intrapartum stillbirths that occur each year. This observation highlights the fact that the hours just before birth and the first few days of life are the riskiest in the human lifespan. The risk for mothers is also increased during this period. If neonatal deaths in the first minutes of life are recorded as stillbirths (which is the most common direction of misclassification), very early neonatal deaths will be undercounted, and we would expect the proportion of deaths during week 1 to be lower than average irrespective of day 0 and day1 misclassification.(27) Omission of live births that die in the first few days of life. Substantial omission might be evident from implausibly low ratios of early to late neonatal mortality risks.(28)

2.3 Magnitude of misclassification

The level of misclassification of early neonatal death as still birth or the vise verse is not well studied. A study done to assess the level of misclassification of perinatal death during verbal /social autopsy survey and full birth history survey shows that there is 20.1% misclassification of neonatal death as stillbirth in case of full birth history.(20)

2.4 Impact of misclassification of perinatal deaths

Estimation of perinatal death is very challenging because of absence of pregnancy loss data and complexity of defining, measuring and classifying perinatal death data.(29)These challenges can be classified as originating from the side of data collection or from the PNM data provider and his/her environment (issue). Even though there is high rate of perinatal death in so many developing countries there is very few information about stillbirths and early neonatal deaths. Very few demographic surveillance sites in the developing world gather pregnancy loss data.(30)

Source of information for perinatal deaths such as demographic survey, health facility records and health survey rely on informants, be health professionals or family members so they are subjected to some kind of omission or misclassification. Data quality is the assurance that the information gathered represents the event, context, and actors that are being captured. Although variations exist, a common set of criteria used to evaluate data quality includes accuracy, reliability, completeness, precision, timeliness, and integrity. (20)

Invalid statistic is obstacle for neonatal survival. It has so many impacts at different level of the healthy system. At national level underestimation of mortality level will be misleading for policy and decision-makers and health plans will not be able to target those most in need. At lower level since the real figure of the problem is not known health care professionals and staffs will not

perceive this period as risky for the newborns so they won't be able to take necessary precautions and intervention to improve delivery and postnatal services. (31)

2.5 Factor associated with misclassification of perinatal death

Live-born babies who die early might be misclassified as stillbirths and vice versa for several reasons: lack of knowledge; lack of careful assessment for signs of life; avoidance of blame, extra work, or audit review for the birth attendant; and the physician with extensive paperwork, whereas a stillbirth requires no funeral and less paperwork differences that may promote misclassification towards stillbirths. If both stillbirths and early neonatal deaths are counted, then early neonatal deaths misclassified as stillbirths are at least recorded even if they are misclassified (11)

Reliability of data depends on reliable reporting and recording of births and deaths. Underreporting and misclassification are common, originating both with the mother and with the recording mechanism. It can also be related to disincentives, such as having to pay a registration fee, or simply not seeing any obvious benefit. Misclassification of live births and deaths can also occur; there may be misunderstanding of the definition of live birth and fetal death, or misunderstanding of the purpose of reporting. Live births are more likely to be reported than fetal or early neonatal deaths, and nonviable births may systematically be reported as stillbirths.(1)

The consequences are more serious if the practice reflects a general popular 'confusion' regarding the definition of stillborn. In this case even very high-quality records will suffer from under-enumeration of early infant deaths. Early neonatal mortality will be under-estimated, and therefore stillbirth rates derived from these. Conversely, where stillbirths were recorded, these may provide a very poor guide to levels of stillbirth mortality. (32)

The capacity and competency of the medical officers and other administrational support staff for handling and maintaining the health information system's data including the stillbirths was a matter of serious concern. It was reported that most of the staff members, such as medical technicians, dispensers, nurses and even medical officers, were not adequately trained to handle different formats of registers and reports for retrieving and compiling information on stillbirths.(31)

A qualitative study which is done in Afghanistan describe fear of blame from supervisors and managers and lack of monitoring and supervision as reason for misclassification of perinatal

death Health care providers were afraid of being blamed so that there was an act of destroying or altering records. Particularly during night shifts (when fewer staff and managers were present), would intentionally misreport fresh stillbirths as macerated stillbirths, thereby leading to under-reporting of intrapartum death and over reporting of antepartum stillbirth(33)

Health care providers with less year of experience tend to underreport and manipulate records. Hospital managers acknowledged that some doctors, particularly new graduates, were inadequately trained to properly differentiate between the different perinatal losses, and that this occurred more frequently during night shifts when supervisors were absent.(33)

Respectful maternity care cannot be practiced by clinicians or hospital staff who are themselves undervalued and treated disrespectfully by their superiors. Unrealistic expectations, excessive criticism, rigid working conditions, and an uncomfortable working environment lower staff morale and commitment to excellence. Such factors hinder both job satisfaction and empathy for patients, through intimidation. Unreal expectation and excessive criticism drive health care providers to misclassify and underreport such deaths. Fear of being blamed can also create a culture of silence around these deaths.(33, 34)

2.6 birth asphyxias a factor for misclassification

Birth asphyxia is one of the major causes of death in early neonatal period. Live-born infants who are inadequately resuscitated and die may be misclassified as stillbirths for several reasons. Unskilled health workers may simply not be able to distinguish between the two conditions. Around 78% of delivery practitioners failed to correctly resuscitate new born with breathing More than 2000 deliveries are conducted at the hospital annually, yet there was virtually no documentation of neonatal deaths. In contrast, the recorded stillbirth rate was extremely high. (35)

Many researches indicate that there is evidence for decline stillbirth rate in many settings after training of new born resuscitation. In Dayana, India, the stillbirth rate dropped from 18.6% to 9% over a three-year period in which neonatal resuscitation was a central component. Recorded stillbirth rates decreased in the hospitals where the course was taught. The reduction in stillbirth numbers indirectly shows that health care providers will record early neonatal death due to birth asphyxia into still birth due to several reason.(36)Nearly two thirds of the ENNDs occurred within the first 2 hours of delivery. This happened probably because majority of the neonates were severely asphyxiated while in utero.(37)

In summary misclassification of very early neonatal death into still birth is the common direction of misclassification. Around 20% of very early neonatal deaths misclassified as stillbirth due to several reasons. Lack of careful assessment of sign of life, work load, fear of blame, cause of death and extensive paper work for early neonatal deaths were some of driving factors for misclassification of early neonatal death.

Conceptual frame work

The conceptual frame work below was developed to assess the determinant factor of misclassification of early neonatal deaths into stillbirths by health care providers. From the quantitative studies reviewed the following factors happens to have effect on misclassification of early neonatal deaths.

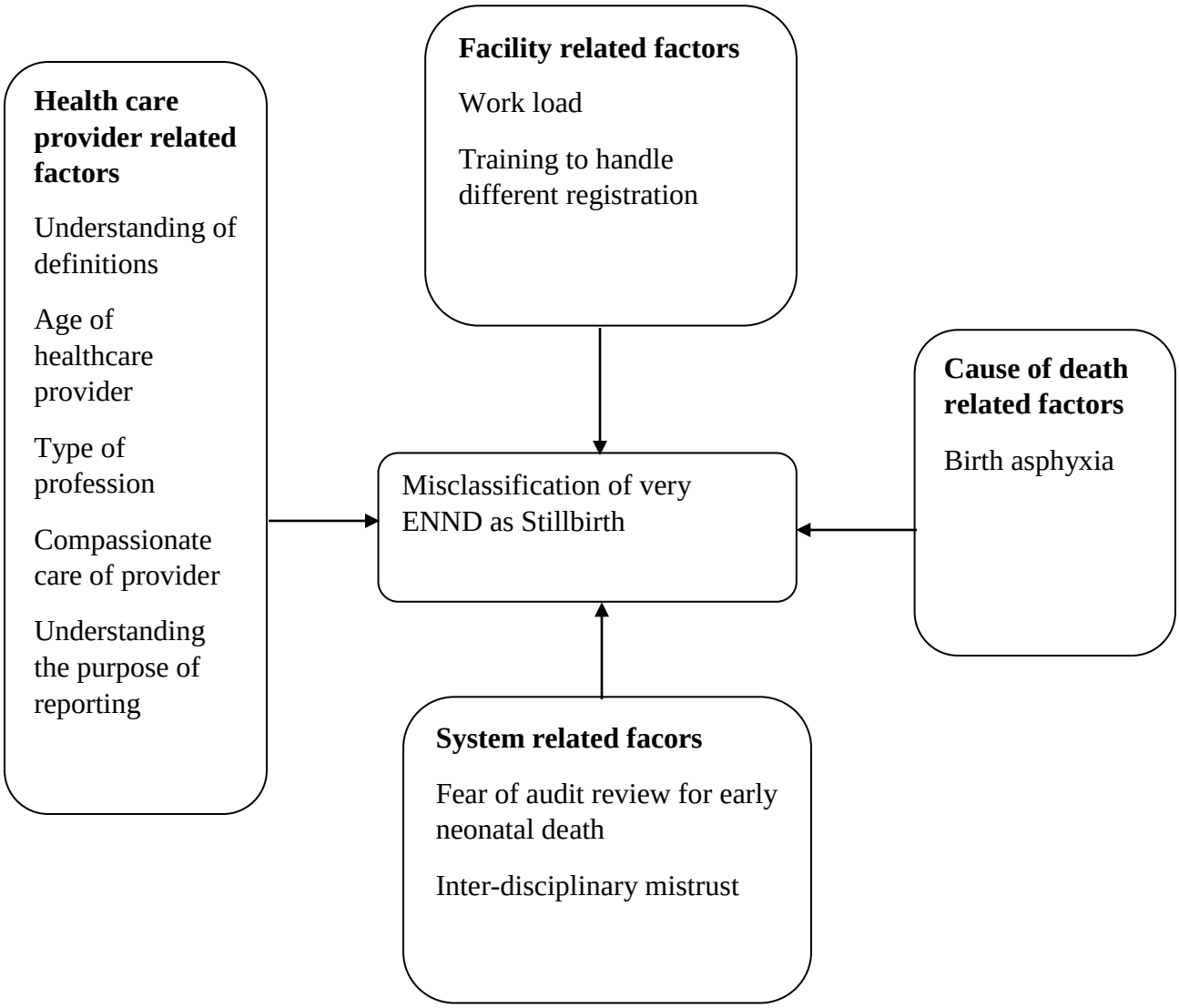


Figure 1: Conceptual framework for misclassification of very early neonatal deaths.

Research question

1. What is the magnitude of misclassification of very early neonatal into stillbirth in government hospitals in Addis Ababa, Ethiopia?
2. What are health care provider factors which could affect the level of misclassification of very early neonatal death into stillbirth?
3. What are the reasons for misclassification of very early neonatal death into stillbirth in government hospitals in Addis Ababa, Ethiopia?

OBJECTIVES

General Objective

- To assess level and reasons for misclassification of very early neonatal death into stillbirth from March, 2018 to March, 2019 in public hospitals of Addis Ababa, Ethiopia.

Specific objective

- To measure the level of misclassification of very early neonatal death into stillbirth in public hospitals Addis Ababa.
- To identify the association between mothers 'and health care provers' related characteristics that are associated with the misclassification of very early neonatal death into stillbirth in public hospitals Addis Ababa.
- To explore the reasons for misclassification of very early neonatal death into stillbirth in public hospitals Addis Ababa.

METHOD

4.1 Study area and period

Addis Ababa is the capital city of Ethiopia. The town has a latitude and longitude of 9° 0' 19.4436" N and 38° 45' 48.9996" E and elevation of 2355 meters above sea level. The average annual temperature is 18℃. According to projected population size of Addis Ababa 2017, Addis Ababa has estimated population of 3.38 million.(38)There are 11 public hospitals and 62 health centers in Addis Ababa. The total number of hospitals run by Ministry of health and private entities in Addis Ababa are 39.(39)

Still birth data was collected from five governmental hospitals of Addis Ababa namely Tikur Anbesa specialized hospital, Gandi memorial hospital, Zewditu memorial hospital, Tirunesh Beijing hospital and Yekatit 12 hospital.Their delivery units had a total of 137,54,65,40 and 62 staff members respectively. The delivery unit's staff is composed of senior (gynecology and obstetrics specialists) professionals, residents of gynecology and obstetrics with different level of training, general practitioners, health officers and midwives with BSc (Bachelor of Science) and diploma levels that manage most of the deliveries. All of the hospitals provide basic immediate newborn care services such as TTC, newborn resuscitation, thermal radiation, cord care, and vitamin A supplementation. The data was collected from March, 2019 to September 2019.

4.2 Study design

A mixed facility and community based cross sectional study with qualitative and quantitative method was employed. House hold visit was conducted among mothers of stillbirth which were identified from selected health facilities in Addis Ababa and in-depth key informant interview was done among health care providers who work in public hospital of Addis Ababa.

4.3 Source population

All pregnancy outcomes between 28 weeks of gestation to delivery that happened in public health facilities of Addis Ababa were the source population.

4.4 Study Population

Fetal death after 28 weeks of gestation that happened in the study public hospitals in Addis Ababa, during the period of March 2018 through March, 2019 were considered for

quantitative study. On the other hand, health care providers in selected public hospitals were considered as study population for qualitative study.

4.5 Eligibility criteria

4.5.1 Inclusion criteria

Quantitative

All cases which are recorded as stillbirths in selected public hospital delivery registration during the study period were included.

Qualitative

Health care provider who works in delivery ward of selected public hospitals of Addis Ababa and are open to discuss on the specific issue under caption

4.5.2 Exclusion criteria

Quantitative

Mothers whose address is out of Addis Ababa were excluded.

4.6 Sample size determination

Quantitative study

Sample size (n) wascalculated by using single population proportion formula. The magnitude of misclassification was assumed to be 50%.Beside a margin of error (d) 5% and considering confidence interval of 95%

$$n = \frac{z^{(\alpha/2)^2} P\ (1-p)}{d^2}$$

$$n = \frac{3.84 * 0.5(1-0.5)}{0.05^2}$$

$$n = 384$$

To adjust the variability taking design effect of 1.5 and non-response rate of 10%. Therefore, the total sample size for this

Study was:

n= 384×1.5+ (1÷ (1-10)) = 640participants.

Qualitative study

7 in-depth interviews were done since point of information saturation was reached. When the collected data explains adequately the issue, the interview was ended.

4.7 Sampling procedure

The total sample of hospitals was five governmental hospitals in Addis Ababa. Hospitals was selected through random sampling from all government hospitals in Addis Ababa who give delivery service.

Our initial plan was to randomly include study participants after who are representative enough to show the heterogeneity of different hospitals in their level of care and the type of health care providers but, due to non-functionality of phone numbers obtained from hospitals we were able to involve only those participants with functional phone numbers and those found in Addis Ababa during the time of data collection. Respondents who were willing to participate in the study were initially contacted by phone and house hold visits were done by tracing their house based on the information they gave about the address of their house. Some of the respondents were not willing to participate in the study since they were not satisfied by the service they receive from the respective study facilities.

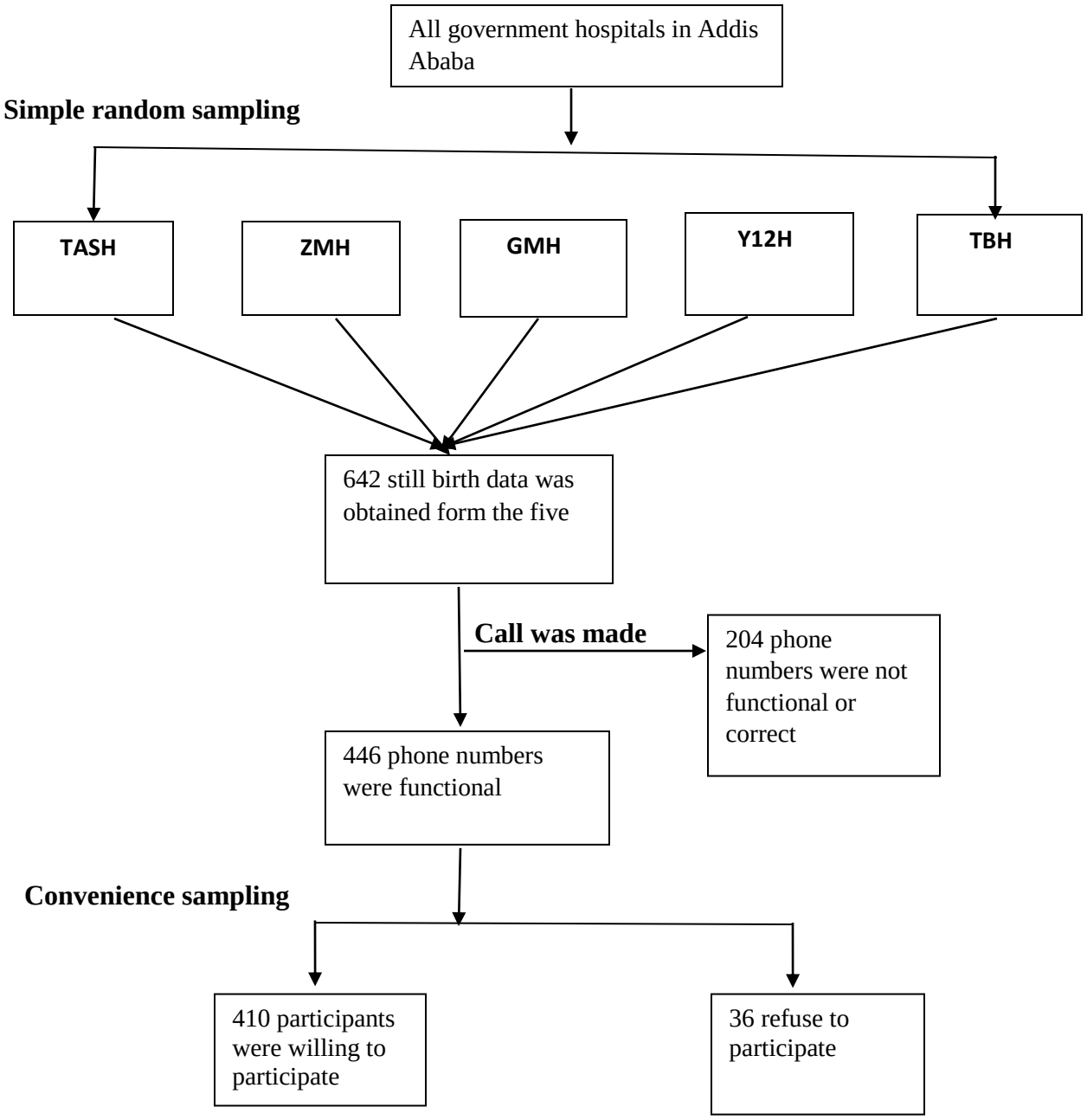


Figure 2: Schematic presentation of sampling procedure

Qualitative

Convenient sampling method was used to select health care providers who were working in delivery ward during the time of data collection. Seven in-depth interviews were conducted based on saturation of information. Categories that were reached after no new themes were identified based on iteration level.

4.8 Data collection procedure

Quantitative

An observation period of one-year during March, 2018 – March, 2019 was considered to review the card of stillbirths from the study hospitals retrospectively. Then mothers who had stillbirths were contacted for face to face interview. The WHO version 2016 verbal autopsy data collection tool which was adapted to the Ethiopian context was employed to solicit information signs, symptoms and events leading to stillbirth from mothers of the fetal deaths through household visits. Verbal autopsy is an indirect method of ascertaining the cause of death and fetal death from the information about symptoms, signs, events and circumstance preceding death, obtained from caretaker in this setting mother of the deceased. The data collectors were individuals who were at least diploma holders and had training on verbal autopsy data collection method. Additional refreshment training was provided by principal investigator. The training of data collectors was held for three days. During the session verbal autopsy data collection method was covered. The questionnaire was provided to each data collector and each question was discussed with data collectors. How to give emotional support during data collection process was included in the session.

The information on these deliveries was collected from two sources delivery room registers from all facilities. It included mother's identifier data (name, and address), and newborn details (date and time of delivery).Still birth data from government records was compared against the household visit outcomes through the data collectors. The data which was collected through household visit was collected by using data collection tablets. Open data kit software was used for data collection.

Training on ICD coding was given for the three heath care providers who were recruited as coders. Two of them were health officers and one of them was general practitioner. They are actively working as a care giver in different health facilities and they had year of experience

from 3-5 years. The training was given for two days and during the training how to determine cause and time of death from verbal autopsy data was covered. Each completed questionnaire was reviewed independently by two health officers. If the same diagnosis was reached, this was accepted as the 'underlying cause and time of death', if their diagnosis were not same, a third physician made a further blind and independent assessment. If two out of three diagnoses corresponded, this would be accepted as cause and time of death. Finally, ICD-10 codes were assigned according to the international classification of diseases, 10^{th} revision.

The verbal autopsy data was used as standard for comparison. Though the coders do not have standard cause of death certification and pathologic test were not used.

For qualitative part of the study in-depth interview was conducted using a guide that was flexible and semi-structured open-ended questions emerged from the study objectives and adapted from literatures until point of saturation was reached. Each English version interviewer guide was translated into Amharic which is the common language. The data was collected by principal investigator in Amharic. The interview was done in an office which is found in selected hospitals. A single interview last from 30-45 minute on average. Voice recorder was used to record interview in addition to notes were taken during discussion. The collected data was transcribed and translated to English.

4.9 Variable and measurement

Dependent variable

Very early neonatal death (a newborn who were born alive and died within 24hours of life) and classified as stillbirth.

Independent variables

Age of health care provider, type of profession of health care provider, maternal socioeconomic status and compassionate and respectful care provided by health care providers were considered as explanatory variables for misclassification of very early neonatal deaths.

4.9.1 Measurement

As measured as stimulated by WHO ICD 10,response which indicate absence of any symptom of life such as of fetal movement before delivery, absence of crying, breathing and movement after and during delivery were considered and coded as stillbirth.(29)

Misclassification of very early neonatal death

Those deaths reported as stillbirths even though at list one sign from list of determinants of life such as movement of muscles, crying and/or breathing is reported by family members who observed the event was considered as misclassified very early neonatal death.

Age of health care provider

Age was categorized with 10-year interval and it was used as a proxy indicator for year of experience of health care provider.

Profession of health care provider

Mothers or care givers of the deceased was asked "who assisted the delivery of the fetal died baby?" Four alternative answers "Doctors", "midwifes," Nurses" and "others" were listed.

Compassionate and respectful care

Five different questions were included to measure respectful maternity care including whether there was verbal abuse, physical abuse, stigma and discrimination, failure to meet professional standard of care, and poor rapport between women and health care provider. If the mother answer 'Yes' to at least one of the component then it was considered as the mother received disrespectful maternity care.(40)

Cause of death

The cause of death was measured using verbal autopsy questioner. The neonatal WHO verbal autopsy data collection tool which was adapted to the context of very early neonatal period, within first 24 hours. It has a structured part which documents events, signs and symptoms leading to death and a place where you can write narratives. Each completed questionnaire was reviewed independently by two health officers. If the same diagnosis was reached, this was accepted as the 'underlying cause and time of death', if their diagnosis were not same, a third physician made a further blind and independent assessment.

4.10 Data quality management

Quantitative part

The verbal autopsy questionnaire version 2016was adapted and modified. It was translated to Amharic and back to English to keep the consistency of the questions and to reflect culturally recognized accepted terms.

Training of data collectors was made to ensure the quality of data. The training of data collectors was held for three days. During the session how to collect verbal autopsy data was covered. Each question was discussed with data collectors to ensure their understanding of questions included in the questionnaire. How to give emotional support during data collection process was included in the session.

Pre- testing of the whole questionnaire was done. It was done on 5% of the total sample size in five hospitals. After reviewing the result of pretest major changes were made which exclude questions that were not applicable for study population. Checking and review of completeness of the questionnaires to ensure completeness and consistency of the information was done (tablet based data collection was employed and restriction was done to important variables to insure completeness.)

Qualitative part

Well-designed questionnaire guide was used to collect data. The audio- record was heard repeatedly for familiarization and understanding of the record before transcription.

4.11 Data analysis procedure

Quantitative part

Data was downloaded from the server and imported to STATA Version 15.0. Then the file was renamed, and variables were cleaned and coded to make it ready for analysis. Descriptive summary measures including frequency distribution and cross tabulation of the outcome variable by physician and health facility related characteristics were presented in terms of count and percentage. The overall magnitude of misclassification was presented using pie chart. Besides, the levels of misclassification were revealed by different characteristics of physicians and the health care system. To measure the association between health care provider characteristics and misclassification bivariate and multivariate binary logistic regression analysis was done for categorical variables. The strength, direction and significance of association of was ascertained with adjusted odds ratio along with their 95% confidence interval. The findings were considered as significant if $P<0.05$. Tables and graphs were used to present the findings.

Qualitative part

The qualitative data was transcribed and converted into word text then imported to ATLAS.ti version 7.5 for analysis by the principal investigator. Data was organized, reduced through summarization and categorization, and patterns and themes in the data were identified and linked during analysis. Thematic analysis was done. Codes were emerged to families (categories) and super-families (themes). Throughout the process memos were written to elaborate the categories. First, 169 codes emerged and categorized under 7 sub-themes and aggregated to 3 themes through open, axial and selective coding process.

4.12 Operational definitions

Very early neonatal death: The death of a newborn within24 hours of its life.

Still birth: Still birth is birth of a baby born with no signs of life at or after 28 weeks of gestation. Still birth includes Intra Uterine Fetal Death (IUFD).

4.13 Ethical consideration

First, ethical clearance was obtained from School of Public Health; Collage of Health Science Addis Ababa University research ethics committee. Moreover, ethical clearance letter was obtained from Addis Ababa health bureau ethics committee. Permission was obtained from selected hospitals. Informed and written verbal consent was obtained from mothers of the deceased.

The participants did not receive any direct benefit by participating in the study. The risk of this study is it might expose respondents for emotional harm but there was counseling by data collectors for those respondents who were emotionally sensitive. During training of data collectors, the data collectors was trained on how to handle respondents who might be sad during the process to minimize the emotional harm.

Respondents was informed that they can refuse or discontinue participation at any time and they were informed the fact that information will be recorded without their name being mentioned. Only codes were used to keep it anonymous and maintain confidentiality and privacy of respondent.

During the data collection the interviewer and interviewee sat at the same level and type of sitting area. Before data collection started the interviewer made the interviewee relax, warm up and free of pressure in order to make them express their ideas and thoughts freely without any fear.

Result

5.1Socio-demographic characteristics of the study participants

A total of 410 respondents, participated in the study, giving a response rate of 63.8%. The mean maternal age was 27±3.3.Besides, 396 (96.59%) of the respondents were mothers of the deceased while 382 (92.93%) of the respondents were married. Among the respondents 352(86.06%) of the mothers have formal education and 199(46.98%) of them have attained above secondary level of education. About 253(66.4%) of husbands have above secondary level of education. Average monthly income of study participants showed that 206 (50.34%) of them earn monthly income less than 3000 Birr.

Table 1.Characteristics of mothers who had stillbirths in selected public hospitals of Addis Ababa, 2019

Variable	**Number**	**%**
Mother's educational status		
No education	57	13.94
Primary	151	42.90
Secondary	155	44.03
Technical and above	44	12.5
Father's educational status		
No education	11	2.90
Primary	93	25.47
Secondary	175	47.94
Technical and above	78	21.36
Marital status		
Married	381	92.93
Single	20	4.88
Divorced	9	2.20
Average monthly income		
<=3000	206	50.34
3000-5000	72	17.56
>=5000	132	32.20

5.2 Pregnancy and delivery history of study participants

Table 2 shows pregnancy history of study participants, among the respondents 207(50.6%) of them have given birth only once in their life time. Besides, 391(95.37%) of the mothers had ANC follow up at list once during their last pregnancy, for 16(3.9%) of the mothers the pregnancy was multiple pregnancy. In case of complication 21(5.12%) and 107(26.35%) of the mothers reported that they had pregnancy complication during the first and third trimester of their pregnancy respectively.

Table 2.Pregnancy history of mothers with stillbirth in selected public hospitals of Addis Ababa, 2019.

Variable	**Number**	**%**
Parity		
Para one	206	50.74
Multi Para (>1)	196	48.28
Grand multi Para (>5)	4	0.99
ANC follow up		
Yes	391	95.37
No	16	3.90
Don't know	3	0.73
Multiple pregnancy		
Yes	16	3.90
No	392	95.61
Don't know	2	0.49
Pregnancy complication during 1st trimester of pregnancy		
Yes	21	5.12
No	368	89.76
Don't know	21	5.12
Pregnancy complication during 3rd trimester of pregnancy		
Yes	107	26.35
No	282	69.46
Don't know	17	4.19

Delivery history of mothers with stillbirths in selected public hospitals of Addis Ababa

Table 3 shows delivery history of study participants, there were 2 maternal deaths among mothers who had stillbirth. These deaths occur during labour and within 32 days of post-partum. And 299 (67.92%) of deliveries were attended by physicians and 191(46.93%) of the mothers had prolonged labour and 332(80.97%) of the mothers had vaginal delivery. Regarding the presence of complication 54(13.47%) of mothers had high blood pressure during last trimester of pregnancy and labour. In addition to this, 29(7.07%) of mothers had vaginal bleeding during last trimester of pregnancy but before initiation of labour.

Table 3. Delivery history of mother who had stillbirths in selected public hospitals of Addis Ababa, 2019.

Variable	**Number**	**%**
Maternal survival status		
Alive	408	99.44
Dead	2	0.56
Type of professional who assisted delivery		
Physician	299	67.92
Midwife nurse	106	25.85
Don’t know	5	1.22
Age of person who assist delivery		
20-29	138	33.91
30-39	191	46.93
40-49	69	16.95
>=50	2	0.49
Don’t know	7	1.72
Hospital		
Black lion	66	16.09
Zewditu memorial	91	22.19
Gandi memorial	129	31.46
Yekatit 12	51	12.43
Tirunesh Beijing	73	17.83

5.3 Level of misclassification of very early neonatal death into stillbirth

Figure 3 shows that among 410 study participants who were reported and registered as still birth in five hospitals of Addis Ababa, 35(8.54%) of the respondents had report that the newborns had at least one sign of life, very early neonatal deaths which were misclassified as stillbirth. The respondent respondents respond that the 375 (91.46%) newborns had no sign of life which were correctly classified.

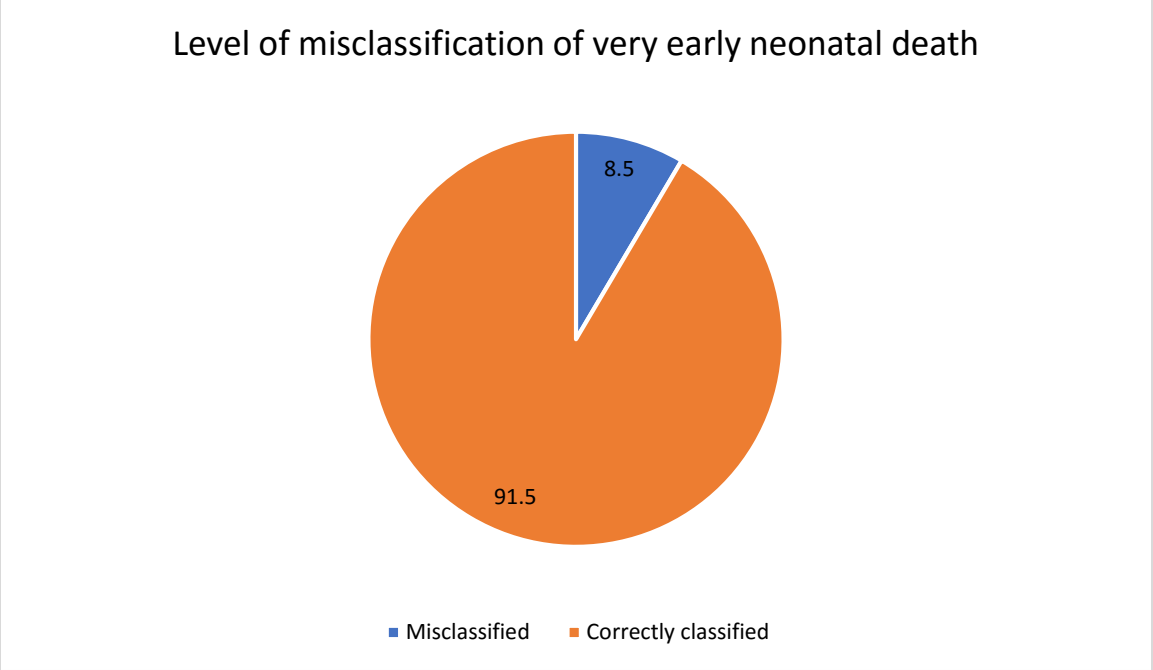
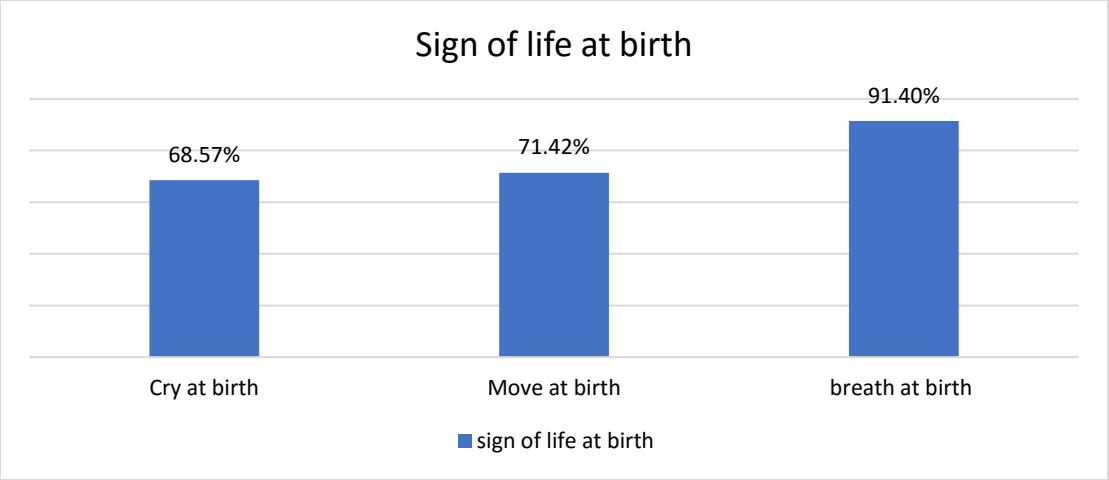


Figure 3.The proportion of misclassification of very early neonatal death in public hospital of Addis Ababa, 2019.

Figure 4 shows sign of life present during delivery. Among the respondents who reported that the newborns had at least one sign of life, 68.57 %, 71.42% and 91.41% of them had sign of life such as crying, movement and breathing respectively.



* Multiple answers were possible

Figure 4.The frequency of sign of life among misclassified very early neonatal deaths in public hospital of Addis Ababa, 2019.

5.3.1 Misclassification of very early neonatal death by health care provider and health facility

Figure 5 shows that among 35 very early neonatal deaths who were reported as still birth according to the respondents 21(58.3%) were attended by medical doctors whereas the rest 14(41.7%) of them were attended by midwifery nurses. Moreover 15 (44.4%), 2(5.5%), 7(21.8%), 5 (13.8%) and 6(16.6%) were delivered in Zewditu Memorial hospital, Black lion hospital, Yekatit 12 hospital, Gandi memorial and Tirunesh Beijing Hospital respectively.

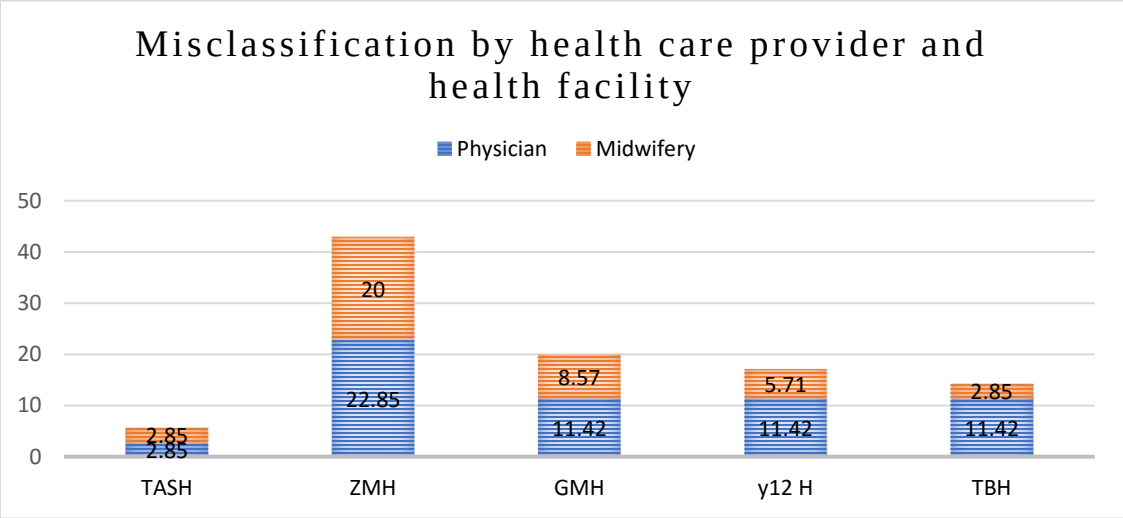
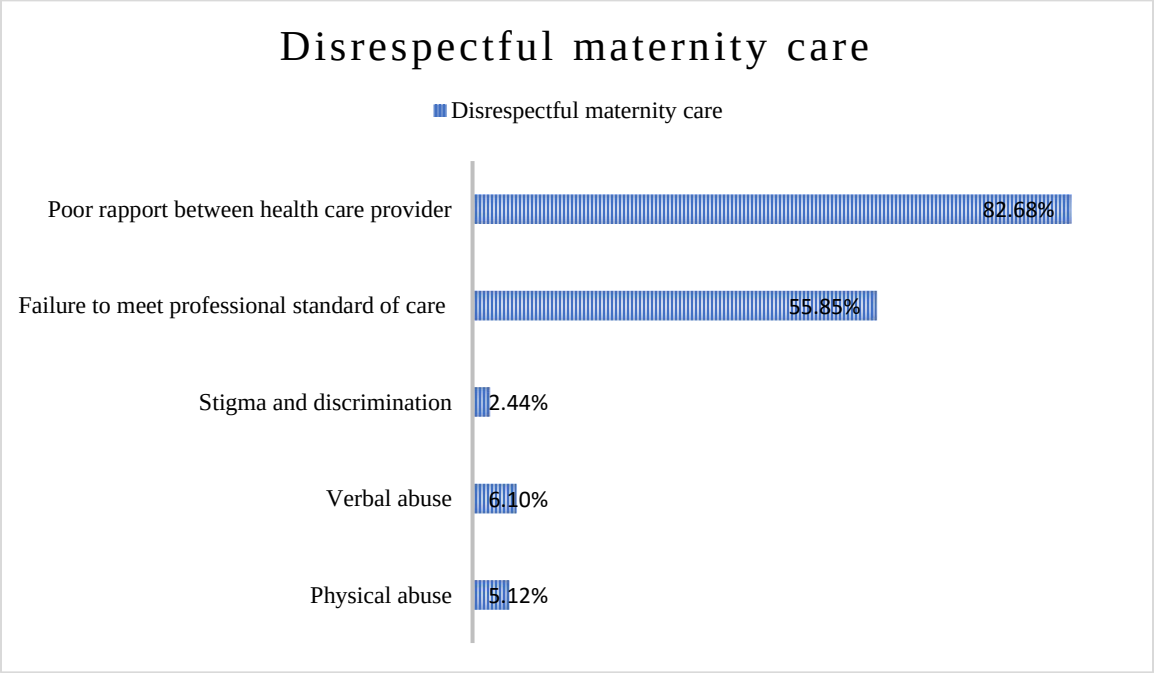


Figure 5.Distribution of misclassification by profession and facility type in public hospital of Addis Ababa, 2019.

5.4 Disrespectful maternity care

Fig 3 shows mistreatment of women during delivery, total of 410 mothers were interviewed for the presence of disrespectful maternity care, 21(5.12%) of them reported that they were physical abused during labour and delivery, 25 (6.1%) of them reported that they were verbally abused, 10(2.44%) of the participant feel that they were stigmatized and discriminated , 229(55.85%) of the study participants reported that the health care service they received doesn't meet professional standard of care. Moreover, 339(82.68%) of them reported that there was poor rapport between health care providers.



* Multiple answers were possible

Figure 6.The proportion of disrespectful maternity care in public hospital of Addis Ababa, 2019

5.5 Misclassification status and Health care provider characteristics

Table 4 shows the association of misclassification of very early neonatal death and health care provider characteristics. Based on the finding there is no significant association with respectful maternity care, age and type of profession of health care provider with misclassification status of very early neonatal death. In addition, lack of supportive care, denial of safe traditional practice and feeling of dissatisfaction of care provided were significantly associated with misclassification of very early neonatal death.

Table 4.Association of misclassification of very early neonatal death and health care provider characteristics in Public hospital of Addis Ababa, 2019.

Health care provider characteristics	Misclassified		Chi square value	P value
	No (%)	Yes (%)		
Profession of health care provider				
Physician	276(67.31%)	21(5.12%)	2.3396	0.126
Nurse	98(23.90%)	15(3.65%)		
Age of health care provider				
20-29	127(30.97%)	11 (2.68%)	4.666	0.097
30-39	178 (43.41%)	13 (3.17%)		
>=40	67 (16.34%)	11 (2.68%)		
Respectful maternity care				
No	365 (89.02%)	33 (8.04%)	4.602	0.044(0.09*)
Yes	9 (2.19%)	3 (0.73%)		
Cause of death				
Fetal related	254(67.73%)	27(77.17%)	1.31	0.25
Maternal related	121 (32.37%)	8 (22.83%)		
Feel dissatisfied with the information and explanations provided				
Yes	265 (70.67%)	18 (51.42%)	5.54	0.019
No	110 (29.63%)	17 (48.58%)		
Lack of supportive care from health workers during delivery				
Yes	265 (70.67%)	19 (54.28%)	4.03	0.045
No	110 (29.63%)	16 (45.72%)		
Denied to practice safe traditional practice of your culture				
Yes	7 (1.91%)	3 (8.57%)	6.04	0.014(0.045*)
No	368 (98.09%)	32(91.43%)		
Monthly income				
<3000	195 (52%)	11 (31.42%)	4.91	0.086
3000-5000	63 (16.80%)	9 (25.72%)		
>5000	73 (31.20%)	9 (42.86%)		

* Fishers exact test

5.6 Multivariate Analysis Showing Association between predictor variables and misclassification of very early neonatal death.

Table 5 shows association between predictor variables and misclassification. After controlling the effect of other predictor variables, the multivariate logistic regression analysis showed statistically significant association between denial to practice cultural traditions and misclassification of very early neonatal death with p-value<0.05. Other predictor variables were not significantly associated with misclassification of very early neonatal death.

In this study, the odds of misclassification of very early neonatal death were 0.89 times lower among those who were denied to practice safe tradition of their culture, [AOR =0.21; 95% CI =0.05-0.93].

Table 5. Multivariate analysis showing association between predictor variables and misclassification of very early neonatal death in public hospital of Addis Ababa, 2019.

Variables	Misclassified		COR(95%CI)	AOR(95%CI)
	Yes	No		
Monthly income				
<3000	11 (31.42%)	195 (52%)	1.00	
3000-5000	9 (25.72%)	63 (16.80%)	2.53[1.003-6.390]	2.3[0.93-6.17]
>5000	15 (42.86%)	73 (31.20%)	2.27[1.009-5.114]	1.9[0.84-4.54]
Feel dissatisfied with the information and explanations provided				
Yes	18 (51.42%)	265 (70.67%)	1.00	
No	17 (48.58%)	110 (29.63%)	2.27[1.13-4.57]	1.3[0.55-3.15]
Lack of supportive care from health workers during delivery				
Yes	19 (54.28%)	265 (70.67%)	1.00	
No	16 (45.72%)	110 (29.63%)	2.02[1.06-4.09]	1.72[0.73-4.07]
Denied to practice safe traditional practice of your culture				
Yes	3 (8.57%)	7 (1.91%)	1	
No	32(91.43%)	368 (98.09%)	0.26[0.05-0.82]	0.21[0.05-0.93]

Result from qualitative analysis

5. 7 Reasons for misclassification of very early neonatal death into still birth

5.7.1 Socio demographic characteristics of participants in the qualitative section

Table 6 shows that the socio-demographic characteristics of health care provider's age who participated in this study range from 24-34.

Table 6.Socio- demographic characteristics of health care for the qualitative section in public hospitals of Addis Ababa, Ethiopia 2019

Respondent	**Age**	**Sex**	**Year of experience**	**Type of profession**
Respondent 1	34	Female	8 years	Resident doctor
Respondent 2	28	Male	5 years	Midwife
Respondent 3	25	Female	3 years	General practitioner
Respondent 4	29	Female	3 years	General practitioner
Respondent 5	32	Female	8 years	Midwife
Respondent 6	24	Male	7 months	Intern
Respondent 7	28	Female	5 years	Midwife

The main qualitative findings are presented under three main themes: health care providers' views on reasons for misclassification of very early neonatal death health care provider characteristics, health facility related factor and health system related factor. Each theme has more than two sub themes which are presented as follows.

5.7.2 Personal characteristics of health care provider related reasons

Confusion regarding definitions of stillbirth, ENND and IUFD

The finding showed that some of the health care providers who were interviewed were not able to correctly define stillbirth and early neonatal death based on standard terminologies used in classification of time death.

Female doctor describes how she classify immediate postpartum neonatal death as *"…. We will say or report stillbirth when fetus is alive until delivery and died immediately after delivery then we record that death as stillbirth…." (Female, doctor Age 29)*

It was noted that most health care providers think that they are able to define or know the exact definition of such terminologies used in description of time of death. Giving less emphasis, not

updating oneself and perceived simplicity of terminologies were considered as reason for not knowing and using the correct terminology for classifying deaths which occur during perinatal period.

"…. The first one is their simplicity will make them to be ignored, as most of us won't give attention for them. The other is since most health care providers won't believe that they don't know these definitions or they may simply think that they know it because it is simple. The other is even when we were at school like on reporting Apgar score or classifying deaths were somewhat blurred topics since attentions weren't given during teaching exercise…" (Female, doctor 25)

Awareness about event misclassification of very early neonatal death was assessed and most of the respondents know what it means and the reasons behind misclassified and misreported cases.

"…. Classifying death of baby who die immediately after birth as intra partum or as ante partum death as stillbirth. Misclassification happen because of lack of knowledge, lack of proper diagnosis and intentionally reporting as stillbirth because of fear of blame or punishment for the death…" (Female, resident doctor 34)

Another view from male midwife describe the issue as*"…. Misclassification of perinatal death means incorrect and inappropriate classification of perinatal death which means that classifying the death of the fetus which occurs before delivery as neonatal death on the card or classifying death of baby who die immediately after birth as intra partum or as ante partum death…" (Male, midwife 28)*

The importance of proper documentation and reporting of cases were clearly described by participants. The importance of accurate data for resource allocation, human resource assignment and to know the exact figure and cause of death for prevention of future same cases were listed as purpose of accurate documentation of deaths which occur during perinatal period.

"…They are indicators for a quality of health care and level of health care for a country. And in government, the data could be used to allocate budget and manpower and to improve health care service. Nationally such information could also be used as indicator for gaps that should be

improved. In general, it is important to make evidence-based decisions to improve the health system…" (Female, doctor 25)

Disrespectful health care providers

It was noted that health care providers who are disrespectful for patients tend to misclassify deaths more. Such type of health care providers tends to be negligent and irresponsible for action they perform. They tend to underreport and manipulate data for different purposes. Some of the reasons are negligence, to cover their wrong act and so on.

"…There is a saying in medicine as compassionate and caring health care provider those health care providers who are less compassionate and caring will not perform their duty and responsibility as compassionate and caring ones. They won't be responsible for their patient feelings for what they report and record. Health care providers are humans in addition to being medical personal. There are liar individuals in our day to day life similarly there are also careless and non-responsible health care providers in medical world so such kind of personality might lead to misclassification of these deaths more…" (Female, resident doctor 34)

Male midwife added*"… Personal characteristics have roll for misclassification. Health care providers who are very careless in their behavior would misclassify more than health care providers who are caring, because those health care providers would usually face these kind of adverse pregnancy outcomes more frequently because of their negligence…" (Male, midwife 28)*

Year of experience and type of profession

Health care provider characteristics such as year of experience, level of education and type of profession were cited as reasons for misclassification of perinatal deaths. There is controversial thought about the effect of year of experience and level of education on misclassification of perinatal death but it can be taken as these characteristics has effect on level of misclassification.

"…As people tend to know more, they tend to twist the information so, I think people with high level of education would usually misclassify cases more intentionally. I also believe that the

more the year of experience of the health care providers the more misclassification and data manipulation will occur…" (Female, resident doctor 34)

However, our study participants do not have a similar view on the relationship between experience and level of education and misclassification. Another respondent says the following:

"… It is inversely proportional with level of education it means that as level of education increase the probability of misclassifying death will decrease because they will have more updated knowledge. But in case of experience as individuals work experience increase tendency of misclassification also increase because most of them have no updated information so they will stick to habitual way of doing things…" (Female, doctor 25)

With regards to type of profession, the findings show that type of profession has effect on the level of misclassification of perinatal deaths. Midwives, interns and general practitioners were reported to be health care providers who tend to misclassify more than other type of professionals for different reasons.

For instance, a male midwife said *"…I think students will misclassify more than other health care providers. The health care provider who was on duty at the time of delivery will be the one who will register the death but if he was not around at the time of delivery the student who assisted delivery which end up in ENND could misclassify the death as stillbirth for many reasons and the health care provider will register that death as stillbirth because the student documented it as stillbirth on the patient card..." (Male, midwife 28)*

On the other hand, the view of a female doctor is different*"…I think general practitioners will misclassify more because they are not involved in any kind of academic activities (they are not supervised by seniors for academic excellence) and midwifes are also not involved in academic activities so they also tend to misclassify more…" (Female, doctor 25)*

5.7.3 Health facility related factors

Unfavorable working environment

Working condition and environment tend to affect misclassification of ENND in many ways. Health facility related factors such as high work load, inadequate supply of essential drugs, equipment and shortage of health care providers will increase the probability of misclassification indirectly.

This issue was entertained by a male midwife as follows *"…When there is high work load we can't follow mothers properly. Sometimes the size of patients is not equal to the number of health care providers and at another time we may have inadequate size of coach's in the labour ward. So, some of them will gave birth in emergency room and in corridors, which will be difficult to follow delivering according to the standard of care. When mothers deliver in emergency rooms and corridors, the fetal heart beat will not be followed timely because of that ENND will occur more frequently because we can't give timely decision and misclassification of ENND to stillbirths will also increase…" (Male, midwife 28)*

Another female midwife added the following *"…I think workload has effect on misclassification of ENND because when there is too much case in the labour ward and if there are a lot of delivering mothers who are on second stage, who should be in the cesarean section then the health care provider might be distracted with the case load and document the death inaccurately incompletely or it might not be documented at all..." (Female, midwife 28)*

Lack of proper monitoring

The other point mentioned by health care providers is lack of proper monitoring of health care providers by the health care system. From the in-depth interview conducted it is possible to perceive that lack of proper monitoring in documentation, registration and reporting of perinatal mortality data has impact on level of misclassification of perinatal deaths.

"… There is no one who audit these patient card and point out these problems and give feedback to resolve the problem. On the patient card there is a section to document the situation of the mother as well as the baby for each kind of death. There is space to write the timing of death. Since there is no one who monitors the quality of documents, reporting and registration of these deaths, health care providers misclassify these deaths to cover their medical mistake. They might have registered what really happened in the HMIS registration book but the whole thing will not be really documented in the patient card…" (Female, resident doctor 34)

Another female doctor added the following point *"…case team coordinators are busy in monitoring who is late who is on time and their role has become too much subjective. They are not investing their time and energy in such kind of important work which could result in change of the system they are busy in allocating health care providers from one room to others, they spend their time in ensuring that there is no shortage of materials and so on. They are not actively involved in educational meetings like attending when there is perinatal death or any*

other death meetings I am not saying that the main reason for these is their laziness; the environment is not conducive for them they will keep themselves busy in personal affairs…" (Female, doctor 25)

5.7.4 Health system related factors

Fear of blame

The other reason for data manipulation and misclassification is fear of punishment from their teachers and supervisors among health care providers who are interns and residents. The effect of subjectivity of medical student evaluation system has made medical students vulnerable for punishment. Therefore, they tend to protect themselves by data manipulation and doing different things to cover what they think that will make them punished.

"…*From academic side there is data manipulation on individual cases by interns or residents if any mistakes happen during their activity due to shortage of supply from hospital or technical error or referral problem so on, not to be asked or punished academically they will manipulate data…" (Female, doctor 25)*

A female midwife added the following*"…These could be due to not to be blamed for miss management of the case and to protect one from being responsible…" (Female, midwife 29)*

Another male midwife reiterated what he observed as follows *"…There was one time where the mother was on second stage of labour and fetal heart beat was positive and normal suddenly the fetal heart beat became abnormal and during delivery the baby had sign of life but the case was asphyxia and resuscitation failed. In the morning during morning session the health care provider who attend the delivery presented the case as it was a stillbirth. …" (Male, midwife 28)*

From the in- depth interview fear of blame is the main and significant reason for the presence misclassification. Health care providers try to manipulate data because of different reasons. Perinatal death audit review report is one of cause of fear of blame among some health care providers in some public hospitals where maternal perinatal death surveillance and response team is functional.

"…When there is mistake or bad outcome the blame will be given for single person but when it is good job everybody wants to show that they were involved. The committee members are not usually active in clinical care. The team members are case team coordinators. And during the meeting they question health care providers as they were responsible for most deaths which are reviewed…" (Female, resident doctor 34)

A male midwife has also added the following*"…During perinatal mortality audit meetings everybody starting from the senior physicians to midwives will try to save themselves by blaming the others…" (Male, midwife 28)*

Medico legal issue

According to the finding of in-depth interview, the other reason behind misclassification and manipulation of data is fear of being charged for medico legal issues. Health care providers don't fell secured so they tend to change data on patient card as well as on registration book as they intended in order to be free from charge.

"…There are some kind of patient attendance who came to hospital only to fight with health care providers and to complain about the type and quality of services they get. If they press charge against health care providers especially if the health care provider is a senior professional such as specialist there is a probability that the whole documentation on the patient card including the diagnosis might be changed. Midwives can also manipulate the whole documentation in order to be free from blame and punishment. The main thing that save you or make you to be punished when patient press charge against the health care providers is their documentation so the whole thing which is recorded on patient card and registration might be changed…" (Male, midwife 28)

A female resident physician added*"…These days' health care providers try to escape from being responsible for different adverse outcome in medical care so they will try to sort out things to cover themselves because they witness cases which reach to court and health care providers got punished, when their license gets suspended for things they do to help the patient…" (Female, resident doctor*

6. Discussion

The main aim of this study was to measure the level and reason of misclassification of very early neonatal death into stillbirth in public hospital of Addis Ababa. It also tries to see the association between predicting factors that could have significant relationship with misclassification of very early neonatal death into still birth.

This study revealed that the level of misclassification of very early neonatal death into still birth were 8.5%. Our second result shows that health care provider and maternal characteristics were not significantly associated with misclassification of early neonatal death. Denial to practice safe traditional practice was significantly associated with misclassification of very early neonatal death. We found that confusion in understanding of the exact definition of perinatal loss, fear of blame, and working environment factors drive health care providers to misclassify very early neonatal death into stillbirth at health facility level.

The finding of these study showed that nearly 8.5 % of very early neonatal deaths which occur immediately after birth are misclassified and reported as still birth. A study which is done in Malawi state that around 20% of early neonatal deaths are misclassified as still birth.(20)The reason for discrepancies of the study results could be due to the study population difference that is, in case of Malawi's study misclssifiers are mothers whereas misclassification was assed among health care providers in our study.

Among early neonatal deaths who were reported as still birth 58.3% were attended by medical doctors thus, deliveries who were delivered by doctors tend to be misclassified more. Evidence from qualitative study shows that senior doctors tend to underestimate number of deaths that happened in a facility.(33)However misclassification of very early neonatal death was not significantly associated with type of professional who attend the delivery. This could be due to the fact that respondents might be biased on the type of profession of health care provider who assist them in delivery.

In addition, age of health care provider was not significantly associated with misclassification of very early neonatal death. A research done in Afghanistan state that new graduates tend to misclassify early neonatal deaths at times where there is no supervisor. (33)The reason for discrepancy of two studies could be due to the accuracy of measurement used for age of health

care provider. It could be biased since respondents guess age of the person who assisted the delivery by his or her physical appearance.

The finding of the study implies that significant proportion of very early neonatal deaths are reported and misclassified as stillbirth. These deaths are misclassified by highly trained health care providers in higher health care provision facilities of the country. Routine facility based early neonatal death data are used for program monitoring. As a result, misclassification of these deaths could affect the decision to allocate resources, improve quality of care and to prevent future deaths. (41)

Based on the finding of this research misclassification status of very early neonatal death were not significantly associated with cause of death. A research done in India state that the stillbirth rate dropped from 18.6% to 9% after training on neonatal resuscitation was given. The reduction in stillbirth numbers indirectly shows that health care providers tend to record early neonatal death due to birth asphyxia as still birth due to several reasons. (33) The reason for discrepancy of two studies could be due to the measurement difference used in two studies. Variables were computed as maternal and fetal related factors in our study to measure cause of death.

This study revealed that there is practice of using different terminologies used in defining different time of death. They tend to confuse and use different terminology to report and document ENND, this lead to misclassification of ENND. The result of this study is consistent with a finding of study conducted in Afghanistan. (33)The reason behind knowledge gap in understanding the exact definition or terminologies were thinking that they are very easy, giving very small emphasis during training of health care providers and not updating oneself. Confusion regarding definition of events in perinatal loss could result in under estimation of neonatal mortality rate and inflation of stillbirth rate. This might distort the measurement of mortality levels and provide poor guide to policy makers and program managers.(32)

The other suggested reason for misclassification of ENND was fear of blame from teachers and supervisors among health care providers who are interns and residents. In addition, some health care provider who work in delivery unit, tend to avoid blame from themselves in different perinatal audit meetings. A qualitative research done on perception of health care providers in reporting and documentation of stillbirth also put fear of punishment among residents as one factor for intentional hiding, misclassification, and absence of documentation due to fear of

consequences from investigation and embarrassment in front of peers. (33, 42)Students usually fear their supervisors or mentor punishments which could affect their grade or academic performance since the grading system is more personal. They usually try to avoid these punishments by misclassification, misdiagnoses or underreporting and documentation of cases.(43)

Health care providers also fear the process of being questioned and reviewed for deaths which happen during intrapartum and immediate post-partum period. This is due to the fact that usually perinatal death audit review meetings end in blaming health care providers who were involved. Blaming leads to fear, which increases cover-ups and reduces the flow of information leading to more blame and error. It is important to make sure that different data quality improvement strategies, programs and intervention and the process of medical student evaluation system has no negative impact on process of data reporting and documentation due to the culture of blame in a facility.

Year of experience were reported to have impact on misclassification of ENND into still birth. Health care providers who have few years of experience and interns tend to misclassify more than experienced health care providers. Study conducted in Afghanistan also revealed that some doctors, particularly new graduates, were inadequately trained to properly differentiate between the different perinatal losses, and that this occurred more frequently during night shifts when supervisors were absent.(33)

Lack of proper supervision, documentation, perceived value of reporting, and fear of blame could result in misreporting, under reporting and misclassification of perinatal loss. It is important to consider giving emphasis for data documentation and reporting during training of health care providers since interns take major part in health care delivery in most teaching hospitals. In addition, data quality improvement strategies and policies should address such driving factors for misclassification and under reporting of early neonatal deaths.

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7. Limitations and strength of the study

7.1. Limitations of the study

This study has some limitations that should be taken in account while doing generalizability. The limitations of this study, are recall and measurement bias which could affect the finding of this study. The study was less powered because minimum sample size was not met. Difference in type of profession of health care providers participated in coding, and use of health care providers who were not certified on cause of death classification are some of limitations.

7.2. Strength of the study

The strength of this study is incorporation of both qualitative and quantitative study designs.

8. Conclusion and recommendation

Conclusion

The finding of this study gave insight on level of misclassification of very early neonatal death into stillbirth in public hospital of Addis Ababa. 8.5% very early neonatal deaths are misclassified and reported as stillbirth. It also found significant association between misclassification of very early neonatal death and denial of safe traditional practice. Fear of blame, work load, and confusion regarding the definition of events in perinatal loss are main enforcing factors behind misclassification of these deaths at health facility level. Programs which aim to improve data quality should consider such factors. Strategies should be designed to address such driving factors in addition to training and human power development.

Recommendations

For policy makers

- Pre or in-service training on standard cause of death classification should be given for health care providers.
- The importance of proper data documentation and reporting should be given emphasis during training of medical students.

For Hospital authorities

- Continuous awareness creation mechanism should be implemented about terminologies used in defining perinatal loss.
- Data quality monitoring mechanisms should be strengthen in hospitals.
- Perinatal death mortality audit feedback mechanism should be provided with a culture of accountability.

For researchers

- Observational and national level studies will better show the level of misclassification of early neonatal death by minimizing the limitation of this study.

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Annex 1 Perinatal death Notification form

Notification (section one)		
1	Name of the hospital	
2	Name of the mother	
4	Household address	Worde/Sub city_____ Kebele_____ Ketena/mender _____ House number: _____ Well known place to identify their home _____ Mothers' Phonenumber: Fathers' Phone number _____
5	Date of birth	DD/MM/YY____/____/_____ Time _____
6	Cause of death	
7	Place of still birth	1. At home 2. On the way to health post 3. At health post 4. On the way to Health facility (HCs, hospitals) 5. At health facility (HC, Hospital

Annex 2 English Questionnaire

Data collection tool

Study Informant sheet

Introduction and objective: Hello My name is _____. I am working with postgraduate student of Addis Ababa University, collage of medicine and health science, school of public health. You are requested to participate in a research study that aims to understand how early neonatal death and stillbirths are reported by the health service and reasons for accurate or inaccurate reporting. With your permission we would like to collect information about the circumstance that lead to the death of your unborn child or neonate. The aim of this research is to assess the magnitude of misclassification of early neonatal death into stillbirth and to explore the reasons for misclassification.

Risk and benefits: You might be exposed for some emotional harm while giving us the information about the deceased which is not unmanageable. You might not receive any direct benefit from participation but your information may be used to design programs to improve accurate reporting of early neonatal death to still birth in the future.

Rights and confidentiality: Whatever information you provide will be kept strictly confidential. No information identifying you or the deceased will ever be released to anyone outside of the study team. Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. You may also stop the interview completely at any time without any consequences at all. If you have any question regarding the information I gave you, please be free to ask me.

For further clarifications you can contact the primary investigator of the research using the following phone number.

Primary investigator: Hanna Feleke …… Tel (0910337708)

Based on the information provided about the study, are you willing to participate in the study?

YES **NO**

If the answer is **YES** please sign the informed consent form below.

Informed Consent Form

I agreed to voluntarily participate in this study after fully understand the aim, risk and benefit of the research.

Signature_____

Date_____

Section 1. Sociodemographic characteristics of the respondent			
ID	Questions	Answers	Skip to
10001	[Record address of the house.]	Text	
	Sub city		
	Woreda/district		
	Kebele		
	House number		
10002	Record primary phone number of the house. *Record'999999999' if contact number is not available.*	Contact ☐☐☐☐☐☐☐☐☐☐	
10003	What is the relationship of the respondent to the deceased?	1. Mother 2. Father 3. Mother's relative 4. Father's relative 5. Neighbor 6. TBA 7. Other (specify)	
10004	In which month and year, you were born	Month ☐☐	
		9. Don't know	
		Year ☐☐☐☐	
		9. Don't know	
10005	How old were you on your last birthday? ***Compare with the above and correct if not consistent?***	Age in completed year ☐☐ 9.Don't know	
10006	Have you ever attended school	1. Yes 2. No	
10007	What is the highest level of school you attended? Primary, secondary, technical/vocational or higher?	1. Primary (1-8) 2. Secondary (9-12) 3. Technical /Vocational 4. College/University and 9. Doesn't know	
10008	What is the highest [GRADE/YEARS] you completed at that level? ***If completed less than one year at that level, record '00'.***	GRADE/YEARS ☐☐	

10009	What is your occupational status?	1. Student 2. Job less 3. Government employee 4. Private employee 5. Merchant 6. Daily laborer 7. Farmer 8. House wife 9. Other (specify)____	
10010	What is your marital status?	1. Married 2. Single 3. Widowed 4. Divorced	If single, widowed and divorced go to 10016
10011	Know I am going to ask you about your husband did your husband ever attend school?	1. Yes 2. No	
10012	What is the highest [GRADS/YEARS] your husband completed at? ***If completed less than one year at that level, Record '00'***.	GRADE/YEARS ☐☐	
10013	What is the highest level of school you attend? Primary, secondary, technical/vocational or higher?	1. Primary (1-8) 2. Secondary (9-12) 3. Technical /Vocational 4. College/University and above 9. Doesn't know	
`10014	What is the highest [GRADE/YEARS] your husband completed at? If completed less than one year at that level, Record '00'.	GRADE/YEARS ☐☐	
10015	What is your husband or partner current occupation?	1. Student 2. Job less 3. Government employee 4. Private employee 5. Merchant 6. Daily laborer 7. Farmer 8. Other (specify)____	
10016	How much is your household monthly income?	----------birr	
Section 2. Basic information of the deceased			

20001	Where did your baby/fetus die?	1. At home 2. On the way to health facility 3. At health center 4. At hospital	
20002	What was the sex of the deceased?	1. Male 2. Female	
20003	What date was the baby born on?	Day ☐☐ Month ☐☐ Year ☐☐☐☐ 9. Don't know	
20004	What date was the baby born on?	Day ☐☐ Month ☐☐ Year ☐☐☐☐ 9. Don't know	
20005	[Enter the neonate's age in days, hours, or minutes.] If < 1 day, enter in hours or minutes. If< 1 hour, enter in minutes.	Minute ☐☐ Hour ☐☐ Day ☐☐	
Section 3. Pregnancy history			
30001	How many births, including stillbirths, did you/the baby's mothers have before this baby?	Births…	
30002	Did you have ANC follow up for the last pregnancy	1. Yes 2. No 9. Don't know	
30003	At which month of your last pregnancy did you start ANC follow up	Month ☐☐	
30004	How many times did you had ANC follow up for the last pregnancy		
30005	Did you (respondent) live with the deceased in the period leading to her/his death?	1. Yes 2. No	
30006	Was the baby part of a multiple birth? *If two or more babies are born at the same time, it is counted as a multiple birth, even if one or more of the babies are born dead.*	1. Yes 2. No 9. Doesn't know	If no and doesn't know go to 30008
30007	Was the baby the first, or second or later in the birth order?	1. Yes 2. After delivery 9. Doesn't know	
30008	Were there any complications during the first 3 months of pregnancy?	1. Yes 2. No 9. Doesn't know	If no and doesn't know go to 30010

30009	What were the complications? *Write the list of complications in respondent word as it is reported*	Text	
30010	Were there any complications in the last part of the pregnancy (define as the last 3 months before labour	1. Yes 2. No 9. Doesn't know	If no and doesn't know go to 40001
30011	What were the complications? *Write the list of complications in respondent word as it is reported*	Text	
Section 4. Delivery history			
40001	Is the mother still alive? ***If the mother is present at the interview, select 'yes' without asking the question if the respondent is not the mother and if is not mother is alive***.	1. Yes 2. No 9. Doesn't know	If No and Doesn't know go to 40004
40002	Did the mother die during or after the delivery?	1. During delivery 2. After delivery 9. Doesn't know	
40003	How long after the delivery did the mother die? *If less than 24 Hours, record '0' days.* ***If <1-month, record in days; if less than, 2 months, record in weeks; if >2 months, record in completed months. Record '99' if unknown.***	1.Day ☐☐ 2. Week ☐☐ 3. Month ☐☐	
40004	Did you/the mother receive professional assistance during the delivery? ***Explain to the respondent what is meant by professional assistance; delivery attended by a medical professional (doctor, nurse or midwife).***	1. Yes 2. No 9. Doesn't know	If No and Doesn't know go to 40007
40005	What was the profession of the person who assisted the delivery	1. Specialist Doctor 2. General practitioner 3. Nurse 4. Midwife 9. Don't know	
40006	In which age group did the person who assisted you on delivery belongs to?	1. 20-29 2. 30-39 3. 40-49 4. >=50 9. Don't know	
40007	At birth, what was the baby's size? ***Show photos (if available).***	1. Usual size (2.5- 4 kg) 2. Smaller than usual (1.5-2.5 kg) 3. Very much smaller than usual (<1.5 kg)	

		4. Baby larger than usual (>4kg) 9. Doesn't know	
40008	Was any part of the baby physically abnormal at time of delivery for example was a body part too large or too small, or was there an additional growth on the body?	1. Yes 2. No 9. Doesn't know	If No and Doesn't know go to 40010
40009	At time of birth did the baby have any of the following? ***Enter more than one if applicable.***	1. Deformed or very small head 2. Very large head 3. A swelling or deformity behind head 4. Cleft lip or palate 5. Deformity in hand or feet 6. Body part too large 7. Body part too small 8. A swelling or deformity on the back 9. Additional growth on the body	
40010	Was the baby moving in the last few days before the birth?	1. Yes 2. No 9. Doesn't know	
40011	Did the baby stop moving in the womb before labour started?	1. Yes 2. No 9. Doesn't know	If No and Doesn't know go to 40013
40012	How long before labour did you/the mother last feel the baby move? ***Enter the duration in hours or days. If less than one hour enter '0'***	1. Hours------- 2. Days-----	
40013	How many hours did the labour and delivery take? ***If less than one hour enters '0'. Record '99' if unknown***	Hours---	
40014	How long before the baby was born did the water break?	1. Less than 12 hours 2. 12-23 hours 3. 24 hours or more 9. Doesn't know	
40015	Was the liquid foul-smelling	1. Yes 2. No 9. Doesn't know	

40016	What was the color of the liquid when the water broke?	1. Green or brown 2. Clear (normal) 3. Other 9. Doesn't know	
40017	What was the mode of delivery?	1. Vaginal 2. Vaginal with instrument 3. caesarean section 9. Doesn't know	
40018	Did the baby's bottom, feet, arm or hand come out of the vagina before its head?	1. Yes 2. No 9. Doesn't know	
40019	Was the umbilical cord wrapped around the neck of the baby at birth?	1. Yes 2. No 9. Doesn't know	
40020	Was the umbilical cord delivered first?	1. Yes 2. No 9. Doesn't know	
40021	Was the baby blue in color at birth?	1. Yes 2. No 9. Doesn't know	
40022	Where on the body was the blue color at birth?	1. lips 2. Extremities (fingers, toes) 9. Doesn't know	
40023	Did the mother receive tetanus toxoid (TT) vaccine?	1. Yes 2. No 9. Doesn't know	
40024	How many Doses?	Doses	
40025	How many months long was the pregnancy before the baby was born?	1. Month ☐☐	
40026	Were there any complications during labour or delivery?	1. Yes 2. No 9. Doesn't know	If No and Doesn't know go to 40028
40027	What were the complications? ***Write the list of complications in respondent word as it is reported***	Text	
40028	Was the labour induced?	1. Yes 2. No	

		9. Doesn't know	
40029	During labour, did you/the baby's mother suffer from fever?	1. Yes 2. No 9. Doesn't know	
40030	During the last 3 months of pregnancy, labour or delivery, did you/the baby's mother suffer from high blood pressure?	1. Yes 2. No 9. Doesn't know	
40031	Did you /the baby's mother have diabetes mellitus?	1. Yes 2. No 9. Doesn't know	
40032	Did you//the baby's mother have foul smelling vaginal discharge during pregnancy or after delivery?	1. Yes 2. No 9. Doesn't know	
40033	During the last 3 months of pregnancy, labour or delivery, did you/the baby's mother suffer from convulsions?	1. Yes 2. No 9. Doesn't know	
40034	During the last 3 months of pregnancy, labour or delivery, did you/the baby's mother suffer from blurred vision?	1. Yes 2. No 9. Doesn't know	
40035	Did you /the baby's mother have severe anemia?	1. Yes 2. No 9. Doesn't know	
40036	Did you/the baby's mother have vaginal bleeding during the last 3months of pregnancy but before labour started?	1. Yes 2. No 9. Doesn't know	
Section 5. Condition of the baby soon after birth			
50002	Did the baby ever cry, even a little?	1. Yes 2. No 9. Doesn't know	
50002	Did the baby cry immediately after birth?	1. Yes 2. No 9. Doesn't know	
50003	How many minutes after birth did the baby first cry?	Minutes ☐☐	
50004	Di0d the baby ever move, even a little?	1. Yes 2. No 9. Doesn't know	

50005	Did the baby ever breathe, even a little?	1. Yes 2. No 9. Doesn't know	
50006	Did the baby breathe immediately after birth, even a little?	1. Yes 2. No 9. Doesn't know	
50007	Was anything done to try to help the baby to breathe at birth?	1. Yes 2. No 9. Doesn't know	If No and Doesn't know go to 50011
50008	What was done to try to help the baby to breathe?	1. Stimulation 2. Mouth to mouth 3. Mouth to tube or mask 9. Bag and mask	
50009	Did the baby have bruises or signs of injury?	1. Yes 2. No 9. Doesn't know	
50010	Was the baby still moving when labour started?	1. Yes 2. No 9. Doesn't know	
50011	When did you last feel the baby moving before labour started?	Hour ☐☐ Day ☐☐	
50012	Do you think that the baby had died before you went into labour?	1. Yes 2. No 9. Don't know	
50013	Were the baby's body soft, pulpy, and discolored and the skin peeling away?	1. Yes 2. No 9. Don't know	
Section 6. Treatment and health system use for the final illness			
60001	Did(s) he receive any treatment for the illness that led to death?	1. Yes 2. No 9. Doesn't know	If No and Doesn't know go to 70008
60002	Did (s) he receive oral rehydration salts?	1. Yes 2. No 9. Doesn't know	
60003	Did (s) he receive (or need) intravenous fluids (drip) treatment?	1. Yes 2. No 9. Doesn't know	
60004	Did (s) he receive (or need) a blood transfusion?	1. Yes 2. No	

		9. Doesn't know	
60005	Did(s) he receive any treatment/food through a tube passed through the nose?	1. Yes 2. No 9. Doesn't know	
60006	Did (s) he receive (or need) injectable antibiotics?	1. Yes 2. No 9. Doesn't know	
60007	Did (s) he receive (or need) antiretroviral therapy (ART)?	1. Yes 2. No 9. Doesn't know	
60008	Did (s) he receive (or need) an operation for the illness?	1. Yes 2. No 9. Doesn't know	
60009	Had (s) he received immunization?	1. Yes 2. No 9. Doesn't know	If No and Doesn't know go to 70010
60010	Can I see the baby's vaccination card? ***If available, take a picture.***	1. Yes (take picture 9. No	
60011	Record the name and address of any hospital, health center or clinic where care was sought.]	Text	
60012	What do you (the respondent) think the deceased died of?	Text	
60013	You said that (s) he had [list positive symptoms]. Which one occurred first? Second? [Continue until all symptoms have been put in order.]		
Thank you for the information. I want to confirm the details of these problems that we just discussed with you again. This is to make sure we get complete history.			
Use this space to take note on the probing of positive symptoms and details of medical treatment			

[Narrative] Using the notes read out the organized history to the respondents and get his/her confirmation before writing it below. Excuse me for a few minutes while I write out what you have told me.

Section 7. Respectful maternity care

ID	Questions	Response	Skip to
70001	Did the health worker tell you the cause of death?	1. Yes 2. No 9. Doesn't know	If No and Doesn't know go to 80003
70002	What did the health worker say?	Text	
70003	Can I see any health record that belongs to the deceased? ***If available, take a picture***	1. Yes (take picture) 2. No	
70004	Were there any problem/delays during admission to the health facility or hospital?	1. Yes 2. No 9. Doesn't know	
70005	Was there any problem with the ways (he) was treated (medical treatment, procedures, interpersonal attitudes, respect, dignity) in the hospital?	1. Yes 2. No 9. Doesn't know	
70006	Were there any problems getting medication or diagnostic test in hospital?	1. Yes	

		2. No 9. Doesn't know	
70007	**Physical abuse**		
	Did the health worker ever slapped, pinched or hit you during delivery for different reasons?	1. Yes 2. No	
	Did the health worker ever use extra force during health care provision?	1. Yes 2. No	
	Did the health worker restrain you from moving?	1. Yes 2. No	
70008	**Verbal abuse**		
	Did the health workers use harsh or rude language during delivery?	1. Yes 2. No	
	Did the health worker ever give you inappropriate comment about your sexual activity?	1. Yes 2. No	
	Did the health worker ever blame you for your or your baby's poor health outcome?	1. Yes 2. No	
	Did the health worker ever insult you or your companion due to your or their personal attribute?	1. Yes 2. No	
70009	**Stigma and discrimination**		
	Did health workers didn't treat you well because of your personal attribute (Ethnicity, race and religion)?	1. Yes 2. No	
	Did health workers didn't treat you well because of your age?	1. Yes 2. No	
	Did health workers didn't treat you well because of your economic status?	1. Yes 2. No	
	Did health workers didn't treat you well because of your medical condition?	1. Yes 2. No	
70010	**Failure to meet professional standard of care**		
	Did health workers perform frequent painful vaginal examination, without asking your consent and with violation of your privacy?	1. Yes 2. No	
	Did the heath workers refuse to provide you pain relief during conducting any procedure such as episiotomy?	1. Yes 2. No	
	Did the health care provider disclose any private information to anyone other than you?	1. Yes 2. No	
	Did you wait for long time before receiving service?	1. Yes 2. No	
	Did the health workers ask your consent before performing any procedure?	1. Yes 2. No	
	Did you give birth to your baby without presence of health care provider?	1. Yes 2. No	
70011	**Poor rapport between women and provider**		

	Did you feel dissatisfied with the information and explanations provided to you?	1. Yes 2. No	
	Did you face any language barrier during your communication with health care provider?	1. Yes 2. No	
	Did you feel that there was lack of supportive care from health workers during delivery?	1. Yes 2. No	
	Were you denied to have birth companion during the time of delivery?	1. Yes 2. No	
	Did the health care provider force you to deliver in undesired position?	1. Yes 2. No	
	Were you denied to practice safe traditional practice of your culture	1. Yes 2. No	
	Did you ever fell that you were forced to strip your close and expose your body in front of many health care providers including students without your consent?	1. Yes 2. No	
	Were you forced not to leave the hospital because you were not able to pay hospital bill?	1. Yes 2. No	
70012	**Health system condition and constraints**		
	Did you fell that the physical condition of the hospital was unclean or dirty?	1. Yes 2. No	
	Did you fell that there was shortage of health care provider in the facility?	1. Yes 2. No	
	Did inexperienced or poorly trained health care provider provide you care without supportive supervision?	1. Yes 2. No	
	Did the health care provider ever explain to you that there is shortage of medical supply?	1. Yes 2. No	
	Did you ever feel that there was lack of privacy during service provision by health care provider?	1. Yes 2. No	
	Did you ever feel that you have to pay or did you pay bribery for any worker in the facility to have quality of care?	1. Yes 2. No	
	Did you ever feel fear to express your opinion about the treatment and service rendered during child birth?	1. Yes 2. No	
	Did the health care provider request you to do unreasonable things while you were in the facility?	1. Yes 2. No	
70013	**Impact on utilization of maternal health service**		
	Did you ever feel that the health system is in favor of health care providers?	1. Yes 2. No	
	Are you going to give birth to your future pregnancies in the same hospital that you deliver your last baby?	1. Yes 2. No	

Annex 3 In-Depth Interview guide

Introduction and objective: Hello My name is _____. You are requested to participate in a research study on misclassification of early neonatal death into still birth. With your permission we would like to collect information about the reason for misclassification of early neonatal death into still birth by health care providers. The aim of this research is to explore the reasons for misclassification of early neonatal death into stillbirth. The reason why you are asked to participate in this study is that you are working in labour and delivery ward of the hospital.

Risk and benefits: There is no harm for participating in this study. You might not receive any direct benefit from participation but your information will help in improvement of future intervention and activities for having good quality and accuracy of pregnancy outcome data.

Right and confidentiality: Whatever information you provide will be kept strictly confidential. No information identifying you or the deceased will ever be released to anyone outside of this information-collection activity. Participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. You may also stop the interview completely at any time without any consequences at all.

If you have any question regarding the information, I gave you, please be free to ask me. For further clarifications you can contact the coordinator of the research using the following phone number.

Data collection procedure

The in-depth interview will take around one hour during the discussion you will be asked to clarify the reasons for misclassification of early neonatal death into still birth. Your response will be recorded with audio recorder based on your will. The audio recorded response will be transcribed. There is no any information which will identify your identity. You will be provided with unique Id and you are supposed to mention your number before you start your response. You are encouraged to share your idea freely. You have the right to stop the interview at any time.

Research coordinator: Hanna Feleke …… Tel (0910337708)

Based on the information provided about the study, are you willing to participate in the study?

1. **YES** 2. **NO**

If the answer is **YES** please sign the informed consent form below.

Informed Consent Form

I agreed to voluntarily participate in this study after fully understand the procedures that will be conducted.

Signature_____

Date_____

Semi-Structured Questions for health care providers

Greeting ----------

Asking consent ----------

Inform purpose of the research----------

Background

1. Can you tell me about you?
   - **I.** What is your profession?
   - **II.** Year of experience?

Personal characteristics related factors

1. What do you think is the meaning of perinatal death?
2. What do you think is the meaning of early neonatal death?
3. What do you think is the meaning of still birth?
4. Have you ever heard or came across the concept of misclassification of perinatal death? I f yes what do you think is it?
5. What do you think is the importance of reporting perinatal death?
6. What do you think is the impact of misclassification of perinatal death at different level of health system?
7. What should be done to minimize misclassification of prenatal death?

Facility related factors

1. What work related factors do you think could cause misclassification of perinatal deaths?

   Probe

   - Work load
   - Extensive paper work
   - Tedious process of registration for perinatal deaths.

2. Why do misclassifications of perinatal death occur?
3. Which levels of professional do you think mostly misclassify perinatal death?
4. What should be done to minimize misclassification of prenatal death?

System related factors

1. What do you think the problem occur if you report early neonatal death appropriately?

   Probe

   - Surveillance
   - Blame
   - Punishment (indirectly)

Annex 4 Amharic Questionnaire

ስለጥናቱመረጃ

የጥናቱአላማ ስሜ ---------- ይባላል፡፡ እኔ በአዲስ አበባ ዩኒቨርሲቲ ፣ የህክምናና ጤና ሳይንስ ኮሌጅ፣የሕብረተሰብ ጤና ትምህርት ቤት የድህረ ምርቃ ተማሪ በሚያደርጉት ጥናት ላይ በመረጃ ሰብሳቢነት እየሰራሁ እገኛለዉ፡፡በአሁኑ ሰዐት የመመረቂያ ፅሁፌን እየሰራሁ እገኛለሁ፡፡ጥናቱ ስለጨቅላ ህጻናት እና ሞተው የሚወለዱ ህጻናት በጤና ስርአቱ እንዴት እንደሚዘገብ እና ለተሳሳተ እና ትክክለኛ ዘገባ ያለው ምክንያት ምን እንደሆነ ማጥናትን ይመለከታል፡፡በአርሶ መልካም ፈቃድ ስለልጆ አሚሚት መረጃ እንዲሰጡን እንፈልጋል፡፡የዚህ ጥናት አላማ የተሳሳተ የጨቅላ ሕፃናት ሞት ምደባን መጠን እና ለተሳሳተ ምደባ ምክንያቶች ምን ምን እንደሆኑ ማጥናት እንልጋለን፡፡

ተጓዳኝችግሮችእናጥቅሞች:

በጥናቱ ወቅት ለስነልቦናዊ ጫና ሊዳረጉ ይችላሉ ነገር ግን እነዚህ ችግሮች በቀላሉ በመረጃ ሰብሳቢው እገዛ ሊቀረፉ የሚችሉ ናቸው፡፡እዚህ ጥናት ላይ በመሳተፎ የሚያገኙት ምንም አይነት ቀጥተኛ ጥቅም የለም ሆኖም የሚሰጡን መረጃ ወደፊት የሚከሰቱ የጨቅላ ሕፃናትን ሞት ለመቀነስ ለሚሰሩ ስራዎች እንደ ግብአት ሊያገለግል ይችላል፡፡

መብት እና የጥናቱ ሚስጥራዊነት

የሚሰጡት ማንኛውም መረጃ ሚስጥራዊነቱ የተጠበቀ ነው ከዚህ ጥናታዊ ፅሁፍ ውጪ ለምንም አገልግሎት አይውልም፡፡የእርሶንምሆነየሚችንማንነትየሚገልፅምንምአይነትመረጃየለም፡፡ በዚህጥናትሙሉበሙሉወይምበከፊልያለመሳተፍመብቶየተጠበቀነው ተሳትፎዎን በፈለጉት ሰአት ያለ ምንም ቅጣት መቋረጥ ይችላሉ፡፡መጠየቅ የሚፈልጉት ማንኛውም ነገር ካለ መጠየቅ ይችላሉ፡፡ለበለጠ መረጃ የጥናቱን ዋና አጥኚ በዚህ ቁጥር ማግኘት ይችላሉ፡፡

ሀና ፈለቀ...---- ስ.ቁ(0910337708)

በጥናቱ ለመሳተፍ ፈቃደኛ ኖት

1. አዎ 2. አይደሉም

ፈቃደኛ ከሆኑ የሚከተለውን የፈቃድ መስጫ ቅጽ ይሙሉ

የፈቃድመስጫቅጽ

በዚህ ጥናት ላይ ለመሳተፍ ሙሉ የጥናቱን አላማ ከተረዳሁ በኋላ ለመሳተፍ ፈቃደኝነቴን በፊርማዬ አረጋግጣለሁ፡፡

ፊርማ _____ቀን_____

ክፍል 1 አጠቃላይመረጃ			
ተ.ቁ	ጥያቄ	መልስ	ዝለል
10001	[የመኖሪያ አድራሻ]		
	ክፍለ ከተማ		
	ወረዳ		
	ቀበሌ		
	የቤት ቁጥር		
10002	ስልክ ቁጥር ከሌላቸው '999999999' ይሞላ	ስልክ ቁጥር ☐☐☐☐☐☐☐☐☐☐	
10003	ከሚች ጋር ያሎት ዝምድና ምንድን ነው?	1. እናት 2. አባት 3. የእናትዘመድ 4. የአባትዘመድ 5. ጎረቤት 6. ሌላ	
10004	የተወለዱበት ወር እና አመት መቼ ነው	ወር ☐☐	
		9. ወሩን አላውቅም	
		☐☐☐☐ አመት	
		9. አመቱን አላውቅም	
10005	የመጨረሻ ልደቶን ሲያከብሩ ስንት አመት ሆኖት ነበር? ከ10004 ጋር ይመሳከር ትክክል ካልሆነ ይስተካከል	እድሜበአመት ☐☐ 9.አላውቅም	
10006	ትምህርት ተምረዋል	1. አዎ 2. አይደለም	
10007	ከፍተኛ ያጠናቀቁት የትምህርት ደረጃ?	1. የመጀመሪያ ደረጃ (1-8) 2. ሁለተኛ ደረጃ (9_12) 4. ቴክኒክና ሙያ 5. ዩንቨርስቲ እና ከዛ በላይ 9. አላውቅም	
10008	ከፍተኛ ያጠናቀቁት የክፍል ደረጃ ስንት ነው?	ክፍል/አመት ☐☐	

10009	ስራሞ ምንድን ነው?	1. ተማሪ 2. ስራ አጥ 3. የመንግስት ሰራተኛ 4. የግል ተቀጣሪ 5. ነጋዴ 6. የቀን ሰራተኛ 7. ገበሬ 8. የቤት እመቤት 9. ሌላ (ይገለፅ)_____	
10010	የጋብቻ ሁኔታ?	10. ያገባ 11. ያላገባ 12. የሞተበት 13. የተፋታ	መልሳቸው ያላገባ፣ የሞተበት ወይም የተፋታ ከሆነ ወደ 10015 ይዝለሉ
10011	አሁን ስለ ባለቤቶ አንዳንድ ጥያቄዎችን ልጠይቆት ነው።ባለቤቶ ትምህርት ተምረዋል?	1. አዎ 2. አይደለም	
10012 `	ባለቤቶ ያጠናቀቁት ከፍተኛ የትምህርት ደረጃ?	1. የመጀመሪያ ደረጃ (1-8) 2. ሁለተኛ ደረጃ (9_12) 3. ቴክኒክና ሙያ 4. ዩንቨርስቲ እና ከዛበላይ 9. አላውቅም	
10013	ባለቤቶ ያጠናቀቁት ከፍተኛ የክፍል ደረጃ?	ክፍል/አመት [ ][ ]	
10014	የባለቤቶ የስራ ሁኔታ?	1. ተማሪ 2. ስራአጥ 3. የመንግስትሰራተኛ 4. የግልተቀጣሪ 5. ነጋዴ 6. የቀንሰራተኛ 7. ገበሬ 9. አላውቅም	
10015	የቤተሰቦ የወር ገቢ ምን ያህል ነው?	----------ብር	
ክፍል 2 የሚች አጠቃላይ መረጃ			

20001	ህጻኑ/ፅንሱ የሞተው የት ነው?	1. ቤት 2. ወደ ጤና ተቋም ስትሄድ 3. ጤና ጣቢያ 4. ሆስፒታል	
20002	የሚች ጸታ?	1. ወንድ 2. ሴት	
20003	ህጻኑ የተወለደበት ቀን?	ቀን ☐☐ ወር ☐☐ አመት ☐☐☐☐ 9. አላውቅም	
20004	ህጻኑ የሞተበት ቀን?	ቀን ☐☐ ወር ☐☐ አመት ☐☐☐☐ 9. አላውቅም	
20005	[የህጻኑ እድሜ] ከአንድ ቀን በታች ከሆነ በስአት፣በደቂቃ እንዲሁም በሰኮንድይሞላ	ደቂቃ ☐☐ ሰአት ☐☐ ወር ☐☐	
ክፍል 3 እርግዝናን በተመለከተ			
30001	በህይወት ዘመኖ ስንት ልጅ ወልደዋል ሞተው የተወለዱትን ጨምሮ?	ወሊድ…	
30002	ለመጨረሻው እርግዝናሽ የቅድመ ወሊድ ክትትል አድርገው ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
30003	በመጨረሻው እርግዝናሽ ጊዜ የቅድመ ወሊድ ክትትል የጀመርሽው በስንተኛ ወርሽ ነው	ወር ☐☐	
30005	ህጻኑ/ኗ መንታ ነበረው/ራት?	1. አዎ 2. አይደለም 9. አላውቅም	መልሳቸው አይ ወይም አላወቅም ከሆነ ወደ 30007 ይዝለሉ
30006	ህጻኑ/ኗ ሲወለድ/ስትወለድ አንደኛ፣ሁለተኛ ወይስ ሶስተኛ ነበር/ነበረች?	1. አንደኛ 2. ሁለተኛ 9. አላውቅም	
30007	በመጀመሪያዎቹ ሶስት የእርግዝና ወራት የተፈጠሩ ችግሮች ነበሩ?	1. አዎ 2. አይደለም 9. አላውቅም	መልሳቸው አይ ወይም አላወቅም

			ከሆነ ወደ 30009 ይዝለሉ
30008	የተፈጠሩ ችግሮች ምን ምን ነበሩ?*የተፈጠሩ ችግሮችን በመላሹ ቃል ቅደም ተከተሉን ጠብቆ ይቀመጥ*		
30009	በመጨረሻዎቹ ሶስት የእርግዝና ወራት የተፈጠሩ ችግሮች ነበሩ?	1. አዎ 2. አይደለም 9. አላውቅም	መልሳቸውአይወይ ምአላወቅምከሆነወ ደ40001 ይዝለሉ
30010	የተፈጠሩ ችግሮች ምን ምን ነበሩ?*የተፈጠሩ ችግሮችን በመላሹ ቃል ቅደም ተከተሉን ጠብቆ ይቀመጥ*		
ክፍል 4 ወሊድንበተመለከተ			
40001	የህፃኑ/ኗ እናት በህይወት አለች? *ተጠያቂዋ እናቱ ከሆነች ሳትጠይቅ/ቂ አዎ ብለህ/ሽ ሙላ*	1. አዎ 2. አይደለም 9. አላውቅም	መልሳቸውአይወይ ምአላወቅምከሆነወ ደ40004 ይዝለሉ
40002	የህጻኑ/ኗ እናት መቼ ነው የተሞተችው?	1. በወሊድጊዜ 2. ከወሊድበኋላ 9. አላውቅም	
40003	ከወለደች ከስንት ሰአት በኋላ ሞተች? *(ከ24 ሰአት በፊት ከሆነ 0 ብልህ ጻፍ ከወር በታች ከሆነ በቀን፣ከሁለት ወር በታች ከሆነ በሳምንት፣ከሁለት ወር በላይ ከሆነ በወር ይሞላ)*	1.ቀን 2. ሳምንት 3. ወር	
40004	አንቺ/የህጻኑ እናት ስትወልድ/ጂ በባለሙያ ታግዛ/ሽ ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
40005	አንቺን/የህጻኑ እናትን ያዋለዳት/ቻት ባለሙያ ምን አይነት የጤና ባለሙያ ነበር?	1. ዶክተር 2. ነርስ 3. አዋላጅነርስ 4. ሌላ 9. አላውቅም	
40006	አንቺን/የህጻኑ እናትን ያዋለዳት/ያዋለደቻት የጤናባለሙያ በየትኛው የእድሜ ክልል ትገኛለች/ይገኛል?	1. 20-29 2. 30-39 3. 40-49 4. >=50 9. አላውቅም	
40007	ህፃኑ/ኗ ከመወለዱ/ዷ አስቀድሞ እርግዝናው የስንት ወር ነበር ?	1. ወር	

40008	ህጻኑ/ኗ ሲወለድ/ስትወለድ መጠኑ/ኗ ምን ያህል ነው? ፎቶ ካለ አሳይ?	1. የተለመደ መጠን (2.5 _4 ኪ.ግ) 2. ከተለመደውያነሰ(ከ1.5_ 2.5 ኪ.ግ) 3. ከተለመደውበጣምያነሰ (ከ1.5ኪ.ሎበታች) 4. ከተለመደውየበዛ (ከ4 ኪ.ሎየበለጠ) 9. አላውቅም	
40009	ህፃኑ ሲወለድ የአፈጠጣር ችግር ነበረበት?	1. አዎ 2. አይደለም 9. አላውቅም	
40010	ህፃኑሲወለድ ምን አይነት የአፈጠጣር ችግር ነበረበት?	1. በጣም ትንሽ ወይም የአፈጣጠር ችግር ያለዉ ጭንቅላት 2. በጣም ትልቅ ጭንቅላት 3. ከአንገቱ በኋላ ያለ እብጠት 4. የከንፈር ወይም የላንቃ መሰንጠቅ 5. እጅ ወይም እግር ላይ የአፈጣጠር ችግር 6. በጣም ትልቅ የሰውነት ክፍል 7. በጣም ትንሽ የሰውነት ክፍል 8. በጀርባው ላይ እብጠት ክፍተት 9. በሰውነት ላይ ያለ ተ እድገት	
40011	ምጡ ሲጀምርሽ ህጻኑ በማህጸን ውስጥ ይንቀሳቀስ ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	

40012	ለመጨረሻ ጊዜ ህጻኑ ሲንቀሳቀስ የተሰማሽ መቼ ነው?	|__|__| ቀንምጡከመጀመሩበፊት |__|__| ሰአትምጡከመጀመሩበፊት	
40013	ህጻኑ ምጡ ከመጀመሩ በፊት ሞቷል ብለሽ ታስቢያለሽ?	1. አዎ 2. አይደለም	
40014	ህፃኑን ለመውለድ ስንት ሰአት አማጠች? ከአንድ ሰአት በታች ከሆነ 0 ማስገባት፣ ካልታወቀ 99 ማስገባት	ሰአት --------	
40015	ህጻኑ ከመወለዱ ከስንት ሰአት በፊት ነው የሽርት ውሀዉ የፈሰሰው?	1. ከ12 ሰአትበፊት 2. 12-23 ሰአት 3. 24 ሰአትእናከዚያበላይ 9. አላውቅም	
40016	የሽርት ውሀ መጥፎ ሽታ ነበረው?	1. አዎ 2. አይደለም 9. አላውቅም	
40017	የሽርት ውሀዉ ምን አይነት ቀለም ነበረው?	1. አረንጓዴ ወይም ቡኒ 2. ንጹህ(ውሀ የመሰለ) 3. ሌላ 9. አላውቅም	
40018	ህጻኑ ሲወለድ በምን መልኩ ነው የተወለደው	1. በማህፀን 2. በማህፀን ሆኖ በመሳሪያ በመታገዝ 3. በቀዶ ጥገና 9. አላውቅም	

40019	በወሊድ ጊዜ የህጻኑ እጅ፣እግር ወይም መቀመጫ ከህጻኑ ጭንቅላት ቀድሞ ተወልዷል?	1. አዎ 2. አይደለም 9. አላውቅም	
40020	ህፃኑ ሲወለድ የህፃኑ እትብት የህጻኑ አንገት ዙሪያ ተጠምጥሞ ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
40021	የህፃኑ እትብት ቀድሞ ተወልዶ ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
40022	ፃኑ ቆዳ ሰማያዊ ወይም የገረጣ መልክ ነበረው?	1. አዎ 2. አይደለም 9. አላውቅም	
40023	በየትኛው የሰውነት ክፍል ላይ ነው ሰማያዊ ወይም የገረጣ መልክ የነበረው?	1. አዎ 2. አይደለም 9. አላውቅም	
40024	በወሊድ እና በምጥ ጊዜ የተፈጠሩ ችግሮች ነበሩ?	1. አዎ 2. አይደለም 9. አላውቅም	መልሳቸውአይወ ይምአላዉቅምከሆነ ወደ40026 ይዝለሉ
40025	የተፈጠሩ ችግሮች ምን ምን ነበሩ? *የተፈጠሩ ችግሮችን በመላሹ ቃል ቅደም ተከተሉን ጠብቆ ይቀመጥ*		
40026	ምጡ እንዲጀምር በህክምና የተደረገ ነገር ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
40027	በምጥ ወቅት አንቺ/ የህፃኑ እናት ትኩሳት ነበራት?	1. አዎ 2. አይደለም 9. አላውቅም	
40028	በመጨረሻዎቹ ሶስት የእርግዝና ወራት አንቺ/የህፃኑ እናት የደምግፊት በሽታ ነበረባት/ብሽ?	1. አዎ 2. አይደለም 9. አላውቅም	
40029	አንቺ/ የህጻኑ እናት የስኳር በሽታ ነበረባት/ ብሽ?	1. አዎ 2. አይደለም 9. አላውቅም	

40030	አንቺ/ የህጻኑ እናት መጥፎ ሽታ ያለው ከማህፀን የሚወጣ ፈሳሽ ነበራት/ረሽ?	1. አዎ 2. አይደለም 9. አላውቅም	
40031	በመጨረሻዎቹ ሶስት የእርግዝና ወራት አንቺ/ የህጻኑ እናት የማንዘፍዘፍ ችግር ነበረባት/ብሽ?	1. አዎ 2. አይደለም 9. አላውቅም	
40032	በመጨረሻዎቹ ሶስት የእርግዝና ወራት አንቺ/ የህጻኑ እናት የአይን ብዥ/ታ ችግር ነበረባት/ብሽ?	1. አዎ 2. አይደለም 9. አላውቅም	
40033	አንቺ/ የህጻኑ እናት የደም ማነስ በሽታ ነበረባት/ብሽ?	1. አዎ 2. አይደለም 9. አላውቅም	
40034	በመጨረሻዎቹ ሶስት የእርግዝና ወራት አንቺ/ የህጻኑ እናት ከማህፀን ደም መፍሰስ ችግር ነበረባት/ብሽ?	1. አዎ 2. አይደለም 9. አላውቅም	
ክፍል 5 ህፃኑ ልክ እንደተወለደ ያሉ ሁኔታዎች			
50001	ህጻኑ/ኗ ሲወለድ/ስትወለድ አልቅሶ/ሳ ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
50002	ህጻኑ/ኗ ልክ እንደተወለደ/ች አልቅሶ/ሳ ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
50003	በተወለደ/ች በስንት ደቂቃ ውስጥ አልቅሶ/ሳ ነበር?	ደቂቃ ☐☐	
50004	ህጻኑ/ኗ ሲወለድ እንቅስቃሴ ነበረው?	1. አዎ 2. አይደለም 9. አላውቅም	
50005	ህጻኑ/ኗ ሲወለድ/ ስትወለድ ተንፍሷል/ ተንፍሳለች?	1. አዎ 2. አይደለም 9. አላውቅም	
50006	ህጻኑ/ኗ ወዲያው እንደተወለደ/ች ተንፈሷል/ተንፍሳለች?	1. አዎ 2. አይደለም 9. አላውቅም	
50007	ህጻኑ/ኗ እንዲተነፍስ/ እንድትተነፍስ ስለመርዳት የተደረገ ነገር ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
50008	ህጻኑ/ኗ እንዲተነፍስ/እንድትተነፍስ ለመርዳት የተደረገው ነገር ምን ነበር?	1. ማነቃቃት 2. አፍለአፍ 3. በትቦ 4. በመምጠጫ	
50009	ህፃኑ/ኗ ሲወለድ/ስትወለድ በሰውነቱ/ቷ ላይ የበለዘ ወይም የጠቆረ ነገር ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	

50010	ምጡ ሲጀምርሽ ህጻኑ በማህጸን ውስጥ ይንቀሳቀስ ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
50011	ለመጨረሻ ጊዜ ህጻኑ ሲንቀሳቀስ የተሰማሽ መቼ ነው?	ሰዐት ☐☐ ቀን ☐☐	
50012	ህጻኑ/ኗ ምጡ ከመጀመሩ በፊት ሞቷል/ሞታለች ብለሽ ታስቢያለሽ?	1. አዎ 2. አይደለም 9. አላውቅም	
50013	የህፃኑ/ኗ ቆዳ የመላጥ ወይም የመሰርጎድ ባህሪ ነበረው/ራት?	1. አዎ 2. አይደለም 9. አላውቅም	
ክፍል 6 ህክምናን በተመለከተ			
60001	ህፃኑን/ኗን ለሞት በዳረገው ህመም ጊዜ ያገኘው/ችው የህክምና እርዳታነበር?	1. አዎ 2. አይደለም 9. አላውቅም	መልሳቸው አይወይም አላዉቅም ከሆነ ወደ 70008 ይዝለሉ
60002	ህፃኑ/ኗ ኦ አር ኤስ ተሰቶት/ታት ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
60003	ህፃኑ/ኗ በደም ስሩ ግሉኮስ ተቀጥሎለት/ላት ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
60004	ህፃኑ/ኗ ደም ተሰጦት/ጧት ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
60005	ህፃኑ/ኗ ምንም አይነት መድሀኒት ወይም ምግብ በአፍንጫ በኩል ተሰጦታል/ ተሰጧታል?	1. አዎ 2. አይደለም 9. አላውቅም	
60006	ህፃኑ/ኗ በመርፌ የሚሰጥ መደሀኒት ወስዷል/ወስዳለች?	1. አዎ 2. አይደለም 9. አላውቅም	
60007	ህፃኑ/ኗ የእድሜ ማራዘሚያ መድሀኒት ወስዷል/ወስዳለች?	1. አዎ 2. አይደለም 9. አላውቅም	
60008	ህፃኑ/ኗ የቀዶጥገና ተደርጎለት/ተደርጎላት ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
60009	ህፃኑ/ኗ ክትባት ወስዶ/ዳ ነበር?	1. አዎ	

		2. አይደለም 9. አላውቅም	መልሳቸው አይወይም አላዉቅም ከሆነ ወደ70010 ይዝለሉ
60010	የክትባት ካርዱን ላይ እችላለሁ? ካለ ፎቶ ይነሳ	1. አዎ(ፎቶይነሳ) 2. አይደለም	
60012	ህክምና የወሰዱበትን ሆስፒታል ጤናጣቢያ ወይም ክሊኒክ ስም ይፃፍ		
60012	ሟች በምን በሽታ የሞተ ይመስላችኋል?		
60013	አንቺ በነገርሽኝ መሰረት በመጀመሪያ፣ ቀጥሎ እንዲሁም በመጨረሻም የነበሩ ነገሮች/ምልክቶች ይፃፉ	በመጀመሪያ---------- _____ _____ _____ቀጥሎ------- _____ _____ _-በመጨረሻም--------- _____ _____ነገሮችነበሩ	
ስለሰጠሽኝ መረጃ በጣም አመሰግናለሁ።የነበሩ ችግሮችን በደንብ ለማረጋገጥ እፈልጋለሁ ይህም አስፈላጊ መረጃ እንዳልተው ይረዳኛል።			
ይህንን ክፍት ቦታ ያሉ አስፈላጊ የታዩ ምልክቶችን እና የተደረጉ ህክምናዎችን ለማስታወስ ተጠቀምበት			
ትንታኔ ፣ ከላይ የያዝካቸዉን ነጥቦች ለመላሿ አንብብ እና ከታች ከመፃፍህ በፊት የመላሹን ማረጋገጫ አግኝ። ይቅርታ የተነጋገር ነውን እስክዕፍ ትንሽ ደቂቃ ይታገሱኝ			

ክፍል 7 አክብሮት የተሞላ የእናቶች እንክብካቤ በተመለከተ			
ተቁ	ጥያቄ	መልስ	ዝለል
70001	የጤና ባለሙያው የሞቱን መንስኤ ነግረውታል?	1. አዎ 2. አይደለም 9. አላውቅም	መልሳቸውአይወይ ምአላዉቅምከሆነወ ደ80003 ይዝለሉ
70002	የጤና ባለሙያው ምን ነበር ያሉት?		
70003	*ከሆስፒታል የተሰጡት መረጃ ካለ ማየት እችላለሁ? ካለ ፎቶ ይነሳ*	1. አዎ(ፎቶአንሳ) 2. አይደለም	
70004	ሆስፒታል ውስጥ አገልግሎት ለማግኘት የነበረ መጓተት/መስተጓጎል ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
70005	በህክምና አሰጣጡ ላይ ለተገልጋይ ከሚሰጠው ከህክምና አሰጣጡ አንጻር የሚታይ ችግር ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
70006	በሆስፒታሉ ውስጥ የመድሀኒት ወይም የመመርመሪያ መሳሪያ ችግር ነበር?	1. አዎ 2. አይደለም 9. አላውቅም	
70007	**አካላዊ ጥቃት**		
	ለወሊድ ሆስፒታል በነበሩበት ጊዜ የጤና ባለሙያዋ/ው በምንም ምክንያት በጥፊ መታሽ ወይም ቆንጥጣሽ ታቃለች?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበሩበት ጊዜ የጤናባለሙያዋ/ው ህክምና አገልግሎት ሲሰጡት አላስፈላጊ ሀይል ተጠቅመዉ ያቃሉ?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበሩበት ጊዜ የጤና ባለሙያዋ/ው አንድ ቦታ ላይ እንዳይንቀሳቀሱ አግደዎት ነበር?	1. አዎ 2. አይደለም	
70008	**ስነ ልቦናዊ ጥቃት**		
	ለወሊድ ሆስፒታል በነበሩበት ጊዜ የጤና ባለሙያዋ/ው ፀያፍ ቃላትን በተለያዩ	1. አዎ 2. አይደለም	

	ምክንያቶች ተጠቅመው ያቃሉ?		
	ለወሊድ ሆስፒታል በነበሩበት ጊዜ የጤና ባለሙያዋ/ው ስለ ፆታዊ ግንኙነቶ አላስፈላጊ አስተያየቶችን ሰተዎት ያቃሉ ?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበሩበት ጊዜ የጤና ባለሙያዋ/ው በእርሶ ወይም በልጆ ላይ ለደረሰ የጤና ችግር ወይም ያልተፈለገ ዉጤት እርሶን ጥፋተኛ አድርገዎት ያቃሉ?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው እርሶን ወይም የቤተሰቦን አካል በግሎ ባህሪ/መለያ ምክንያት ሰድቦት ያቃሉ?	1. አዎ 2. አይደለም	
70009	**ማግለልእናመድሎ**		
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤናባለሙያዋ/ው በእርሶ የማንነት መለያ ለምሳሌ ብሄር፣ሀይማኖት ወይም ዘር ምክንያት አገልግሎት አሰጣጥ ላይ አድሎ አድርጎቦታል?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው በእድሜዎ ምክንያት አገልግሎት አሰጣጥ ላይ አድሎ አድርጎቦታል?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው በኢኮኖሚ ሁኔታዎ ምክንያት አገልግሎት አሰጣጥ ላይ አድሎ አድርጎቦታል?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው በእርሶ የጤና ሁኔታ ምክንያት አገልግሎት አሰጣጥ ላይ አድሎ አድርጎቦታል?	1. አዎ 2. አይደለም	
70010	**ደረጃውን የጠበቀ ሙያዊ እንክብካቤ መስጠት አለመቻል**		
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው ተደጋጋሚ (የማህፀን ምርመራ በተደረገ ከአራት ሰአት ቢፊት) የሆነ አላስፈላጊ እና የሚያም የማህፀን ምርመራ ያደርጉ ነበር?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው የተለያዩ ህክምናዎች ሲሰጡ የህምም መቀነሻ መድሀኒቶችን ለመስጠት ፈቃደኛ ሳይሆኑ ቀርተው ያቃሉ?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው የእርሶን ሚስጥራዊ መረጃ ከእርሶ ውጪ ለሌላ ሰው ያለ እርሶ ፈቃድ ሰተው ያቃሉ?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ አገልግሎት ለማግኘት ለብዙ ጊዜ ጠብቀው	1. አዎ 2. አይደለም	

	ነበር?		
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው የተለያዩ ህክምናዎችን ከመስጠቶ ቢፊት አስፈላጊውን መረጃ ሰተው ፈቃዶን ጠይቀው ነው?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ ያለ ጤና ባለሙያ እርዳታ በሆስፒታል ውስጥ ብቻዎን ልጆን ተገላግለዉ ነበር?	1. አዎ 2. አይደለም	
70011	**በወላድ እናት እና በጤና ባለሙያ መካከል ያለ ጤናማ ያልሆነ መስተጋብር**		
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው በሚሰጦት መረጃ ረክተዉ ነበር?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ ከጤና ባለሙያዋ/ው ጋር በነበሮት ግንኙነት የቋንቋ ችግር ገጥሞት ነበር?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው በሰጦት አንክብካቤ ረክተው ነበር?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ በወሊድ ወይም በምጥ ሰአት የቤተሰብ አካል አብረዎት እንዳይሆን ተከልክለው ነበር?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው በወሊድ ወይም በምጥ ሰአት በማይመቾ ወይም ባልፈጉት አኳኋን እንዲወልዱ አስገድደዎት ነበር?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ በወሊድ ወይም በምጥ ሰአት የሚደረጉ ጎጂ ያልሆኑ ልማዳዊ ድርጊቶችን እንዳያደርጉ ተከልክለው ነበር?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ በብዙ የጤና ባለሙያዎች ወይም ተማሪዎች ፊት ያለ ፈቃዶ ልብሶን እንዲያወልቁ እና ሰውነቶ እንዲታይ ተገደው ነበር?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የሆስፒታል የአገልግሎት ክፍያ መክፈል ባለመቻሎ ከሆስፒታል እንዳይወጡ ተከልክለው ነበር?	1. አዎ 2. አይደለም	
70012	**የጤና ስርአቱ ሁኔታዎች እና ችግሮቹ**		
	የጤና ተቋመ ውጫዊ ገጽታ ወይም ጊቢ ፅዱና ማራኪ ነው ብለሽ ታስቢለሽ?	1. አዎ 2. አይደለም	
	በወለዱበት የጤና ተቋም የጤና ባለሙያ እጥረት ነበር ብለው ያስባሉ?	1. አዎ 2. አይደለም	
	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ በደንብ ያልሰለጠነ ወይም የስራ ልምድ የሌው ባለሙያ ያለሰለጠነ የጤናባለሙያ ድጋፋዊ ክትትል የህክምና አገልግሎት ሰተዎት ነበር?	1. አዎ 2. አይደለም	

	ለወሊድ ሆስፒታል በነበርሽነት ጊዜ የጤና ባለሙያዋ/ው የመድሀኒት እጥረት እንዳለነግረዎት ነበር?	1. አዎ 2. አይደለም	
	የህክምና አገልግሎት አሰጣጡ ሚስጥራዊነት ይጎለዋል ብለሽ ታስቢያለሽ?	1. አዎ 2. አይደለም	
	ስለ ህክምና አገልግሎት አሰጣጡ አስተያየት በመስጠቶ ህክምናዎ ላይ ችግር ይፈጥራል ብለው አስተያየት ከመስጠት ታቅበው ነበር?	1. አዎ 2. አይደለም	
	ለጤና ባለሙያዎች ወይም ለሌሎች የሆስፒታሉ ሰራተኞች ለእርሶ የሚሰጡትን አገልግሎት ለማሻሻል ጉቦ መስጠት እንዳለቦት ተሰምቶት ያቃል/ ሰተው ያቃሉ?	1. አዎ 2. አይደለም	
	የሆስፒታሉ ሰራተኞች በሆስፒታሉ በነበሮት ቆይታ ማድረግ የማይገባዎትን ስራ ለምሳሌ የተኙበት ክፍል ፅዳት እንዲከናውኑ አስገድደዎት ነበር?	1. አዎ 2. አይደለም	
70013	**የእናቶች የጤና አገልግሎት ላይ ያለው ተፅእኖ**		
	የጤና ስርአቱ ወይም አስተዳደሩ ከተገልጋይ ይልቅ ለጤና ባለሙያ ያደላል ብለዉ አስበው ያቃሉ?	1. አዎ 2. አይደለም	
	ከዚህ በኋላ ልጅ ሲወልዱ ያለፈውን ልጆን የተገላገሉበት ሆስፒታል ውስጥ መውለድ ይፈልጋሉ?	1. አዎ 2. አይደለም	

Annex 5 Amharic In-Depth Interview guide

ስለጥናቱ መረጃ

የጥናቱ አላማ

ስሜ ሀና ይባላል ።እኔ በአዲስ አበባ ዩኒቨርሲቲ ፣ የህክምናና ጤና ሳይንስ ኮሌጅ፣ የሕብረተሰብ ጤና ትምህርት ቤት የድህረ ምርቃ ተማሪ ነኝ ።በአሁኑ ሰዐት የመመረቂያ ፅሁፌን እየሰራሁ እገኛለሁ።ጥናቱ ስለ ጨቅላ ህጻናት እና ሞተው የሚወለዱ ህጻናት በጤና ስርአቱ እንዴት እንደሚዘገብ እና ለተሳሳተ እና ትክክለኛ ዘገባ ያለው ምክንያት ምን እንደሆነ ማጥናትን ይመለከታል ። የዚህ ጥናት አላማ የተሳሳተ የጨቅላ ሕፃናት ሞት ምደባን መጠን እና ለተሳሳተ ምደባ ምክንያቶች ምን ምን እንደሆኑ ማጥናት እንልጋለን።

ተጓዳኝ ችግሮች እና ጥቅሞች፡ **በቃለ መጠይቁ በመሳተፍት ጉዳት አይደርስቦትም እዚህ ጥናት ላይ በመሳተፎ የሚያገኙት ምንም አይነት ቀጥተኛ ጥቅም የለም ሆኖም የሚሰጡን መረጃ ወደፊት የሚከሰቱ የጨቅላ ሕፃናትን ሞት ለመቀነስ ለሚሰሩ ስራዎች እንደግብአት ሊያገለግል ይችላል።**

መብት እና የጥናቱ ሚስጥራዊነት ***መጠይቁ በአማርኛ ሲሆን በእርሶ መልካም ፈቃድ የሚመልሱት መልስ በድምፅ መቅጃ መሳሪያ ይቀዳል።ውይይቱ ያልተገደበ ሲሆን ለውይይቱ የተቀመጠ አሰራር የለም።ሁሉም የተቀዱት መልሶች በአማርኛ ተገልብጠው በቃለ መጠይቅ አቅራቢው ይፃፋሉ።። በቃለ መጠይቁ ወቅት ተሳትፎውን ማቋረጥ ወይም ድምፃ እንዳይቀዳ ማድረግ ይችላሉ።። በዚህ ጥናት ሙሉ በሙሉ ወይም በከፊል ያለመሳተፍ መብቶ የተጠበቀ ነው።ተሳትፎዎን በፈለጉት ሰአት ያለምንም ቅጣት መቋረጥ ይችላሉ።። የሚሰጡት ማንኛውም መረጃ ሚስጥራዊነቱ የተጠበቀ ነው ከዚህ ጥናታዊ ፅሁፍ ውጪ ለምንም አገልግሎት አይውልም።የእርሶን ማንነት የሚገልፅ ምንም አይነት መረጃ የለም።። በዚህ ጥናት ሙሉ በሙሉ ወይም በከፊል ያለመሳተፍ መብቶ የተጠበቀ ነው።ተሳትፎዎን በፈለጉት ሰአት ያለምንም ቅጣት መቋረጥ ይችላሉ።። መጠየቅ የሚፈልጉት ማንኛውም ነገር ካለ መጠየቅ ይችላሉ።ለበለጠ መረጃ የጥናቱን ዋና አጥኚ በዚህ ቁጥር ማግኘት ይችላሉ።።**

ሀና ፈለቀ**---------** ስ.ቁ (0910337708)

በጥናቱ ለመሳተፍ ፈቃደኛ ኖት

- አዎ አይደሉም

ፈቃደኛ ከሆኑ የሚከተለውን የፈቃድ መስጫ ቅጽ ይሙሉ

የፈቃድ መስጫ ቅጽ

በዚህ ጥናት ላይ ለመሳተፍ ሙሉ የጥናቱን አላማ ከተረዳሁ በኋላ ለመሳተፍ ፈቃደኝነቴን በፊርማዬ አረጋግጣለሁ፡፡ ፊርማ _____

መጠይቅ

ሰላምታ ማቅረብ----------

ፈቃድ መጠየቅ ----------

የጥናቱን አላማ ማስረዳት----------

1. እባኮትን እራሶን ያስተዋውቁኝ
   I. ሙያዎ ምንድን ነው?
   II. የስንት አመት የስራ ልምድ አሎት?

ባለሙያውን የተመለከቱ ምክንያቶች

1. ፐሪናታል ዴዝ ሰንል ምን ማለታችን ነው?
2. የጨቅላ ህፃናት ሞት ስንል ምን ማለታችን ነው?
3. ሞተው የሚወለዱ ህፃናት ስንል ምን ማለታችን ነው?
4. ስለየተሳሳተ የጨቅላ ህፃናት ሞት ምደባ ወይም አመዘጋገብ ሰምተው ያውቃሉ?ምን ማለት ነው?
5. በእርግዝና ጊዜ እና እንደተወለዱ የሚሞቱ ህፃናት መረጃ መመዝገብ ምን ይጠቅማል ?
6. የተሳሳተ የጨቅላ ህፃናት ሞት ምደባ ወይም አመዘጋገብ በጤና ሰርአቱ ላይ የሚያመጣው ተፅእኖ ምንድን ነው?
7. የተሳሳተ የጨቅላ ህፃናት ሞት ምደባ ወይም አመዘጋገብን ለመቀነስ ምን ማድረግ ያስፈልጋል?

የጤና ተቋሙን የተመለከቱ ምክንያቶች

1. ምን ምን ስራን የተመለከቱ ምክንያቶች ለተሳሳተ የጨቅላ ህፃናት ሞት ምደባ ወይም አመዘጋገብ ሊያጋልጡ ይችላሉ?
   - የስራ ጫና

- አድካሚ የወረቀት ስራ
- አሰልቺ የአመዘጋገብ ስራ.

2. ለምን የተሳሳተ የጨቅላ ህፃናት ሞት ምደባ ወይም አመዘጋገብ ይከሰታል ?
3. የትኞቹ የጤና ባለሙያዎች በበለጠ ለተሳሳተ የጨቅላ ህፃናት ሞት ምደባ ወይም አመዘጋገብ ያጋለጣሉ ?
4. የተሳሳተየጨቅላህፃናትሞትምደባወይምአመዘጋገብንለመቀነስምንማድረግያስፈልጋል?

የጤና ስረአቱን የተመለከቱ ምክንያቶች

1. የጨቅላህፃናትሞትምደባወይምአመዘጋገብን በትክክል ማደረግ ምን ያስከትላል?
    - የጨቅላህፃናትሞትቅኝት
    - እንደጥፋተኛ መቆጠር
    - ቅጣት

`

Annex 6 Distribution of cause of death from verbal autopsy report

Table 7. Frequency distribution of cause of death of perinatal deaths in public hospital of Addis Ababa, 2019

Cause of death	Antepartum	Intrapartum	Neonatal
Congenital malformations, deformations and chromosomal abnormalities	21	14	8
Birth asphyxia	0	0	9
Fetus and newborn affected by complications of placenta, cord and membranes	32	27	4
maternal conditions that may be unrelated to present pregnancy	27	15	2
Fetus and newborn affected by other complications of labour and delivery	5	9	0
Slow fetal growth and fetal malnutrition	6	2	0
Disorders related to long gestation and high birth weight	6	4	2
Birth injury to scalp	0	2	0
Intrauterine hypoxia	18	59	4
Other infections specific to the perinatal period	6	1	0
Fetal blood loss	2	1	0
Hemolytic disease of fetus and newborn	7	4	0
Fetal death of unspecified cause	55	32	0
Other conditions originating in the perinatal period	0	6	0
Fetus and newborn affected by maternal complications of pregnancy	5	4	0
Other	1	3	6
Total	**191**	**183**	**35**

Annex 7 Codes, categories and themes from qualitative interviews

Table 8.Codes, categories and themes identified from the qualitative data

Codes	**Categories**	**Themes**
Awareness on misclassification awareness on purpose of reporting, how to define events(deaths) in perinatal period	Confusion on definition of events in perinatal death	Personal related factors
Year of experience has impact, year of experience has no impact	Year of experience	
Intentional data manipulation	Disrespectful health care provider	
Misclassification by profession	Type of profession	
Documentation error, work load, poor medical supply	Unfavorable working environment	Health facility related factor
Lack of supervision	Lack of monitoring	
Academic punishment, blame for poor outcome,MPDSR	Fear of blame	System related factor
Insecurity	Medico legal issue	

ASSURANCE OF PRINCIPAL INVESTIGATOR

I, the undersigned MPH student declare that this thesis is my original work in fulfilment of requirement for masters of public health in Reproductive and Family Health.

Name of student: Hanna Feleke

Signature _____ Date_____

Name of primary advisor: Dr. Wubegzier Mekonnen

Signature _____ Date_____