Federal Democratic Republic of Ethiopia Ministry of Health

Maternal Death Surveillance and Response (MDSR) Technical Guideline

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Addis Ababa, Ethiopia

August, 2012

Acknowledgements

Foreword

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Table of contents

List of tables & figures

List of Abbreviations

BEmONC	Basic Emergency Obstetric and Newborn Care
CEmONC	Comprehensive Emergency Obstetric and Newborn Care
CEO	chief Executive Officer
D&C	Dilatation & Curettage
EDHS	Ethiopian Demographic Health Survey
EHNRI	Ethiopian Health and Nutrition Research Institute
ESOG	Ethiopian Society of Obstetrics and Gynecologists
FMHACA,	Food, Medicine
FMOH	Federal Ministry of Health
GDP	Gross Domestic Product
HC	Health Center
HCW	Health Care Workers
HDP	Hypertensive Disorders of Pregnancy
HEW	Health Extension Workers
HIV	Human Immuno deficiency Virus
HMIS	Health Management Information System
HO	Health Officer
HPDP,	Health Promotion and Disease Prevention
IEOS	Integrated Emergency Obstetrics and Surgery
IMR	Infant Mortality Rate
KPI	Key Performance Indicators
M&E	Monitoring and Evaluation
MDG	Millennium Development Goals
MDR	Maternal Death Review
MMR	Maternal Mortality Rates
MNH	Maternal and Newborn Health
NGO	Non Governmental Organization
OPD	Out Patient Department

OR	Operation Room
PHCU	Primary Health Care Unit
RH	Reproductive Health
RHB	Regional Health Bureau
SMH	Safe Motherhood
TB	Tuberculosis
TOR	Terms of Reference
TWG	Technical Working Group
UN	United Nations
VA	Verbal Autopsy
WRA	Women of Reproductive Age

Executive Summary

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Definitions

Maternal death is defined as the death of a woman while pregnant or within 42 days of the termination of pregnancy irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. (ICD-10). It can be:

> **Direct obstetric deaths** are maternal deaths resulting from complications of the pregnancy, labor or purperium or from interventions omissions or incorrect treatment.
>
> **Indirect obstetric deaths** are maternal deaths resulting from previously existing disease or newly developed medical conditions that were aggravated by the physiologic

Late maternal death is defined as a maternal death due to pregnancy (direct or indirect obstetric causes) which occurs from 42 to 365 days after the end of pregnancy. (ICD-10)

Pregnancy related death is defined as all deaths of women during or within 42 days of pregnancy regardless of cause. (ICD-10)

Maternal near-miss is defined as a woman who nearly died but survived a complication that occurred during pregnancy, child birth or within 42 days of termination of pregnancy. In practical terms, women are considered near miss cases when they survive life threatening conditions (i.e. organ dysfunction)

Severe maternal outcomes: are maternal near misses and maternal deaths.

Maternal death surveillance and response (MDSR) has been defined as "a component of the health information system, which permits the identification, the notification, the quantification, and the determination of causes and avoidability of maternal deaths, for a defined time period and geographic location, with the goal of orienting the measures necessary for its prevention".

Introduction

1. Back ground

Ethiopia is the tenth largest country in Africa, covering 1,104,300 square kilometres (with 1 million sq km land area and 104,300 sq km water). It is a country with great geographical diversity and its topography shows a variety of contrasts ranging from high peaks of 4,550m above sea level to a low depression of 110m below sea level. More than half of the country lies above 1,500 meters. The predominant climate type is tropical monsoon, with temperate climate on the plateau and hot in the lowlands.

Projections from the 2007 population and housing census estimate the total population for the year 2011/12 to be 84.3 million. The country is among the least urbanized countries in the world with 83.6% living in rural areas whilst 16.4% of the total population living in urban areas. The average size of a household is 4.7. While the sex ratio between male and female is almost equal, women in the reproductive age group constitute 24% of the population. The average fertility trend in recent years has shown some significant decline from the 1990 level of 6.4 births per women to 4.8 births (EDHS 2011). The estimate also showed that there are variations in fertility trend among rural and urban areas with rural women having an average of three more births per woman compared to their counterparts in urban areas. The population is growing at an annual rate of 2.6 %.

The Federal Democratic Republic of Ethiopia is composed of nine Regional States: Tigray, Afar, Amhara, Oromia, Somali, Southern Nation Nationalities and Peoples Region (SNNPR), Benishangul-Gumuz, Gambella, and Harari; and two City Administration councils of Dire Dawa and Addis Ababa. The regional states and city administrations are subdivided into 817 administrative Woredas which are further divided into about 16,253 Kebeles, the smallest administrative unit in the governance.

Ethiopia's economy depends heavily on the agricultural sector. Agriculture accounts for 83.4% of the labour force, about 43.2% of the Gross Domestic Product (GDP) and 80% of exports. The regular droughts combined with poor cultivation practices, make Ethiopia's economy very vulnerable to climatic changes.

The Ethiopian Constitution recognizes the principle of equality of access to economic opportunities, employment and property ownership for women. Following this, the government has formulated a national gender policy, which recognizes equality between the sexes and sets up mechanisms for the improvement of women's conditions, such as the establishment of the Ministry of Women's Affairs. The main strategies employed to implement the national policy include gender mainstreaming in sector and development programs, advocacy and capacity-building initiatives.

The intimate linkage between health and education has been firmly established in a number of studies which could potentially reinforce each other towards a rapid socio-economic development of a country, especially in developing economies. Despite major progresses in Education, the literacy status of the population of Ethiopia is still low. The total adult literacy rate (whose age is above 15 who can read and write) is 38% (65% for male and 38% for female).

Despite major progresses that have been made to improve the health status of the population in the last one and half decades, Ethiopia's population still faces a high rate of morbidity and mortality and the health status remains relatively poor. Figures on vital health indicators from EDHS 2011 show a life expectancy of 54 years (53.4 years for male and 55.4 for female), and an IMR of 59/1000. Under-five mortality rate has been reduced to 88/1000 in2010/11. In terms of women health, MMR has remained at 676/100,000which one of the highest among the world. The major causes of maternal death are obstructed/prolonged labor (13%), ruptured uterus (12%), severe pre-eclampsia/ eclampsia (11%) and malaria (9%). Moreover, 6% of all maternal deaths were attributable to complications from abortion. Shortage of skilled midwives, weak referral system at health centre levels, lack of inadequate availability of BEmONC and CEmONC equipment, and under financing of the service were identified as major supply side constraints that hindered progress. On the demand side, cultural norms and societal emotional support bestowed to mothers, distance to functioning health centers and financial barrier were found to be the major causes.

The Government produced a health policy which was followed by the formulation of four consecutive phases of comprehensive Health Sector Development Plans (HSDPs). Since the development of HSDP I which also paved the way for the subsequent HSDP II, III and IV, the Federal Ministry of Health has formulated and implemented a number of policies and strategies that afforded an effective framework for improving health in the country. This includes implementations of far reaching and focused strategies such as Making Pregnancy Safer (2000), Reproductive Health Strategy (2006), Adolescent and Youth Reproductive Health Strategy (2006),the Revised Abortion Law (2005) and the Road map for Accelerated reduction of Maternal and New born morbidity and mortality (2012). Others include strategies on free

service for key maternal and child health services at PHCU (Health Care Financing Strategy), the training and deployment of HEWs for the institutionalization of the community health care services including clean and safe delivery at HP level, and deployment of HOs with MSc training in skills of Integrated Emergency Obstetric and Surgery (IEOS). In addition, the establishment of the MDG Pool Fund and the priority given to maternal health therein is expected to mobilize the much required additional funding opportunities.

The national health care delivery system is organized in three-tiers. The first level is a Woreda/District health system comprising a primary hospital (with population coverage of 60,000-100,000 people), health centers (1/15,000-25,000 population) and their satellite Health Posts (1/3,000-5,000 population) that are connected to each other by a referral system. The second level in the tier is a General Hospital with population coverage of 1-1.5 million people; and the third a Specialized Hospital that covers population of 3.5-5 million. The Ethiopian Health care System is augmented by the rapid expansion of the private for profit and NGOs sector playing significant role in boosting the health service coverage and utilization thus enhancing the public/private/NGOs partnership in the delivery of health care services in the country.

Ethiopia has a total workforce of 55,373 (only counting health professionals) which translates to 0.7 health workers per 1000 population. This low health workforce density poses a serious challenge for the provision of essential health care services in the country especially in rural part.
The national HMIS is established and rolled out to ensure information use at all levels of health service delivery system for evidence-based health planning and decision-making.

2. Rationale

Childbirth is a universally celebrated event, an occasion for dancing, fireworks, flowers or gifts. Yet, for many thousands of women each day, child bearing is experienced not as the joyful event as it should be, but as a private hell that may end in death.

Worldwide 385,000 and in Ethiopia 20,000 women die each year from complications of pregnancy and child birth with many more maternal morbidities occurring for each maternal death. However, because measuring maternal mortality is difficult and complex, reliable estimates of the dimensions of the problem are not generally available and assessing progress towards the goal is difficult. Counting Maternal Mortality alone cannot generate important information to avert maternal deaths. It tells only part of the story. In particular, it tells us nothing about the faces behind the numbers, the individual stories of

suffering and distress and the real underlying reasons why particular women died. Most of all, it tells us nothing about why women continue to die in a world where the knowledge and resources to prevent such deaths are available or attainable.

Each maternal death has a story to tell and can provide indications on practical ways of addressing its causes and determinants. Maternal death reviews provide evidence of where the main problems in overcoming maternal mortality and morbidity may lie, produce an analysis of what can be done in practical terms and highlight the key areas requiring recommendations for health sector and community action as well as policy directions.

The MDSR should provide information that can be used in the development of programs and interventions to improve maternal health, reduce maternal morbidity, and improve the quality of care of women during pregnancy, delivery, and the puerperium. Counting cases is important but not enough. The data must lead to information that can, in turn lead to specific recommendations and actions, as well as to an evaluation of the effectiveness of interventions.

Figure 2maternal death surveillance and response system: a continuous action cycle at community, facility, regional & national level

The information contained in the MDSR can increase awareness of maternal mortality at the community, health care system, and intersectoral (policy-making) levels. Increased awareness can lead to changes in practice among the public and health practitioners, as well as lead to a reallocation of resources to activities for decreasing maternal mortality. An enabling environment, of collaboration rather than blame, is needed to conduct MDSR and apply the findings towards action.

MDSR has two underlying rationales:

First: MDSR provides information about avoidable factors that contributed to a maternal death and guides actions that need to be taken at the community level, within the formal health care system, and at the intersectoral level (i.e. in other governmental and social sectors) to prevent similar deaths in the future.

Second: MDSR establishes the framework for an accurate assessment of the magnitude of women's deaths related to pregnancy. By having an accurate assessment of maternal mortality, policy and decision makers may be more compelled to give the problem the attention it deserves. In addition, evaluators will more accurately assess the effectiveness of interventions to decrease mortality rates.

Ultimately an MDSR system will aim to identify every maternal death in order to accurately monitor maternal mortality and the impact of interventions to reduce it.

Key messages of this guide:

- Avoiding maternal death and improving quality of care is possible, even in resource constrained settings. Obtaining the right kind of information to guide action is critical.
- Every maternal death is a tragedy and should be a notifiable event that is reviewed, discussed and that leads to corrective actions to address the problems encountered.
- Understanding the underlying factors leading to the deaths is critical to preventing future mortality.
- Data collection must be linked to action. A commitment to act upon findings is a key prerequisite for success.
- As a starting point, all maternal deaths in health facilities and communities should be identified, reported, reviewed and responded to with measures to prevent future deaths.
- While response is critical and the primary purpose of MDSR, there is also a need to improve the measurement of maternal mortality by working to identify all deaths in a given area because otherwise we do not know if our actions are truly effective.

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Goal and Objectives of the MDSR guide line

The overall goal of the MDSR guide line is to guide effective implementation and scale up of MDSR in systematic, standardized and integrated manner

The objectives are

- Guide program managers in the implementation monitoring and supervision of the MDSR process at the different levels
- Serve as basic guide line to guide service providers in the undertaking of MDSR Facilitate standardization and harmonization of the MDSR process at community ,facility ,district ,region

Maternal Death Review (MDR) System

I. Set Up

For successful implementation of maternal death review the following settings are needed

1. Establish National, regional and local committee

1.1. National MDSR task force: will be composed of national focal person, a representative from medical services directorate, representatives from HPDP, FMHACA, EHNRI, a focal person from policy and planning directorate, UN agencies, ESOG, Ethiopian Midwives Association and Ethiopian Anaesthetists Association. The chair of this team will be the national focal person for the MDSR and the representative from FMHACA will be secretary of the task force. This task force will be a sub group of national safe motherhood TWG. The task force will conduct regular meetings.

Roles and responsibilities of this national task force:

- Develop detailed TOR and Plan of action committee.
- Organize the overall MDSR system in the nation
- Revise/ develop national technical guidelines, tools and other relevant documents
- Coordinate the involvement of stakeholders from planning to implementation of the MDSR
- Oversee the review process
- Work for the sustainability of MDSR
- Compile monthly data and devise action points at a national level
- Provide regular monitoring and supervision in the implementation of MDSR in the country bi-annually
- The task force should work closely with FMHACA to set-up policy framework for the implementation of MDSR
- Evaluate the MDSR system

1.2. Regional safe motherhood technical working group/ RH task force: It comprises a multidisciplinary profession including regional MNCH focal person, a senior midwife from midwifery association, member of ESOG, and development partner representatives. The RHB deputy head will be chair of this committee. The assumption is that there is an MNH TWG/ RH task force in each region and MDSR can be implemented through that group.

Roles & responsibilities of the regional committee include:

- Develop detailed TOR and Plan of action for the committee.
- Plan and implement MDSR in the region
- Coordinate all issues related to maternal and new born health
- Compile and analyse data coming from the woreda/ zones facilities.
- Involve stake holders in the MDR system
- Devise action points for the outputs of the review process
- Regular monitoring and supervision of the MDSR
- Compiles and reports to the national MDSR team monthly.
- Evaluate the MDSR system
- Conduct selected death reviews for at least 10% of the reported deaths

1.3. Facility based MDSR committee:

1.3.1. Hospital: It comprises of an obstetrician & gynaecologist /IESO officer, a senior midwife, anaesthesiologist /anaesthetist, CEO, medical director, pharmacy case unit head and quality officer of the hospital.

The roles and responsibilities of this committee include:

- Develop detailed TOR and plan of action
- Reviews all maternal deaths in the hospital within 48 hours of death notification
- Devise and implement action points based on findings according to their expertise

- Keeps the filled review tool confidential and ensure it will not be used for any other purpose
- Conduct anonymous reviewing of cases to avoid blaming and bias
- Compiles and reports the findings to RHB SMH/TWG every month.
- Conduct in-depth investigation of selected cases
- Provide technical to health centres as needed

1.3.2. Health centres:

The committee at HC comprises a HC head/director, a midwife working in the delivery case team, a nurse working in MNCH case team, pharmacist/druggist, HEW from the kebele where the deceased mother resided and woreda health office representative. For deaths that occurred at home/HP level, two community representatives (e.g. kebele chairpersons, women group) will be added to the HC committee. The HC head will chair the committee and assign a senior midwife and HO to review the death and produce a summary for deaths.

Roles and responsibilities of the health centre committee:

- Develops its own TOR that guide and facilitate the task
- Assign the HEW supervisor to collect data (verbal autopsy) for all deaths reported by HEWs irrespective of place of death
- Conducts monthly meeting to review and produce summaries.
- Develops response actions and follow implementation
- Keeps the filled review tool confidential and ensure it will not be used for any other purpose
- Conducts anonymous reviewing of cases to avoid blaming and bias
- Compiles and reports the findings to woreda health office focal person on monthly basis

2. Roles and responsibilities of key actors

2.1. Woreda MNCH focal person

- Takes part in the monthly meetings of maternal death review at health facilities.
- Compiles the monthly MDSR reports from facilities
- Proposes action points & follows their implementation
- Submits monthly reports to the region
- Facilitates the regional audit of selected cases

2.2. Medical director of hospital / health center

- Chairs the review committee
- The HC head

- will receive death notification from the HEWs
- assigns a HEW supervisor to conduct screening and verbal autopsy
- will keep all filled screening forms (whether the death is identified as maternal or not)
    - The medical director of the hospital receives and keeps the filled death notification from the wards
    - Collects relevant medical records and make them anonymous (by giving numerical codes to records) before handing over to the assigned independent reviewers
    - Assigns two independent reviewers for the deaths.
    - Receives the summary report from the reviewers and presents it to the review committee

2.3. HEW supervisors

- Screens and identifies maternal deaths from reported/ notified deaths women of reproductive age
- Submits all filled screening forms to the HC head (whether the death is identified as maternal or not)
- Conducts verbal autopsy in all suspected maternal deaths within 3 -4 weeks of death
- Submits filled verbal autopsy timely to the HC head
- Participates in the HC maternal death review committee meetings

2.4. Health extension workers:

- Fill the notification form in duplicates for all deaths of women in the reproductive age group
- Submit the filled notification form to the HC head within one week of death. Keep a copy of the notification form at HP level.
- Assist their supervisor in conducting the verbal autopsy
- Attend the meeting of the HC review committee when it discusses the death at the respective kebele.
- Follow implementation of action plans at community level

2.5. **HMIS focal persons at woreda, region and national level**

- Collect data from the lower level
- Analyse the data,
- Prepare report and disseminate to relevant bodies

3. Availing tools and guidelines for MDSR

The original tools/guideline prepared by the FMOH will be distributed to RHBs. The RHBs and Woreda health offices are responsible for producing and distributing the required quantities of tools/guidelines to their health facilities.

4. Legal and ethical considerations

Local data collectors and committee members will be the only persons knowing the names of deceased and health care workers involved in the management of the case. These data collectors and committee members will have the right to access facility records of cases. The federal ministry of health will work with responsible bodies on establishing mechanisms that provide legal protection to reviewers and data from civil and professional liability.

Ethical issues will be considered when reviewing maternal deaths both at community and facility level. These include:

a. **Autonomy:** family and friends of the deceased will be well informed about the review process. Their voluntary participation will be sought for and the interview can be interrupted at their request.

b. **Privacy:** Families and health care workers directly and indirectly involved in the review process have to be reassured of their privacy. The identities of the deceased, family and health care providers involved in the management should be kept confidential and known only to those who are doing the actual review. All persons having access to identifiable information will sign a confidentiality agreement stating that they will not disclose any identifiable information. Data collection forms, case summaries, review meeting minutes and reports or dissemination results will not contain any personal identifiers. All records of cases reviewed & any discussion will be kept secured; hard copy information will be kept in locked cabinets/offices and electronic data in password protected files.

c. **Beneficence:** Data obtained through the MDSR should be tailored in a way that enables production of response actions at different levels.

II. Awareness creation among health care workers and the community

In MDSR system, health care workers will be involved in a variety of ways such as data collection, revision or care provision. Therefore, every individual involved in the process will have basic understanding of the review; appreciate the significance and their role in generating quality data for the success of the MDSR. The committees at different levels will arrange and execute orientations to their respective health care staff on objectives, processes and principles of MDSR

In addition, awareness creation to the wider community will be the top priority to be accomplished as those deaths occur there and for establishment of ownership of the review process. For community-based reviews, the support of local village leaders and religious & cultural leaders will be sought.

III. Process of the MDSR system (Identification, reporting and reviewing of maternal deaths)

1. Sources of information

There are two major sources of information for the Ethiopian setting: Communities and facilities.

1.1. Community

The HEW will establish a link with all possible sources of information for identifying the deceased women. For identifying deaths of women in the reproductive age, in a community, the sources for the information include:

- Religious leaders/institutes
- Health Development Army members
- Community leaders
- Administrative leaders
- The HEW
- Community members

Once the deceased is identified and notified, the sources of information to carry out the verbal autopsy will include:

- Persons who primarily attended the women during illness
- Persons who attended the women in labour/delivery at home
- Persons who were present at the side of the woman at the time of death
- Husband

1.2. For facility death

The head of the maternity/labour ward is responsible for notifying maternal deaths to the head of the health facility/the medical director.

The sources of the information for facility deaths reviews include:

- Referral sheets
- Medical records
- Log books (OR, maternity, OPD, anaesthesia)
- Attending health workers (OPD, maternity, OR)
- Others

2. Identification and reporting of maternal deaths

2.1 Identification and reporting of maternal deaths in the community

Maternal death reporting from the community will be done by health extension workers (HEWs). Ideally the health extension worker will identify deaths of all women of reproductive age. S/he will report the death to the head of the health center within one week. The HEW supervisor will go out to the community and determine whether the death was causally related to the pregnancy. If it is determined as related to pregnancy data will be collected by the same individual within three to four weeks of notification of the event and review of the case will be conducted by the team

2.2 Identification and reporting of maternal deaths in facilities

Head nurse of the labour/ other wards will be responsible for checking death logs and other records from the previous 24 hours on a daily basis. Any death of a woman of reproductive age should trigger a review of her medical record to assess whether there was any evidence the woman was pregnant or within 42 days of the end of a pregnancy. If there is such evidence, the head nurse of the ward has to report to the facility medical director within 24 hours of identifying deaths.

3. Data contents and Data collection

A maternal death review collects data from various sources, including family cards, antenatal care records, medical records from health facilities, and interviews with family members, local community members/leaders, traditional health workers and health care workers. Each data sources may provide different information. Table 1 lists information that would be helpful in understanding why a woman died.

For community level death reviews the HEW supervisor will be trained on and fill the VA tool. The medical director of the HC responsible for that kebele will have supervisory role. Data collectors for both facility and community level should be fluent in the local language.

Table 1: Data to be collected

Demographic data	Age, marital status, ethnicity, education, literacy, occupations, socio-economic level, home address, health insurance (if applicable), special/mobile population
Prenatal history	Reproductive history (gravidity/parity/live births/stillbirths/spontaneous abortions/induced abortions/previous caesareans/previous complications); medical history; whether current pregnancy was planned; antenatal care (place, gestational age at onset, number of visits, complications (including date(s), signs and symptoms, diagnoses, procedures, treatments); hospitalizations (date[s], place, diagnoses, test results, procedures, treatments)
Delivery information	Pregnancy outcome and condition (undelivered, delivered-live birth, stillbirth, abortion, unviable/ectopic); method of delivery (D&C, vaginal delivery, assisted vaginal delivery, caesarean section (elective or emergent) medical treatment); onset of labour (place/day/time); gestational age at delivery; labour management (involved health staff, use of partograph, presentation, active management; complications (including date(s), signs and symptoms, diagnoses (examples include: abruption, hypertension, infection), procedures, treatments); postnatal events (including date(s), signs and symptoms, diagnoses (examples include infection, haemorrhage, preeclampsia, depression) procedures, treatments); referral information;
Information on death	Death (place/day/time); Physiological cause; categorical cause (direct, indirect, late, coincidental); Complications/illnesses (date/time of onset/signs and symptoms) whether treatment was sought (medical or traditional)/place, diagnoses, test results, procedures, treatments (medical or traditional); date and place of death.
Potentially avoidable factors	Was the family aware of warning signs that the mother had a problem? What was the family's attitude towards the health care system? Did they encounter any problems when seeking or obtaining care for the mother? Were there delays in referral? Were there problems at the health care facility (delay in getting attention, delay in diagnosis/treatment, lack of lab testing/medication/supplies, lack of trained staff and lack of respectful treatment)? Were there any barriers to obtaining care, such as geographic, financial, or social or other responsibilities?
Info on MDR	Date of Review (s)

4. **Reviewing of the Event**

The chairperson of the review committee at each level of the review process will assign two reviewers for every death to be reviewed. Death reviewers will be oriented on how to review the death and produce summary reports.

The information provided for the review process should be anonymous, which is to say that the case information presented to the review committee should contain no identifying data regarding the patient, health care providers, or facilities. After data collection is complete, all data files and instruments should be made anonymous, although a key linking the case number to the identity of the mother can be kept in a locked storage space.

At the death review committee meeting, members may take turns reading the case summaries. After each case summary is read, the members then discuss the case, the events that may have led to the mother's death. If any points are unclear, the reviewers will explain. The raporter should keep a list of the main points of the discussion. A checklist produced by the committee can be used to help ensure that the full range of possible problems is considered in the discussion.

The means of communicating findings of the review should follow three principles:

The first principle is that there should always be a feedback of the findings and the recommendations at the level of the facility or the community where the information was collected.

Secondly, this feedback should be in a de-identified form so that the individual families or health care providers cannot be identified.

Finally, legal safeguards should be in place to prevent the use of the review findings in litigation.

The process of the review is summarized in the following figures.

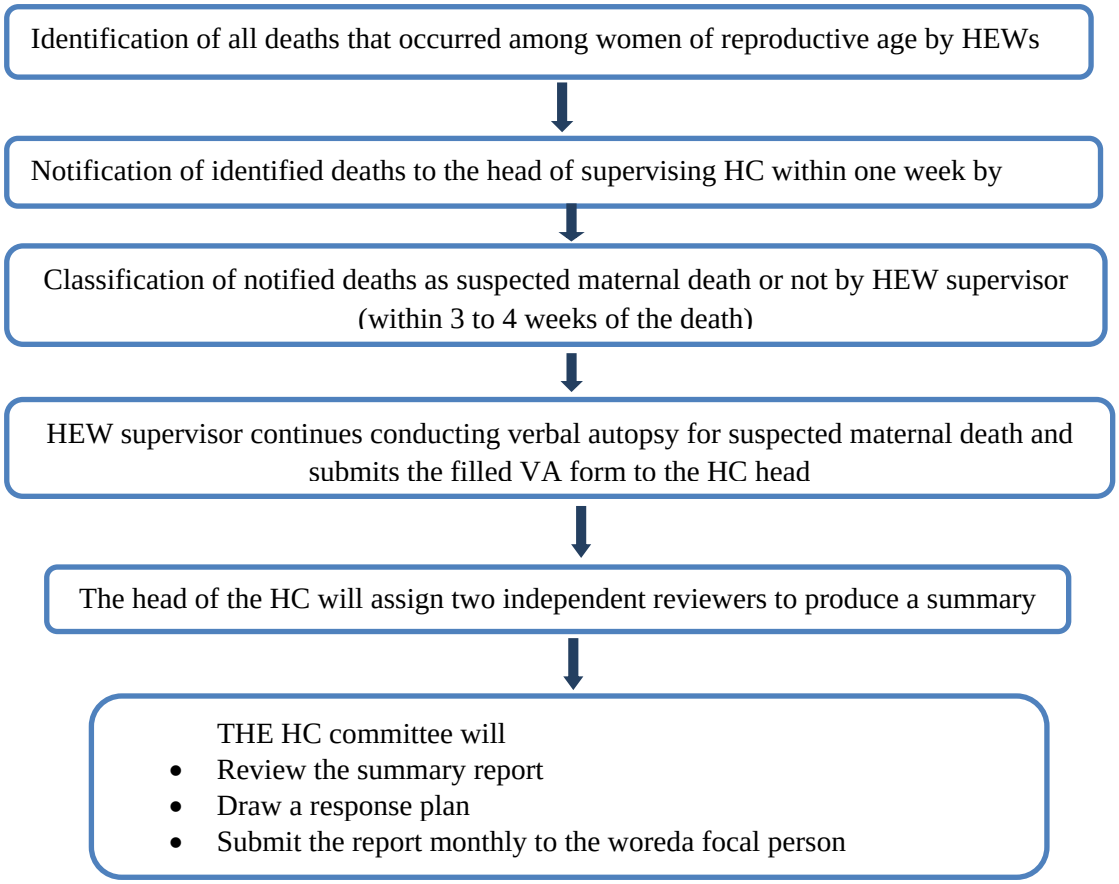

Figure 2: Maternal death review at community level

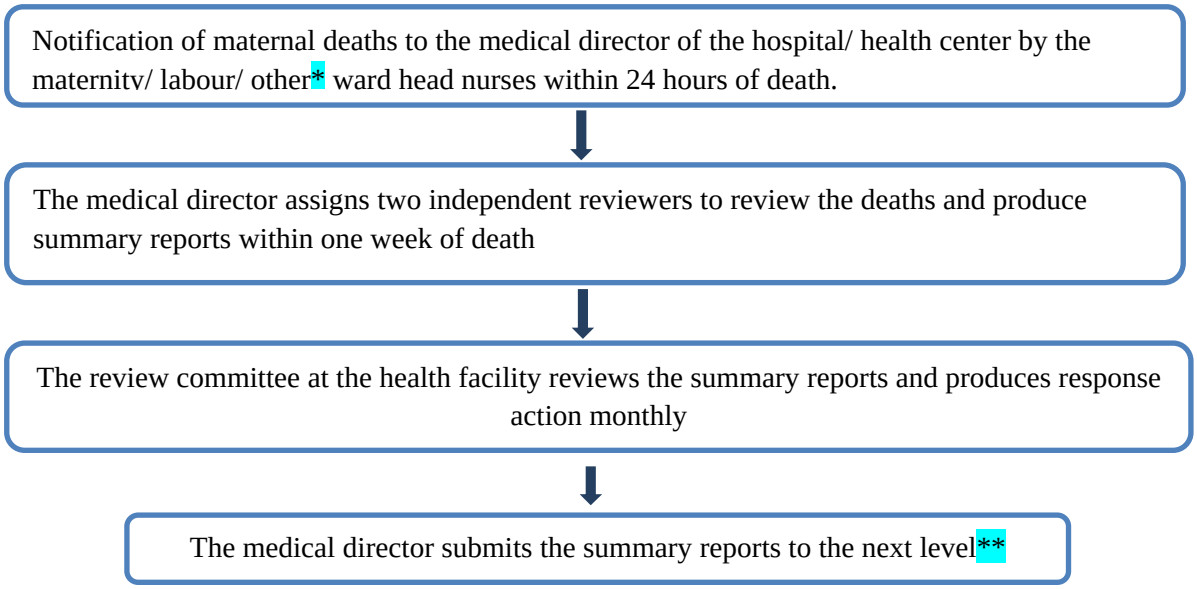

Figure 3: Maternal death review at facility level

The following general principles can help make the review process more effective and efficient:

- The problems leading to maternal death are frequently not all medical - think holistically.
- Focus only on those events that may have directly contributed to the maternal death throughout pregnancy and delivery, not everything that happened.
- Quality of care received by the mother should be compared both to accepted local practice as well as best medical practice.
- While most cases are unique, try to group problems into general categories (e.g., lack of transportation to health care facility) while keeping enough information so that a specific strategy can be developed (e.g., not "improve health care system”).

4.1 Establish the cause of death

a. Establish the medical cause of death

The investigation should determine the medical or pathophysiologic cause of death as specifically as possible and categorize it as a direct obstetric, indirect obstetric or non-maternal death. Mechanisms for establishing the medical cause of death will depend on whether the woman was hospitalized or not.

Facility deaths

The medical cause of death can frequently be established from the medical records. Interviews of facility personnel involved in the care of the woman may provide additional information that can be used to corroborate facts in the facility record. This is particularly important in situations where there are questions on quality of care.

Deaths occurring outside the facility:

In some cases, a woman who dies outside the facility may have had antenatal care or been hospitalized prior to her death. Medical records may be helpful but are sometimes unavailable in these situations. Verbal autopsy is a tool that can be used to determine the medical cause of death.

b. Determine the non-medical causes of death

Non-medical causes of death are often more important in determining whether a woman lives or dies than the medical condition itself. It is important to investigate these in order to reduce maternal mortality. Major examples of non-medical causes of death include the timeliness of the problem recognition and decision making, access to care and logistics of the referral process (see figure 3 pathway to survival).

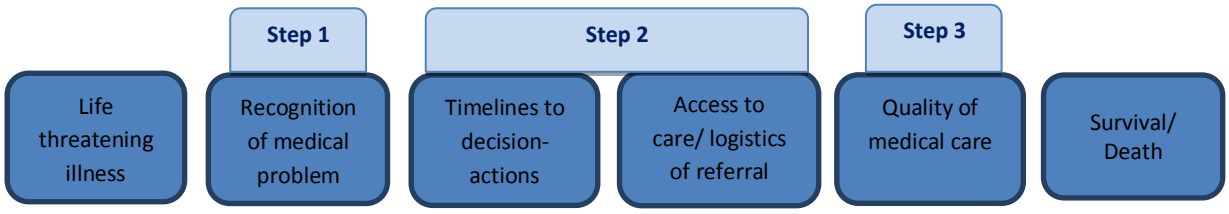

Figure 4 Pathway to survival

i. Timeliness of program recognition and decision making:

- Was the problem recognized promptly? If not, why not? Did the death occur so suddenly that the women could not receive any care? Were any risk factors present that may have been missed because the woman did not seek prenatal care or because prenatal care was inadequate?
- If the problem was recognized, was the decision made to seek care? If not, why not? Again, did the death occur too suddenly? Did the woman refuse to seek care? Were there family obstacles to a referral? Was concern over access to care an obstacle to decision making?
- Did any beliefs or cultural practices create barriers to obtaining appropriate medical care? Did previous poor experiences with the health care system make the patient or TBA reluctant to seek care?

ii. Access to care/logistics of referral:

- Was geography a factor? Were there problems with transportation? Or with the roads? Did the woman live far away from the necessary health care services?
- Were financial factors obstacles to obtaining care? Were actual costs a deterrent to the woman or her family? Did the health care delivery provider refuse appropriate care because the patient could not pay, or for cultural reasons?
- Were there delays in transferring the patient to an appropriate level of care, such as from a clinic to a hospital? Was there a delay in her receiving care at the institution?

iii. Assess the quality of medical care:

- The investigation should include information about the medical management of the women's condition in order for the committee to determine if the recommendations and treatment were appropriate and the quality of care was adequate.
- The quality of any prenatal care such as screening for risk factors or underlying conditions also needs to be assessed. This is true of postnatal care, if the death was post delivery. For both facility and out of facility deaths the quality of care evaluation should include that care given by traditional birth attendants, nurses, midwifes and physicians.

4.2 Determination of preventability

The purpose of every death investigation is to determine the causes of death, whether the death was preventable and if so, how it could have been prevented. The aim of this investigation is not to blame a particular person or facility for the death. Rather preventability is a pro-active concept in which lessons are learned and applied to prevent future deaths from similar factors. The following factors should be considered when assessing if a death was preventable:

a. Family/community level

Patient/family factors– did the woman and her family

- Recognize that a problem existed
- Seek medical care
- Seek prenatal care
- Comply with any medical advice given

Delivery attendant factors – did the Delivery attendant

- Manage the labor and delivery correctly
- Recognize that a problem existed
- Refer the women appropriately and without delay
- Consider herself part of the local health care system

b. Formal health care delivery-system level

Antenatal care – Determine whether

- The woman received antenatal care
- Antenatal care followed country guidelines
- Risk factors and medical problems were correctly assessed and treated
- Patient received education on signs and symptoms of complications

Health facility factors– determine whether

- Essential obstetric functions were available at the first referral level
- Resources were adequate to resolve the problem
- Protocols/norms were available and appropriate
- Care was available regardless of the ability to pay

Health care provider factors – determine whether the health personnel

- Were trained to treat the problem correctly. If so, treated the problem adequately
- Were sensitive to the social and cultural values of the patient and her family

c. Intersectoral level

Transportation factors – assess if transfer was hindered by:

- Availability of transport
- Adequacy of transport
- Ability to travel at night
- Cost
- Education factors
- Communication factors
- Status of women

Based on information obtained from the investigation the committee will make recommendations to prevent such deaths in the future. As cases accumulate and patterns emerge, especially at the regional and national levels, interventions can be priorities according to which will have the greatest impact.

Case review need to be linked to a response – Every case review should include a recommendation to prevent future deaths**.**

IV. Analysis (aggregation of multiple case reviews) - perspective on national, regional and woreda level.

The purpose of all the data collection and analysis is to have the information on which to act, to understand the problems which led to the deaths and use that knowledge to develop appropriate interventions. Data analysis is critical to provide useful information to guide action. It is important to analyse data in a thoughtful way, maintaining the focus on identifying problems in the system that may contribute to maternal deaths, especially those that could have been prevented or avoided.

When collecting data for a maternal death review, it is important to have an analytic plan to guide the process and identify problems in the system that may contribute to maternal deaths, especially those that are amenable to change. Analysis will have different functions and corresponding responses when done for the facility level, compared to analysis done for the district and national levels.

The best approach would be a combination of both qualitative and quantitative analysis. Qualitative and quantitative analysis provide different insights into the causes of maternal deaths, and a combination of the two provides more information than either can alone. Qualitative analysis of each case, done as part of the Maternal Death Review process, identifies the medical and non-medical problems that contributed to that death. Grouping the findings, especially the problems, and looking at them quantitatively provides information on which problems are most common. The use of qualitative and quantitative analysis together allows one to both understand what the problems are and prioritize the actions to remediate them.

Key message: **A guide to categorizing contributory factors**

Non-medical problems	**Medical / service problems**
Lack of awareness of danger signs of illness	No health service available or too far away
Delay in seeking care due to lack of family agreement	Sought care but no staff were available
Geographic isolation	Medicine not available at the facility and must be provided by the family
Lack of transportation or money to pay for it	Doctor would not see woman without payment
Other responsibilities	Woman was not treated immediately after arriving at the facility
Cultural barriers, such as prohibitions on mother leaving house	Health facility lacked needed supplies or equipment
Lack of money to pay for care	Staff did not have knowledge/skills to diagnose and treat mother
Belief in use of traditional remedies	Had to wait many hours for qualified staff to see mother
Belief in fate controlling outcome	No transport available to reach referral hospital
Dislike of or bad experiences with health care system	Poor staff attitude

Analysis of data depends on the level of health service delivery:

1. **Woreda level analysis-** the woreda based analysis should be done annually which entails a detailed analysis on:
    1.1. Background information of the deceased including :-
        - Age
        - Residential address
        - Marital status
        - Education
        - Occupation
        - Income
        - Ethnicity
        - Religion
        - Parity
        - ANC
        - Place of death(home, facility)
        - Timing of death in relation to pregnancy (Ante partum, intra partum, postpartum)
        - Fetal outcome (abortion, ectopic, live birth, still birth, neonatal death)
    1.2. Cause of Death
        - Direct obstetric (haemorrhage, obstructed labor, HDP, unsafe abortion, sepsis)
        - Indirect obstetric (anaemia, malaria, HIV, TB, etc.)
        - Preventability
    1.3. Contributory factors
        - Health seeking (delay one)
        - Transport access (road, vehicle, communication)
        - Transport cost
        - Health system related (human resource, supplies, equipment, service cost, etc.)
    1.4. Status of implementation of the proposed action plan

2. **Regional level analysis-** the regional based analysis should be done bi-annually. This entails analysis on
    2.1. Background information of the deceased including :-
        - Age
        - Residential address (urban/ rural)
        - Marital status (married, unmarried, others)
        - Education (illiterate, primary, secondary, higher education)
        - Parity
        - ANC (booked, un booked)

- Place of death (home, facility)
- Timing of death in relation to pregnancy (Antepartum, intra partum, postpartum)

2.2. Cause of Death

- Direct obstetric (haemorrhage, obstructed labor, HDP, unsafe abortion, sepsis)
- Indirect obstetric (anaemia, malaria, HIV, TB, etc.)
- Preventability

2.3. Contributory factors

- Health seeking (delay one)
- Transport access (road, vehicle, communication)
- Transport cost
- Health system related (human resource, supplies, equipment, service cost, etc.)

2.4. MMR

3. **National level analysis**: the national analysis should be done quarterly. This entails analysis on

3.1. Background information of the deceased including :-

- Age
- Residential address (urban/ rural)
- Marital status (married, unmarried, others)
- Education (illiterate, primary, secondary, higher education)
- Parity
- ANC (booked, un booked)
- Place of death (home, facility)
- Timing of death in relation to pregnancy (Antepartum, intra partum, postpartum)

3.2. Cause of Death

- Direct obstetric (haemorrhage, obstructed labor, HDP, unsafe abortion, sepsis)
- Indirect obstetric (anaemia, malaria, HIV, TB, etc.)
- Preventability

3.3. Contributory factors

- Health seeking (delay one)
- Transport access (road, vehicle, communication)
- Transport cost
- Health system related (human resource, supplies, equipment, service cost, etc.)

3.4. MMR

V. Dissemination of results

The information needs to be disseminated using a variety of channels to enable a wide range of people to access it, to ensure that the information gets to the right audience, namely those who can act on the recommendations. If specific causes of deaths are identified as particularly problematic, conferences or seminars can be held to educate health staff.

1. **Whom to inform of the results**

The general principle is to get the key messages to those who can implement the findings and make a real difference towards saving mothers' lives. They may include:

- Ministries of Health
- Local, regional, and/or national health care planners, policy-makers and politicians
- Professional organizations and their members, including paediatricians, general physicians, obstetricians, midwives, anaesthetists and pathologists who are involved at each level
- Leaders in other health care systems, such as Social Security and the private sector
- Health promotion and education experts
- Public health or community health departments
- Academic institutions
- Local health care managers or supervisors
- Local governments
- Community members like HDA
- National or local advocacy groups
- The media
- Representatives of specific faith or cultural institutions or other opinion leaders who can promote and facilitate beneficial changes in local customs
- All those who participated in the survey

2. **The following are all methods that have been used for dissemination of results:**

Community/facility level:

- Team meetings
- Thematic seminars at facilities
- Community meetings
- Radio programmes
- Printed reports
- Training programmes

- Posters
- Text messages
- Video clips

Woreda/ Regional or national level:

- Printed reports for policymakers
- Statistical publications
- Scientific articles
- Professional conferences
- Training programmes
- Media
- Press releases
- Websites
- Newsletters and bulletins
- Fact sheets
- Posters
- Video clips

3. Publish the results

Publishing a report is one of the primary ways to disseminate the findings and recommendations. The report should be written in simple language, be easy to follow and should include some standard sections. The scope, depth and breadth of the report may vary, depending on the approach that was chosen and the number of cases reviewed.

- A single facility death review report may be an internal document, copied and distributed to all staff, relevant decision makers in the area, and colleagues outside the facility. The objective is to share the findings and recommendations. As it is likely that many people involved will know the identities of the deceased women's family and staff involved in the care, it will be particularly important to focus on positive recommendations, rather than placing blame.

- Facilities-based review report may have broader audiences: all the facilities involved in the review, other facilities in the area (public and private), various decision makers, insurance companies and teaching institutions, as well as national authorities and the public.

- A community-based review may have a report that is distributed to leaders of the area of the review, individuals involved in local programs, and district or state health officials.

However, remedial action does not need to wait for the report to be published. Sometimes the findings of a single case review can reveal a significant problem that needs to be addressed immediately. The frequency and importance of other problems may only become apparent after the information from the qualitative review is quantitatively analysed.

VI. Response

Taking action to prevent maternal deaths is the primary objective of MDSR. In most reviews, multiple problems will be identified, and a number of potential actions will be recommended. The type of action taken will depend on whether decisions are being made at the national, district, facility or other level, who was responsible for the investigation, stakeholders involved, and the findings of the analysis.

Suggested standard sections for a MDSR report

1. Background of area covered by review.
2. Characteristics of women of reproductive age in area.
3. Characteristics of births in area (number, live or stillborn (fresh vs. macerated), birth weight, gestational age).
4. Maternal deaths by area, mother's age, ethnicity (with denominator if possible).
5. Maternal deaths by medical cause of death.
6. Problems leading to death by medical cause and non-medical cause and their frequencies
7. Recommendation to prevent future deaths
8. Review of recommendations from previous year and whether they were implemented of not; if not, why not

Possible actions include interventions in the community, within health services, and in the public sector. Findings from the community may point to the need for the development of health promotion and education programmes, facilitation of financial access as well as possible changes in community service provision, changing home practices or in the practices or attitudes of the health care facilities, or improved infrastructure such as roads, bridges, and communication technology. Information from facilities may point to the need for changes in clinical practice or modification of service provision. The

needed actions may be in the area of direct patient care, or at the system level, such as how to provide the necessary drugs and personnel at a health care facility or perhaps the need for clinical guidelines for care or capacity building. Information from the findings of combined data analysis can cover all these issues on a far wider basis and are used at institutional, local and national levels by politicians, health service planners, professionals, public health personnel, educators and women's advocacy groups. They may also lead to the development of programs to improve maternal health.

VII.M&E for MDSR

1. Framework for monitoring

Monitoring and evaluation of the MDSR system itself should be in place to ensure that the major steps in the system are functioning adequately and improving with time. It is also important to assess the timeliness of the information and the coverage of the system. Monitoring of the MDSR system is carried out both at national and regional level. The monitoring framework with indicators is shown in Table 4.

2. Evaluation of the MDSR system

In addition to the monitoring indicators that provide a quick snapshot of whether the system is improving, periodically a more detailed evaluation is useful particularly if i) the indicators demonstrate that one or more of the steps in the MDSR process is not reaching expected targets, or ii) if maternal mortality is not decreasing. Since the main purpose of MDSR is to lead to action to reduce maternal deaths if this is not happening the system is failing. A more detailed evaluation can also be used to assess whether the system can function more efficiently. Ideally, an evaluation of the quality of information provided would also take place periodically. The evaluation of MDSR system should take efficiency and effectiveness into consideration.

Table 2.MDSR monitoring framework

Indicator	**Target**	**Means of verification**
Overall system indicators		
Maternal death is a notifiable event	Yes	HMIS
National maternal death review task force exists	Yes	Report
- that meets regularly	At least quarterly	Minutes
National maternal mortality report published annually	Yes	Report
% of facilities with maternal death review committees	100%	MDSR report
% of woredas with someone responsible for MDSR	100%	Report
Identification and reporting		
Facility:		
All maternal deaths are reported	Yes	Survey
- % within 48 hours	>90%	Survey
Community:		
% of woredas with zero reporting monthly	100%	MDSR report
[% of expected maternal deaths that are reported?]	80%	MDSR report
% of community maternal deaths reported within 1 week	>80%	Survey
Review		
Facility		
% of facilities with a review committee	100%	Report
% of facility maternal deaths are reviewed	100%	MDSR report
Community		
% of verbal autopsies conducted for pregnancy related deaths	100%	Survey
Region		
Regional maternal mortality review committee exists	Yes	Report
- and meets regularly to review facility and community deaths	At least quarterly	Minutes
- percentage of deaths reviewed by the region among reported ones	10%	Report

Data Quality Indicators – TBD Cross check data from facility and community on same maternal death Sample of WRA deaths to ensure they are correctly identified as not maternal		Survey Survey
Response Facility % of committee recommendations that are implemented - quality of care recommendations - other recommendations Community % of committee recommendations that are implemented	 80% 80%	 Survey Survey
Reports National Committee produces annual report Regional committee produces annual report	 Yes Yes	 Report Report
Impact Quality of care - case fatality rate (facility) National maternal mortality ratio Regional maternal mortality ratio		 KPI MDSR reports MDSR reports

VIII. Additional considerations – for broadening the system

Near misses (morbidity)

This provides an opportunity to include maternal morbidity in the surveillance system as resources allow or small number of deaths is identified. The focus of the morbidity should be on preventable causes of death and in turn, preventable causes of morbidity.

Perinatal death review

As perinatal deaths are closely linked to the access and quality of obstetric care, the need to carry out perinatal death review can complement the MDSR system.

Pregnancy surveillance

Identification of all pregnant women at any given time in a location is one method to obtain denominators, identify women at higher risk, and determine pregnancy outcomes reliably. Establishing a pregnancy surveillance system, while beneficial, should take in account the resources available and the goals of the system itself.

Linkage to vital records

Identification of maternal deaths can be accomplished by reviewing vital records. Additional deaths may be uncovered using other approaches. Creating a system of verifications of the newly identified deaths is important for data validity. The valid deaths identified by other methods, if confirmed to not already be listed in the vital registration system, should be then added. In this way, the MDSR provides an opportunity to strengthen the vital registration system.

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X. Annex

Annex 1: Notification and verbal autopsy tool

The Federal Democratic Republic of Ethiopia
Ministry of Health

Federal Democratic Republic of Ethiopia

Ministry of Health

Verbal autopsy tool

August, 2012

Addis Ababa, Ethiopia

Notification and identification format (To be filled in duplicate)

I. Notification

1. Name of the deceased:_____
2. Name of head of the household:_____
3. Household address:

   Woreda/Subcity_____Kebele_____Gott_____ HDA team---- -------- house number:_____
4. Date of the women's death:_____
5. Who informed the death of the woman?

   1. HDA

   2. Religious leader

   3. Self (HEW)

   4. Others (specify)_____
6. Date of Notification:_____
7. Name of the HEW:_____
8. Telephone number of HEWs:_____
9. Signature:_____

II. Screening (to be filled by HEW supervisor)

1. Age of the woman:_____
2. Did she die while pregnant? 1. Yes 2. No
3. Did she die with 42 days of termination of pregnancy? 1. Yes 2. No
4. Has she missed her menses before she dies? 1. Yes 2. No
5. Place of death:
   i. Home
   ii. On the way to HP
   iii. HP
   iv. On the way to Health facility (HCs, hospitals)
   v. Managed at health facility
6. Suspected maternal death: 1. Yes 2. No
7. Name of HEW supervisor:
8. Date:
9. Signature:

NB: If yes to questions 2-4, it is suspected maternal death and proceeds to fill the verbal autopsy tool

Verbal autopsy tool/ community based maternal death review tool

I. People who participated in the interview:
Interviewee will be those who were there at the time of illness/death (up to 4 interviewee possible)

Name	Relationship	Was around at the time		When do they join/leave the interview
		Illness	Death	

II. Interviewer related:

1. Interviewer name:
2. Date of interview:
3. Language of interview:
4. Phone number of interviewer

III. Identification/ Back ground information

S. No	Question	Response
1	Name of deceased	_____
2	Age of deceased	_____ (years)
3	Time of death and date of death	_____
4	Ethnicity	_____
5	Address where death occurred	Woreda/subcity_____ Kebele_____ Got_____ House number_____
6	Place of usual residence	Woreda/subcity_____ Got_____ Kebele_____ House number_____
7	Religion	1. Orthodox 2. Muslim 3. Protestant 4. Others (specify)------
8	Educational status of the	1.Illiterate 2.Can read and write

	deceased	3. Primary school 4. Secondary school 5. Beyond
9	Marital status of the deceased	1. Single 2. Married 3. Divorced 4. Widowed 5. Others (specify)
10	Occupation of the deceased	1. House wife 2. Employed 3. Unemployed 4. Others (specify)
11	Occupation of the husband	1. Farmer 2. Merchant 3. Public employee 4. Unemployed 5. Daily laborer 6. Others (specify)
12	Level of education of the husband	1. Illiterate 2. Can read and write 3. Primary school 4.Secondary school 5. Beyond
13	Monthly income if possible	____birr

Do you have a death certificate? 1. Yes 2. No

If yes, documen t important points like cause of death and identified problems

1. Do you know if she had any medical problems before she died? 1. Yes 2. No

1.1 If yes, specify, tick where it applies

Disease	Yes	No
Malaria (fever, chills, rigors)		
Tuberculosis (cough> 3 weeks, fever, night sweating, etc.)		
HIV/AIDS		
Anemia		

Hypertension		
Diabetes		
Epilepsy		
Others (Specify)		

2. *Was she on treatment for this illness? 1. Yes 2. No*

2.1 *If yes, specify*

Disease	*Modern treatment*	*Traditional/cultural treatment*
Malaria (fever, chills, rigors)		
Tuberculosis (cough> 3 weeks, fever, night sweating, etc.)		
HIV/AIDS		
Anemia		
Hypertension		
Diabetes		
Others (Specify)		

IV. Pregnancy related questions

S. No	Questions	Response
1	Number of pregnancies including those that ended in miscarriage and still births	_____
2	Number of births did she had after 7 months of gestation including still births, ENND	_____
3	Duration of the index pregnancy in months	_____
4	Has she ever attended basic ANC?	1. Yes 2. No
5	If yes to Q 4 above, specify where was the ANC	1. HP 2. Public HC/Hospital 3. Private clinic Specify
4	State of the pregnancy at the time of death	1. Delivered 2. Undelivered 3. abortion
5	Outcome current pregnancy	1. abortion 2. Ectopic 3. Live birth 4.Stillbirth
6	If it was delivery, who assisted the delivery?	1. Family/elderly 2. TBA 3. HEWs 4. HCWs

		5. Others (specify)
7	Any problem before or during this pregnancy	1. Yes 2. No
8	If yes to Q 7 above: • Seizure/abnormal body movement • Bleeding • Fever • Other (specify)	Yes No ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
9	If yes, did she seek care?	1. Yes 2. no

V. Community factors

S. No	Item	Response
1	Number of days/hours she was sick before she died	_____ days/hours
2	Main problem before she died: • Vaginal bleeding • Fits • Fever • Baby stuck/Prolonged labor • Other (specify)	Yes No ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
3	Was any care sought for the problem?	1. Yes ☐ 2. No ☐
4	If yes to Q3 above, how long after the problem/illness was detected?	_____Hours/days
5	If yes to Q3 above, what was the main symptom for seeking care?	_____
6	Where was care sought and obtained?	1. Traditional 2. Modern
6	How long after seeking care did she arrive at the health facility if it was modern?	_____
7	What mode of transport was used if care was obtained?	_____
8	For how long was the care given?	_____ hours/days
9	If no to Q3 above, what was the main reason why care was not sought?	1. Not knowing the impact of the illness 2. Past good obstetric out comes at home 3. Lack of money 4. Lack of transport 5. No nearby health

		facility 6. Others (Specify)
10	How long would it take to walk from this house to the nearest : • Health post • Health center • Hospital	_____hours/days _____Hours/days _____hours/Days
11	If you want to go to health center or hospital, what mode of transport would you able to use?	1. Rented public transport 2. Police car 3. Ambulance 4. Private car 5. Others (specify)

Do you think there is anything which could have prevented her death?

1. _____

2._____

3._____

Annex 2: facility based abstraction form

Facility based maternal death summary form

August, 2012

Addis Ababa, Ethiopia

I. Abstractor related

1. Name of the abstractor:_____
2. Qualification of the Abstractor_____
3. Telephone number of the abstractor:_____
4. Date of abstraction:_____
5. Was the abstractor involved in the management of the case? 1. Yes 2. No

II. Identification/ Back ground information

S. No	Question	Response
1	Name of deceased	_____
2	Age of deceased	_____ (years)
3	Time of death and date of death	_____
4	Ethnicity	
5	Address where death occurred	Woreda/subcity_____ Kebele_____ Got_____ House number_____

VI. Obstetric characteristics

6	Place of usual residence	Woreda/subcity_____ Kebele_____ Got_____ House number_____
7	Religion	1. Orthodox 2. Muslim 3 Protestant 4. Others (specify)------
8	Educational status of the deceased	1. Illiterate 2. Can read and write 3. Primary school 4. Secondary school 5. Beyond
9	Marital status of the deceased	1. Single 2.Married 3. Divorced 4. Widowed 5. Others (specify)
10	Occupation of the deceased	1. House wife 2 employed 3. Unemployed 4. Others (specify)
11	Occupation of the husband	1. Farmer 2. Merchant 3. Public employee 4. Unemployed 5. Daily labourer 6. Others (specify)
12	Level of education of the husband	1. Illiterate 2. Can read and write 3. Primary school 4.Secondary school 4. Beyond
13	Monthly income if possible	____birr

S. No	Question	Response
1	Gravidity	_____
2	Parity	_____
3	Number of living children	_____
4	Attended ANC?	1. Yes 2. No
5	If yes, where is the ANC?	1. Health post 2. Health center 3. Hospital 4. Other (specify)
6	If yes, number of visits	_____
7	Basic package of services provided • Investigations done (RPR, Hgb, Blood group, HIV status, U/A) separate • BP measurement during the follow up • Fefol supplementation • TT immunization • Other (Specify)	Yes No ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
8	Problems or risk factors in the current pregnancy: I. Preexisting problems	

	• Hypertension • Anemia • Diabetes • HIV positive • Cardiac problem • Malaria • Tuberculosis • Hepatitis • Other (Specify) II. Antenatal/ intranatal problems/risks • Preeclmpsia/eclampsia • Placenta previa • Previous C/D • Multiple gestation • Abnormal lie/presentation • Anemia • Malaria • UTI/pyelonephritis • Unintended pregnancy • Other (specify)	
9	State of pregnancy at the time of death	1. Antepartum 2. Intrapartum 3. Postpartum 4. Postabortion 5. Ectopic
11	If delivered, what is the outcome?	1. Live birth 2. Stillbirth
12	Date and place of delivery	Date: _____ Place of delivery:_____
13	GA at the time of death in antepartum and /or intrapartum events	_____wks/months
14	If the event was post partum or postabortion, after how many days has the event occurred?	_____days
15		

Facility Episode

S. No	Question	Response
1	Date of admission	_____
2	Day of admission	1. Working days 2. Weekends 3. Holidays
3	Time of admission	1. Working hours 2. Nonworking hours
5	Main reason/symptom for admission	
6	Is it a referred case?	1. Yes 2. No

7	Referred from (Name of health facility)		_____
8	Reason for referral		
9	Comment on referral • Accompanied by HCWs • Appropriate management		
10	Comments on the intervention		
11	Qualification of the most senior attending health professional(s)		
12	Date of death		
13	Time of death		
14	Primary cause of death		
15	Is this preventable death?		
16	If preventable maternal death, specify factors according to the three delay model	Delay in seeking care	
		Delay in reaching at right facility	
		Delay within the facility (diagnostic and therapeutic)	

Annex 3: Summary form for VA

1. ID. Number
2. Age_____
3. Address: Region:_____ Zone:_____ Woreda:_____Kebele:_____ House No:_____
4. Marital status: single:___ Married:____ widowed:_____ other(specify):_____
5. Religion:_____
6. Ethnicity:_____
7. Occupation:_____
8. Level of education:_____
9. Income:_____
10. Gravidity:_____
11. Parity:_____
12. Abortions:_____
13. Place of death:_____
14. Death occurrence in relation to pregnancy/labour/ postaprtum:_____
15. cause of death (clinical) if known:_____
16. Contributory cause of death:

Delays	Contributory factors	response
Delay 1	Harmful traditional practices	
	Family poverty	
	Failure of recognition of the problem	
	Lack of decision to go to health facility	
	Delayed referral from home	
Delay 2	Delayed arrival to referred facility	
	Lack of roads	
	Lack of transportation	
	No facility within reasonable distance	
Delay 3	Delayed arrival to next facility from referral from another facility	
	Delayed management after admission	
	Delayed or lacking supplies and equipments(specify)	
	Human error or mismanagement	

17. Is this preventable death: Yes_____ No_____ if yes, describe preventable factors:

Name of the reviewer:_____ sign:_____ date:_____

Annex 4: Reporting template from Health facility to Next level (fill it in duplicates)

1. Date of reporting:_____
2. Name of the facility:_____
3. Receiving next level:_____
4. Id No of deceased:
5. Age:_____
6. Marital status:_____
7. Religion:_____
8. Ethnicity:_____
8. Address: Urban___Rural____
9. Level of education
10. Gravidity
11. Parity
12. Cause of death
13. Death in relation to pregnancy/ L& D/puerperium:_____
14. Contributory factors/non-medical

Delays	Contributory factors	response
Delay 1	Harmful traditional practices	
	Family poverty	
	Failure of recognition of the problem	
	Lack of decision to go to health facility	
	Delayed referral from home	
Delay 2	Delayed arrival to referred facility	
	Lack of roads	
	Lack of transportation	
	No facility within reasonable distance	
Delay 3	Delayed arrival to next facility from referral from another facility	
	Delayed management after admission	
	Delayed or lacking supplies and equipments(specify)	
	Human error or mismanagement	

15. Preventable death (yes or no)
16. Response actions based on three delay model

Annex 5: Reporting format from Woreda to region

Date of reporting:_____ Reporting woreda:_____

Parameter		Death1	Death 2	Death 3	Death 4	Death 5
Age						
Marital status						
Parity						
Educational status						
Timing in relation to pregnancy (antepartum, intrapartum, postpartum)						
Cause of death (Clinical)						
Contributory factors to death Delay 1	Harmful traditional practices					
	Family poverty					
	Failure of recognition of the problem					
	Lack of decision to go to health facility					
	Delayed referral from home					
Delay 2	Delayed arrival to referred facility					
	Lack of roads					
	Lack of transportation					
	No facility within reasonable distance					
Delay 3	Delayed arrival to next facility from referral from another facility					
	Delayed management after admission					
	Delayed or lacking supplies and equipments(specify)					
	Human error or mismanagement					

Reported by: signature: seal

Annex 6: Reporting format from Region to National

Date of reporting:_____ Reporting Region:_____

Parameter	**Quantity/Number**	**Remark**
Age (number) ≤ 19 years 20-29 years 30-39 ears ≥40 years	 _____ _____ _____ _____	
Marital status Single Married Others	 _____ _____ _____	
Address Rural urban	 _____ _____	
Educational status Illiterate Primary school Secondary school University/college	 _____ _____ _____ _____	
Parity I II-IV ≥V		
Timing of death in relation to pregnancy, delivery or puerperium Antepartum Intrapartum Postpartum	 _____ _____ _____	
Cause of maternal death		

Direct obstetric causes (specify) Indirect obstetric causes (specify) others	_____ _____ _____	
Contributory factors Delay I Delay II Delay III	 _____ _____ _____	
Preventable death: Yes No	 _____ _____	
Number deaths reviewed by regional SMTWG/RH task force in last one month	_____	

Reported by: _____ signature: _____ seal