NATIONAL TECHNICAL GUIDANCE FOR MATERNAL AND PERINATAL DEATH SURVEILLANCE AND RESPONSE

ETHIOPIAN PUBLIC HEALTH INSTITUE

2017

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Acronyms and Abbreviation:

AFOG-African Federation of Obstetricians and Gynaecologists
ANC- Antenatal Care
CEO-Chief Executive Officer
CHAI- Clinton Health Access Initiative
CRVS-Civil Registration and Vital Statistics
CRL- Crown-Rump Length
DHS- Demographic and Health Survey
E4A- Evidence for Action
EPHI- Ethiopian Public Health Institute
EPS- Ethiopian Paediatric Society
ESO-Emergency Surgical Officers
ESOG- Ethiopian Society of Obstetricians and Gynaecologists
FBAF- Facility Based Abstraction Form
FBMDAF- Facility Based Maternal Death Abstraction Form
FBPDAF- Facility Based Perinatal Death Abstraction Form
GA- Gestation Age
GP- General Practitioner
GS-Gestational Sack
HDA- Health Development Army
HCW-Health Care Workers
HEW- Health Extension Worker
HSTP- Health Sector Transformation Plan
ICD-10-International Statistical Classification of Disease and Related Health Problems, 10th revision
ICD-MM- International Statistical Classification of Diseases and Related Health Problems, Tenth revision to deaths during pregnancy, childbirth and puerperium (ICD-Maternal Mortality) (WHO publication)
ICD-PM- International Statistical Classification of Diseases and Related Health Problems, Tenth revision to deaths during the perinatal period (ICD-Perinatal Mortality) (WHO publication)
IDSR- Integrated Disease Surveillance and Response
JSI/L10K- John Snow Inc. / Last 10 kilometres
KI- Key Informant
LB- Live Birth
LNMP- Last Normal Menstrual Period
MCH- Maternal and Child Health
MDG- Millennium Development Goals
MDRF- Maternal Death Reporting Form
MDSR-Maternal Death Surveillance and Response
MMR- Maternal Mortality Ratio
MNCH- Maternal, Neonatal and Child Health
MOE- Ministry of Education

MOFEC-Ministry of Finance and Economy
MOJ- Ministry of Justice
MOH- Ministry of Health
MPDSR – Maternal and Perinatal Death Surveillance and Response
NICU- Neonatal Intensive Care Unit
NMR- Neonatal Mortality Rate
PDRF- Perinatal Death Reporting Form
PDSR-Perinatal Death Surveillance and Response
PHEM- Public Health Emergency Management
PMR- Perinatal Mortality Rate
POA- Plan of Action
RH-Reproductive Health
RMNCH-Reproductive Maternal New-born and Child Health
RRT- Rapid Response Team
SB- Still Birth Rate
SDG- Sustainable Development Goals
SMART- Specific, Measurable, Appropriate, Realistic and Timely
TOR- Terms of Reference
TM- Trimester
TWG-Technical Working Group
UN- United Nations
UNFPA- United Nations Population Fund
VA-Verbal autopsy
VERA- Vital Event Registration Agency
WHA-World Health Assembly
WHO-World Health Organization
WRA- Women of Reproductive Age
WRF- Weekly Reporting Form

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Foreword:

Ethiopia has made remarkable achievements in reducing maternal and child mortality by more than two thirds from its baseline during the MDG era. Despite this, around 11,000 maternal deaths and 182,000 perinatal deaths were estimated to occur in the year 2015.

These high numbers serve as a call to action for the elimination of preventable maternal and perinatal deaths in Ethiopia. This is one of the top priorities of the health sector transformation plan (2016-2020) and the national reproductive health strategy for the same period. To ensure implementation of these priorities, the Public Health Emergency Management (PHEM) system has identified maternal and perinatal deaths as notifiable public health events.

Maternal and perinatal death surveillance and response (MPDSR) is introduced as a system that tracks and measures all maternal and perinatal deaths in real time. This enables understanding of underlying causes and contributing factors of the deaths, and can stimulate further action to prevent similar deaths in future. Furthermore, it provides information on the number of deaths, their place and timing, and whether or not they were preventable.

Based on the mandate given to the PHEM center of the Ethiopian Public Health Institute (EPHI) to lead and coordinate public health surveillance activities, the MPDSR system will be similarly handled under the national PHEM system. To guide MPDSR implementation the EPHI/PHEM has developed this technical guidance through its national MPDSR working group.

This technical guidance aims to standardize implementation of maternal and perinatal death surveillance and response at national, regional, woreda and local levels through an integrated approach within the existing PHEM system. Therefore, this technical guidance emphasizes use of the PHEM structure for coordination and collaboration of different actors to implement MPDSR throughout Ethiopia.

I hope that this manual meets the needs of actors engaged in public health surveillance and MCH care who will be working in the area of maternal and perinatal death surveillance and response.

Director General, EPHI

Executive summary:

Maternal and perinatal mortality of Ethiopia are estimate to be 412/100,000 live births and 46/1000 births according to the 2016 and 2011 Ethiopian DHS reports respectively. FMOH of Ethiopia aims to eliminate preventable maternal and perinatal deaths and thus has been implementing maternal death surveillance and response since 2013, which was integrated within the national public health emergency management (PEHM) system from 2014. Currently, perinatal death surveillance and response (PDSR) will be introduced by building on this PHEM platform and integrated with the existing MDSR system.

The MPDSR surveillance process includes community level identification of both maternal and perinatal deaths (probable and suspected) and their standard case definitions, identification, notification, investigation (verbal autopsy and facility based abstraction), review and reporting (weekly aggregate and case based summary reporting). The surveillance officers or focal persons at all levels are responsible for the reporting process in collaboration with MCH, HEWs and communities. The Core Rapid Response Team (RRT) of PHEM will bring other relevant health professionals and responsible bodies to the review process.

Response is the ultimate aim of the surveillance process. MPDSR response will be based on review of each case based summary and analysis of aggregated data. Action plans will be developed to provide responses at community and facility levels. Additionally, programmatic responses will be given at woreda, regional and national levels. Health facilities with high numbers of deaths can also use the findings from aggregated case summaries to identify institutional responses.

The embedded M&E framework is designed to serve as an indicator reference sheet, which will be used as a menu to select different performance tracking tools as needed. This M&E framework consists of a matrix of core and optional indicators categorized by their level of importance. These indicators are also categorized by type to measure results at input, process, output, outcome and impact levels.

Finally, the maternal and perinatal death surveillance and response tools are annexed to this technical guidance. These tools include Identification and Notification form, Weekly PHEM reporting forms for health extension workers and health facilities, verbal autopsy forms, facility abstraction forms and case based summary reporting forms for both maternal and perinatal deaths. The weekly reporting forms are the same for the MPDSR/PHEM system and the rest of the MPDSR forms are separate for both types of deaths.

List of figures:

Definition of Terms:

Maternal death: 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 (1).

Direct obstetric deaths: Maternal deaths resulting from complications of the pregnancy, labour or postpartum or from interventions, omissions or incorrect treatment (1).

Indirect obstetric deaths: Maternal deaths resulting from previously existing disease or newly developed medical conditions that were aggravated by the physiologic change of pregnancy (1).

Late maternal death: A maternal death which occurs from 42 to 365 days after the termination of pregnancy (1).

Maternal near-miss: 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) (2,3).

Perinatal death: The death of a fetus after 28 completed weeks and within 7 days after birth (4, 5).

Extended perinatal death: The death of a fetus after 28 completed weeks and within 28 days after birth (5)

Live birth: The complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached (4,5).

Still birth: A fetal death with no signs of life at ≥ 28 completed weeks of gestation (4, 5).

Ante-partal still birth: A death of a foetus occurring before the onset of labour and after 28 weeks of gestation (4, 5).

Intra-partal still birth: A death of the foetus occurring after the onset of labour and before delivery of the baby (4, 5)

Still birth of unknown time: A still birth with un-known timing of death with reference to onset of labour/ lack of evidence to classify as before or after the onset of labour (4, 5).

Neonatal death: A death of a live born baby within 28 days of birth (4, 5).

Early neonatal death: A death of a baby within 7 days of birth (4, 5).

Late neonatal death: A death of a baby after 7 days and before 28 days of birth (4, 5).

Introduction:

Ethiopia has a high burden of maternal, perinatal and neonatal death. During the last two decades, maternal mortality level in Ethiopia reduced by 71% from its level in 1990 (1250/100,000 live births to 353/100,000 live births in 2015) (6). However, this achievement still short of the country's target to reach 267/100,000 live births by 2015 (6,7). Under 5 mortality declined by two thirds from the 1990 figure of 204/1,000 live births to 68/1,000 live births in 2012, thus meeting the target for Millennium Development Goal 4 (MDG 4) on child survival three years ahead of time. Neonatal mortality has fallen only by 42% during the same period, from 54/1000 live births in 1990 to 28/1000 live births in 2015 (6,7).

According to the 2016 Ethiopian DHS, the maternal mortality ratio (MMR) is around 412/100,000 LBs, the neonatal mortality ratio is 29/1000 LBs and the perinatal mortality (PMR) was estimated to be 46/1000 births (8). According to 2015 UN estimate, Ethiopia has 87,000 neonatal deaths per year and still births estimated at 97,000/year (9, 10).

Despite having made significant reductions in maternal and under 5 mortalities during the last decades, Ethiopia continues to have a high estimated rate of maternal and neonatal deaths as well as stillbirths. Most of these losses are believed to be preventable with high-quality, evidence-based interventions delivered before and during pregnancy, during labour and childbirth, and in the crucial hours and days after birth (9, 10).

The government of Ethiopia has developed the five-year (2016 to 2020) health sector transformation plan (HSTP) and RH strategy for 2016-2020, putting reduction of maternal and perinatal deaths as a top priority. MPDSR is one of the strategies designed for providing essential information needed to stimulate and guide actions to prevent future maternal and perinatal deaths (11).

MPDSR is a form of continuous surveillance linking the health information system and quality improvement process from local to national levels. It includes the routine identification, notification, quantification, and determination of causes and avoid-ability of all maternal and perinatal deaths, as well as the use of this information to respond with the overall aim of eliminating preventable maternal and perinatal deaths (5, 12).

Ethiopia has been implementing MDSR for the last three years to address preventable maternal deaths following the 2013 WHO technical guidance. The MDSR database now receives reports and case summaries from all regions ensuring that the cycle of identification, notification, reporting, review, and response occurs at both community and facility levels. This national experience from MDSR leads

to the introduction of perinatal death surveillance and response (PDSR) which will adopt similar surveillance functions, skills, resource and target populations (13). The new system will be introduced by the end of 2009 E.C. using the MDSR platform housed within the PHEM system. Implementing MPDSR system inherently places value on mothers and babies' life an important form of accountability for families and communities.

A well-defined and enforced MPDSR system stresses that maternal and perinatal deaths should be incorporated in existing system of notifiable health events reporting to ensure timely notification. MPDSR also stresses the need to collect data on all maternal, still births and neonatal deaths that occurred in facilities as well as communities, and to use this information to provide a snapshot of weaknesses in the health-care delivery system as a whole from the community through the various levels of referral to the tertiary care facility.

The PHEM system promotes rational use of resources by integrating and streamlining common surveillance activities. Surveillance activities for different health events involve similar functions (detection, reporting, analysis and interpretation, feedback, action) and often use the same structures, processes and personnel. Therefore, when MPDSR is integrated with PHEM, all its surveillance activities will be coordinated and streamlined within the existing PHEM structure (14).

Rationale:

Considering the high burden of maternal and perinatal mortality and its impact on the overall development of the nation, the government of Ethiopia has identified reduction of maternal and perinatal deaths as top priority agenda as reflected in the HSTP and RH strategy for 2016-2020 (11). Because of the absence of well-developed vital registration system and complex/difficult nature of measuring maternal and perinatal mortality, reported maternal mortality underestimates the true magnitude by up to 30% worldwide and by 70% in some countries (6, 12). Due to lack of reliable estimates of the dimensions of the problem, assessing progress is difficult. Inadequate measurement also contributes to a lack of accountability and in turn to a lack of progress.

A vital component of any elimination strategy is a surveillance system that not only tracks the numbers of deaths, but also provides information about the underlying factors contributing to them and how they should be tackled. Maternal and Perinatal Death Surveillance and Response (MPDSR) establish the framework for an accurate assessment of the magnitude of women and babies' deaths during pregnancy, labour and postpartum. Availing such information locally and in real time makes maternal and perinatal deaths visible events and compels policy and decision makers to give the problem the attention and the responses it deserves. It also provides information about avoidable factors that contributed to the deaths and guides action to be taken at the community level, within the formal health care system, and at the inter-sectoral level (i.e. in other governmental and social sectors).

Ultimately, MPDSR system aims to identify every maternal and perinatal death to monitor maternal and perinatal mortality and the impact of interventions to reduce it.

Purpose of the Guidance:

This technical guidance introduces the critical concepts of MPDSR including its goals, objectives, and specific instructions for implementing each component. It emphasises the importance of improving the quantitative and qualitative information collected by existing systems as well as the important role of woredas in the MPDSR process. This guideline will help to:

1. Clarify definitions, principles, processes and concepts used in MPDSR
2. Guide the implementation of maternal, perinatal and neonatal death surveillance in Ethiopia
3. Establish the MPDSR system and scale it up nationally
4. Guide how the MPDSR system identifies, notifies, quantifies, investigates, reviews and responds to deaths at all levels.
5. Guide analysis and interpretation of data collected on maternal, perinatal and neonatal deaths
6. Use data for making evidence based recommendations
7. Provide a framework for MPDSR monitoring and evaluation
8. Enhance accountability for maternal and perinatal health outcomes
9. Improve maternal and perinatal mortality statistics and move towards attaining civil registration and vital statistics (CRVS) recording
10. Clarify roles and responsibilities of different actors

Users of this guidance:

A variety of health programmers, health service providers and institutions working on maternal, perinatal and neonatal health can benefit. It is designed for use by:

1. Maternal and neonatal healthcare program managers and PHEM officers at national, regional, zonal, sub-city and woreda levels
2. Health facility managers
3. Health service providers at community and health facility level (doctors, health officers, midwifes, nurses, laboratory experts, pharmacists, health extension workers, MCH and surveillance focal points in health facilities)
4. Rapid Response Team members at national, regional, zonal / sub-city, woreda and health facility levels
5. Teaching institutions that train health professionals
6. Professional associations and partners working on maternal and perinatal issues

7. Non-government organisations, bilateral and multi-lateral organisations
8. Community leaders and other stakeholders

Goal and objectives of MPDSR:

Goal

The goal of MPDSR is to eliminate preventable maternal and perinatal mortality by obtaining and using information on each maternal and perinatal death to guide public health actions and monitor their impact.

MPDSR expands on on-going efforts to provide information that can be used to develop programmes and interventions for reducing maternal and perinatal morbidity and mortality and improving access to and quality of care that women and new-borns receive during pregnancy, delivery, and postpartum. MPDSR aims to provide information that will lead to specific recommendations and actions and improve the evaluation of their effectiveness.

Overall objectives

- To provide information that effectively guides actions to eliminate preventable maternal and perinatal mortality at health facilities and in the community
- To count every maternal and perinatal deaths, permitting an assessment of the true magnitude of maternal and perinatal mortality and the impact of actions taken to reduce it

Specific objectives:

1. To collect, analyse and interpret data, including on the following:
    a) Trends in maternal and perinatal mortality;
    b) Causes of maternal and perinatal deaths and contributing factors;
    c) Avoid-ability of the deaths, focusing on those factors that can be remedied;
    d) Risk factors, groups at increased risk, and maps of maternal and perinatal deaths;
    e) Demographic and socio-economic contexts.
2. To use the data to make evidence-based recommendations for action to decrease maternal mortality. Recommendations may include a variety of topics, such as:
    a) Community education and involvement;
    b) Timeliness of referrals;

c) Access to and delivery of services;
d) Quality of care;
e) Training needs of health personnel/protocols;
f) Use of resources where they are likely to have an impact;
g) Regulations and policy.

3. To disseminate findings and recommendations to civil society, health personnel, and decision-makers/ policy-makers to increase awareness about the magnitude, social effects, and preventability of maternal and perinatal mortality.
4. To ensure actions take place by monitoring the implementation of recommendations.

MPDSR Process overview:

The MPDSR system is a continuous-action cycle designed to provide real-time, actionable data on maternal and perinatal mortality levels, causes of death, and contributing factors, with a focus on using the findings to plan appropriate and effective preventive actions.

The MPDSR cycle consists of four steps as shown in the figure below.

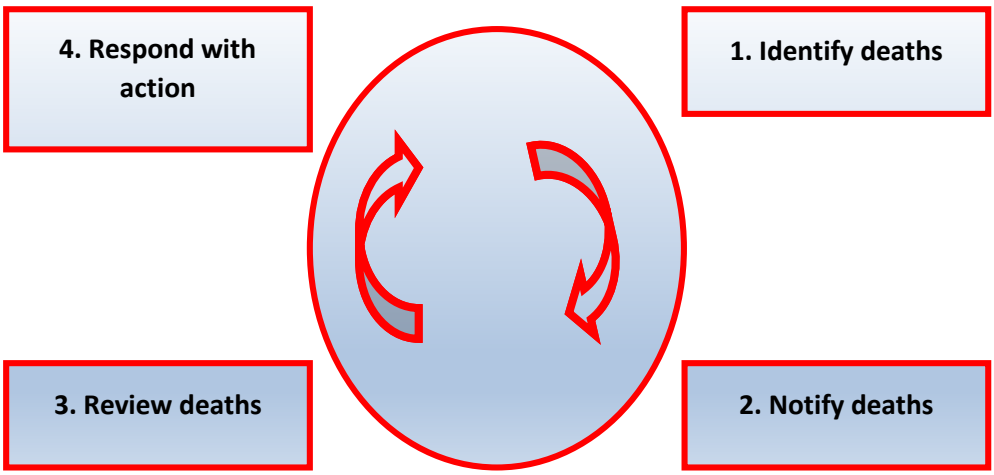


Figure 1 : Maternal and Perinatal Death Surveillance cycle (12).

MPDSR Principles:

- No blame policy - Death reviews focus on health systems not individuals.
- MPDSR review meetings are designed to be an educational experience for all participants.
- In MPDSR programs, a "zero-reporting" principle is adopted, meaning that reports are made regularly even if no death has occurred.
- Relatives are the main source of information for verbal autopsies. Family members should be approached after a culturally appropriate duration of mourning.
- Death review data are anonymised and cannot be used for disciplinary purposes.
- The death reviews are incomplete without response to prevent avoidable factors in the future.
- The response mechanism involves a multi-sectorial approach

Components of MPDSR System:

Components of maternal and perinatal death surveillance:

- Case definitions
- Sources of information for maternal and perinatal deaths
- Identification and notification of maternal and perinatal deaths
- Weekly PHEM reporting of maternal and perinatal deaths
- Maternal and perinatal death investigation and verification
- Review of investigated and verified maternal and perinatal deaths
- Case based maternal and perinatal death reporting
- Maternal and perinatal death data aggregation and analysis

Case definitions of maternal and perinatal deaths in Ethiopia:

Case definition of maternal death:

A. Community case definition (probable maternal deaths):

"Death of a woman of reproductive age (between 15-49 years of age)"

B. Suspected maternal deaths:

"Community case definition plus at least one of the following :(screen)"

- Died while pregnant,
- Died within 42 days of termination of pregnancy or
- Missed her menses before she died

C. Standard case definition (confirmed maternal deaths):

"The death of a woman while pregnant or within 42 days of the end of pregnancy (irrespective of duration and site of pregnancy), from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes "(Source: ICD-10)

Case definition of perinatal death:

Case definition of perinatal death:

A. Community case definition

- **probable perinatal death:**

  "The birth of a dead foetus or death of a new-born"

- **Suspected perinatal death:**

  "Probable perinatal death" plus the following"

  - ✓ Birth after 7 months of pregnancy and
  - ✓ New-born dead at the time of birth OR
  - ✓ Death within 28 days of delivery
    - ➢ Seven months of pregnancy is to be determined by:
      - ✓ Maternal report or Anyone who knows her duration of pregnancy or
      - ✓ GA of 28 weeks or 196 days starting from the first date of the last normal menstrual period (LNMP)

B. **Standard Case Definition (Confirmed Perinatal Death -extended):**

``A death of a fetus born after 28 completed weeks of gestation or neonatal deaths through the first 28 completed days after birth``

- ➢ Gestational age of 28 weeks as determined by:
  - ✓ LNMP:GA of 28 weeks or 196 days starting from the first date of the last menstrual period (LNMP) or
  - ✓ Fundal height of 28 cm
  - ✓ Early or First TM Ultrasound by
    - ➢ CRL (9-11 weeks) or
    - ➢ GS diameter at 5-6 GA weeks.

Sources of information

The sources of information for surveillance of maternal and perinatal deaths (Community case definition or Standard case definition) are multiple and various., The two primary sources of information for timely identification of maternal and perinatal deaths are reports (formal or informal/ rumours) from communities and healthcare facilities using any channel of communication.

Community report: All deaths that satisfy the probable death definition for maternal and perinatal death should be reported by any member of the community to their respective health institution (preferably health post or health centre).

Healthcare facility report: All maternal and perinatal deaths occurring in a health facility should be reported by healthcare providers to their respective facility based surveillance focal person.

Identification and notification of Maternal and Perinatal Deaths:

MPDSR begins with identification of deaths. The Figure below provides an overview of the steps taken for the identification and notification of maternal and perinatal deaths.

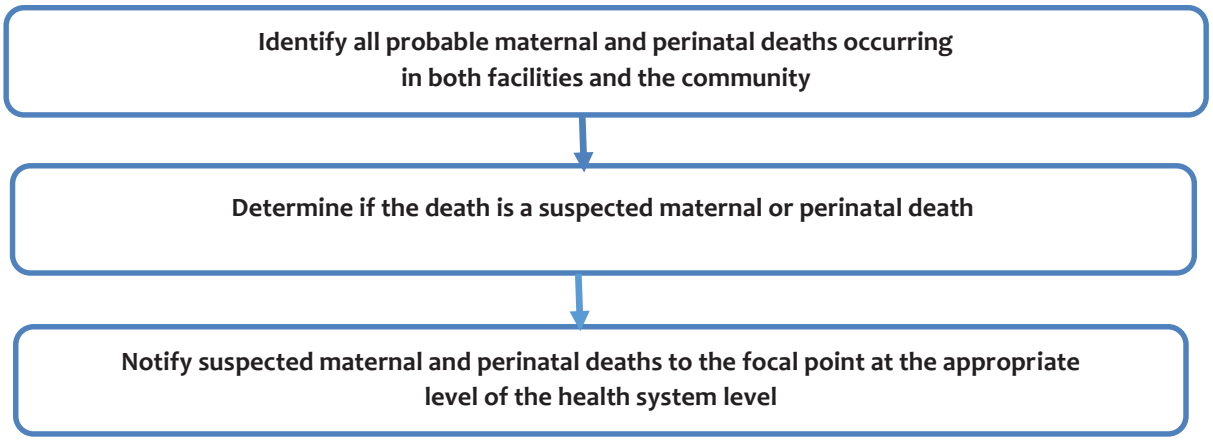


Figure 2: Identification and notification of Maternal and Perinatal Deaths:

Identification of deaths is the first step in the MPDSR system. If deaths occur at home or on the way to health facilities, their identification will be conducted both in the community and health facilities. In the community, HEWs are responsible for capturing and notifying every maternal and perinatal death in their respective catchment Kebele while facility surveillance focal persons are responsible for identification and notification of every maternal and perinatal deaths occurring in a hospital or health centre.

To identify every maternal and perinatal death in community, the HEW should review all deaths of women of reproductive age, birth of dead foetuses and death of neonates up to 1 month. They can get the information from community leaders, health development army (HDAs) leaders (formal informants) and/or any members of the community. HDA leaders should immediately notify HEW if there is a death of a woman of reproductive age group and/or delivery of dead foetus or death of a neonate within 1 month of life happened in the community. The HEW in turn should notify the health centre surveillance focal person within 30 minutes.

The formal notification should be done within 24 hours using identification and notification forms (Annex 1 and 7). To ensure identification of every maternal and perinatal death in health facilities, the surveillance focal persons should review registers and other medical records in all relevant inpatient departments on a daily basis.

The notification of suspected maternal and perinatal deaths will be incorporated into already existing weekly and case based reporting channels of the PHEM system. Using technology such as internet, telephone (texts or calls simplifies collection, transmission, and management of health information) will improve identification.

Identification and notification of maternal and perinatal deaths in the communities:

- HEWs should continuously discuss with kebeles, HDA and community leaders about the importance of maternal and perinatal death reporting as well as when and how to report during their monthly meeting.
- HEWs should regularly follow the outcome of all pregnancies in their catchment kebeles during house to house visits.
- Immediately after death of a WRA, birth of a dead foetus or death of a neonate, the HDA leader/kebele chairman/any community resident should notify HEWs in person, by phone or text message.
- HEWs should prepare a line list of all deaths of WRA, births of dead foetus, and deaths of neonates within 1 month of life that are reported from the community and use a screening tool to determine whether they are suspected maternal deaths, stillbirths, and neonatal deaths.
- HEWs should immediately notify the health centre surveillance focal person by telephone or text message within 30 minutes (informal/rumour notification)

- HEWs should complete the identification and notification form in two copies and submit one copy to the health centre within 24 hours and file one copy at the health post (formal notification)

Identification and notification of maternal and perinatal deaths in health facilities:

- Every morning the focal person should check all in- patient and emergency OPD registers for any death of WRA and suspected perinatal death within the previous 24 hours and prepare line listing for the identified deaths.
- If there is any death of a WRA or suspected perinatal deaths in the facility, then the focal person should screen these using the screening tools to determine whether it was confirmed maternal and perinatal deaths.
- The focal person completes and files a notification form for any confirmed maternal or perinatal death
- The focal person will do facility based data abstraction within 24 hours following notification.
- At the end of each week, the focal person will fill the weekly PHEM reporting formats and report to the next level.

Maternal and perinatal death investigation and verification:

Investigation and verification of suspected maternal and perinatal deaths reported from community:

All suspected maternal and perinatal deaths that are documented at the health post and notified to the respective health centre should be investigated and verified within two weeks by the HEW using the verbal autopsy tool, which should be submitted to the respective health centre surveillance focal person.

The sources of information for the verbal autopsy will be any community member (preferably someone who was around the deceased during the time of death). Proper verbal consent should be obtained from the informant.

Unique code should be given to every VA based on the following information:

- 3 letters from the Region (E.g. Oromia: ORO)

- 3 letters for the zone (E.g. East welega: EWE)
- 3 letters for the woreda (E.g. Kiramu: KIR)
- 3 letters for the health centre (E.g. Kokofe: KOK)
- 2 letters from Year in Ethiopian calendar that the death occurred (E.g. 2007: 07)
- 2 letters from Month number in the Ethiopian calendar that the death occurred (E.g. Hidar: 03)
- Serial number for the death in the health centre in the month of investigation (second maternal death: 02)

Maternal death Code: ORO-EWE-KIR-KOK-07-03-02

N.B: - To differentiate perinatal death from maternal death include letter "P" in front of the serial number as shown below

Perinatal death Code: ORO-EWE-KIR-KOK-07-03- P02

Investigation of confirmed maternal and perinatal deaths in health facilities:

All confirmed maternal and perinatal deaths that are notified & documented at the health facility should be investigated using facility based maternal and perinatal death abstraction format within 24 hours of notification (FBMDA, FBPDA) (Annex 3 and 9). The sources of information to complete the FBMDA/FBPDA format will be the medical record (client chart, registers, death logs, operation notes) and healthcare providers in the facility (involved in the provision of health care).

Unique code should be given to every FBA for all maternal and perinatal deaths based on the following information.

- 3 letters from the Region (E.g. Oromia: ORO)
- 3 letters for type of health facility (E.g. hospital: HOS/health center: HEC/ clinic: CLI)
- 3 letters for the health facility name (E.g. Bishoftu: BIS)
- 2 letters from Year number in Ethiopian calendar that the death occurred (E.g. 2007: 07)
- 2 letters from Month number in the Ethiopian calendar that the death occurred (E.g. Hidar: 03)
- Serial number for the death in the health facility in the month of investigation (E.g. second maternal death: 02)

Maternal death Code: ORO-HOS-BIS-07-03-02

N.B: - To differentiate perinatal death from maternal death include letter "P" in front of the serial number as shown below

Perinatal death Code: ORO-HOS-BIS-07-03-P02=

Review of maternal and perinatal death:

Review of verbal autopsies of suspected maternal and perinatal deaths reported from community:

Each completed verbal autopsy should be reviewed by the rapid response team (RRT) of the respective health centre within one week following receipt of the VA. The health Centre RRT should include midwives, MCH nurses and other MCH related health professionals. For every reviewed VA an action plan has to be developed for response based on the identified modifiable factors that have contributed to the death of the mother and/or neonate.

Following the review of the VA the RRT will complete the case based reporting format (maternal death reporting format (MDRF) and perinatal deaths report format (PDRF) (Annex 4 and 10) in five copies and report it to its respective woreda PHEM unit.

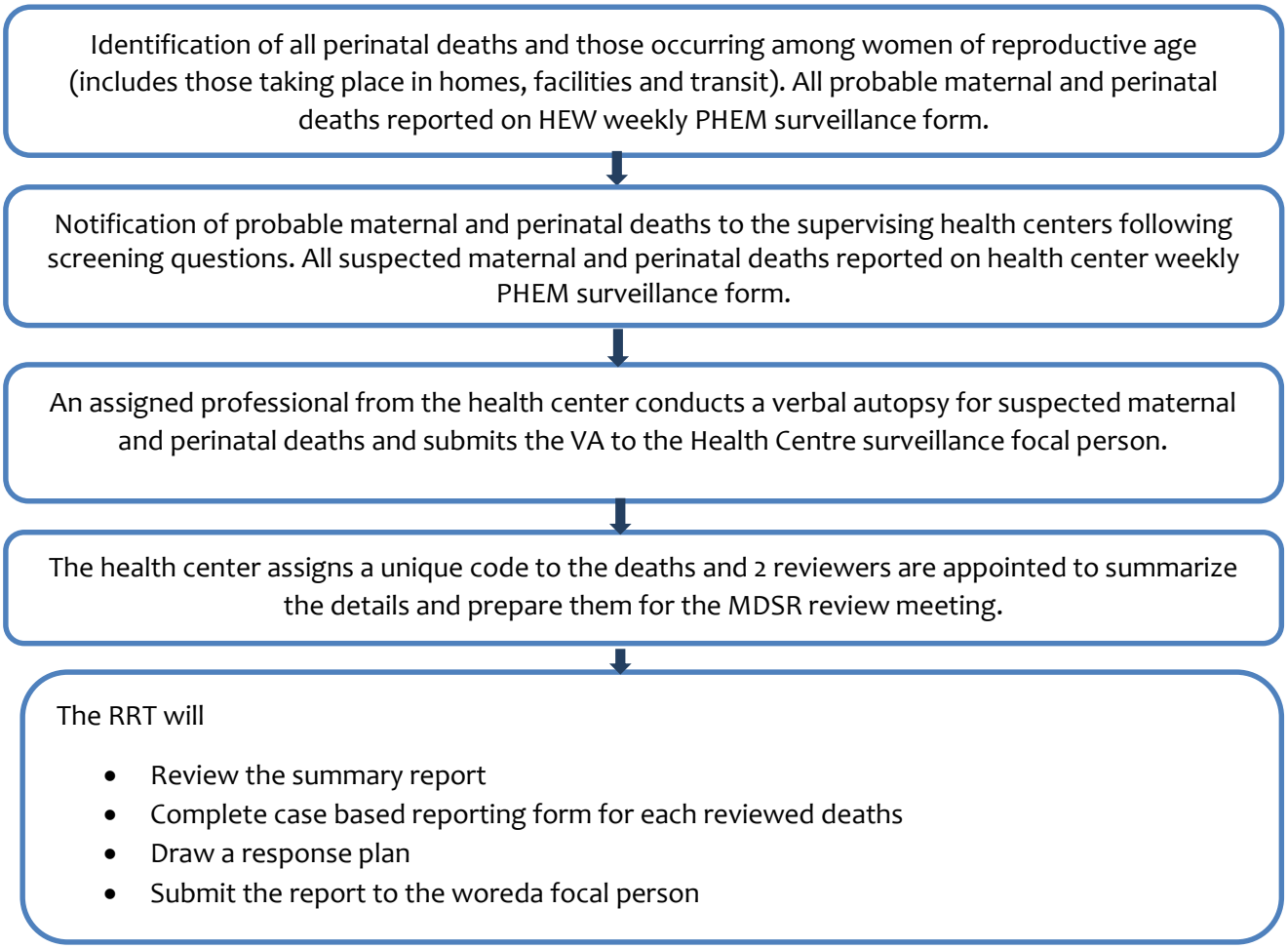


Figure 3: Maternal and perinatal death review at health centers for* all *suspected maternal and perinatal deaths

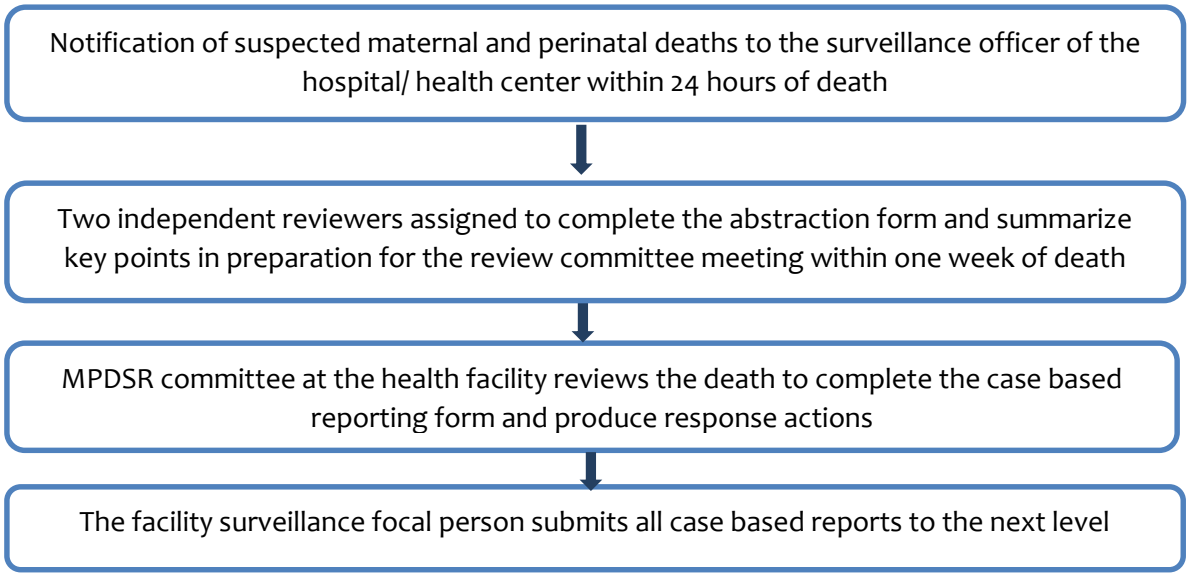


Figure 4: Maternal and perinatal death review for confirmed maternal deaths occurring at facilities

Review of maternal and perinatal deaths in health facilities:

Each completed facility based maternal and perinatal death abstraction should be reviewed by the rapid response team (RRT) of the respective health facility within one week after FBMDAF/FBPDAF is completed and documented by the facility surveillance focal person. The health facility RRT should include midwives, NICU Nurses, ESOs, GPs, Paediatric MSC, Health officers, obstetrician, paediatrician, neonatologist and other related health professionals working in obstetrics of that particular facility. For every reviewed FBMDA and FBPDA an action plan has to be developed for response based on the identified modifiable factors that have contributed to the death of the mother and neonates.

Following the review of the FBMDA and FBPDA, the health facility surveillance focal person will complete the case based reporting format (maternal death reporting format (MDRF) and perinatal deaths report format (PDRF) (Annex 4 and 10) in five copies (HCs and clinics) or four copies (hospitals). The MDRF/PDRF should be immediately reported to its respective woreda/zone or region PHEM unit (based on the context of the region).

Reporting of Maternal and perinatal deaths:

Weekly PHEM reporting:

The number of all probable maternal and perinatal deaths that are notified and documented in the health post should be reported on a weekly basis using HEW weekly PHEM reporting format (Annex-5). Every Monday morning the total aggregated number of all probable maternal and perinatal deaths that were notified and documented by the health post in the preceding week (Monday to Sunday) must be reported to the respective health centre.

The number of all suspected maternal and perinatal deaths that are notified from health post and the number of all confirmed maternal and perinatal deaths that are notified from health centre should be reported weekly using the weekly PHEM reporting format (Annex-6). Every Monday (by mid-day) the total aggregated number of all suspected and confirmed maternal and perinatal deaths that were notified and documented at the health centre in the preceding week (Monday to Sunday) must be reported to the respective woreda PHEM unit by the health centre surveillance focal person.

The number of all confirmed maternal and perinatal deaths that are notified and documented from hospital/clinics should be reported weekly using the weekly PHEM reporting format (Annex --) Every Monday (by mid-day) the total aggregated number of all confirmed maternal deaths that are notified and documented by the hospital/clinic in the preceding week (Monday to Sunday) must be reported to the respective zone/ regional PHEM unit (depending on the context of reporting structure of PHEM) by the respective facility surveillance focal person.

According to the PHEM weekly reporting system the national PHEM unit will receive the total number of suspected and confirmed maternal and perinatal deaths. PHEM units at woreda, zonal and regional levels will compile and report to the next higher level PHEM units by aggregating the numbers of all suspected and confirmed maternal and perinatal deaths that were notified in the preceding week from the lower PHEM units.

Case based Reporting (MDRF & PDRF):

Case based reporting from health centers and hospitals

The MDRFs and PDRFs at health center level should be completed in five copies. The surveillance focal person should submit four of these copies to the woreda PHEM unit within 48 hours after completing the MDRF and keep the remaining oe copy at the health centre.

All MDRFs and PDRFs documented in hospitals should be reported by the facility surveillance focal person within 48 hours to the next level (zonal, regional and federal PHEM units). Among the five copies of the MDRF and PDRFs four copies should be submitted to the zonal PHEM unit within 48 hours and the remaining one copy will be kept in the hospitals.

The four copies of MDRF and PDRF will be received by woreda health office. The woreda keeps one copy and sends the remaining three to the zonal health office, which in turn keeps one copy and sends the remaining two to the regional PHEM Unit. Finally, the regional level will keep one copy and send the last copy to the national PHEM Unit.

Response:

Taking action to prevent maternal/perinatal deaths is the primary objective of MPDSR. The type of action taken will depend on whether decisions are being made at the national, regional, woreda, facility or other level, who was responsible for the investigation, stakeholders involved, and the findings of the analysis.

For *all a*ctions taken in response to the MPDSR review process, the SMART guidelines should apply to how they are phrased. Every recommended action needs to be Specific, Measurable, Achievable, Realistic and Timely.

Although many responses might be identified by timing and for every level, a key aspect of the response component of the MPDSR cycle is good prioritization. Those responses that are likely to have a large effect and are most feasible to implement (in terms of availability of financial, human and infrastructure resources) should be highlighted, followed by actions to address some of the more difficult or rarer causes and determinants of maternal death.

Many of the responses to perinatal deaths are by nature identical to responses to maternal deaths as the majority of perinatal deaths have their root cause in the antenatal and intra-partum periods. However, in all neonatal deaths, detailed review of the neonatal care should be undertaken and responses considered and implemented appropriately.

Timing of responses

Immediate response

Findings from reviews of nearly every maternal/perinatal death can lead to immediate action to prevent similar deaths, especially those at health facilities, by identifying gaps that should be addressed quickly in both health facilities and communities. Maternal/perinatal deaths in health facilities often indicate the need to reduce Delay 3 (i.e. increase timeliness of providing appropriate care) or improve the quality of the care provided. Deaths in communities can also identify some actions that can be implemented quickly. There is no need to wait for aggregated data to begin implementing actions.

Periodic response

Monthly, quarterly, or six monthly reviews of aggregated findings will begin to show patterns of specific problems contributing to maternal/perinatal deaths or geographical areas where they are occurring in greater numbers. Such findings should result in a more comprehensive approach to addressing the determinants of maternal death Issues such as staffing, knowledge, skill levels and deficiencies in local infrastructure. These may be amenable to continuous responses for system improvement throughout the year.

Annual response

MPDSR relies on annual aggregation and presentation of data, particularly at regional and national level although woredas can also act on an annual basis. Findings and recommendations can then be incorporated in relevant annual planning cycles.

Level of responses

Some examples of actions that can be taken at different levels of the health system are provided below, although there are likely to be many others. It is not possible to provide a template for appropriate responses as each MPDSR system, when properly implemented, will generate the data and effective analysis of it to guide improvements to the health structure and functions.

Community level:

At community level it is essential that recommendations are made in collaboration with community leaders and that community member. E.g. the Health Development Army members are empowered to make the recommended changes.

- Improving community knowledge of risk factors and danger signs, with a focus on high-risk groups such as high parity women.
- Ensuring iron supplements are provided to all women attending ANC
- Increasing uptake of ANC and birth preparedness plans, such as using maternity waiting homes or arranging transport to health facilities during labour
- Promote use of Kangaroo mother care in the early newborn period especially if the baby is preterm and or low birth weight through pregnant women conferences
- Introducing community based mechanisms to transport mothers to health facilities without delay
- Increasing access and uptake of modern contraceptive methods, particularly among high risk women

Health facility

- Strengthen referral mechanisms to prevent delays once women have reached a facility
- Improve 24 hour/ 7 days a week care by allocating staff across available shifts and ensuring infrastructure can cope with night emergencies (e.g. presence of generator)
- Review and improve stock-taking and re-supply processes
- Establish a no blame-no shame principle with health care worker staff, reinforced through regular staff meetings and feedback sessions
- Provide education or refresher training for staff to upgrade their skills and ensure knowledge is up-to-date including essential newborn care as well as maternity care

Woreda/ zonal/ sub city level

- Devise strategies to address barriers for health seeking behavior by using cultural and community sensitive issues by using such interventions as community dialogue and HDA
- Check existing transport options functioning optimally and address any gaps (e.g. ambulance maintenance and fuel availability)
- Equip health facilities with all essential supplies and equipment and needed health care workers

Regional level

- Fill training gaps
- Assess resource needs in "hot spot" areas
- Work with other regional authorities to address inter-sectoral determinants of maternal death such as lack of provision of electricity to facilities or poorly maintained roads
- Ensure distribution of existing guidelines, protocols and operation manuals
- Enhanced resource mobilization activities to ensure adequate MNCH funding

National level

- Produce guidelines, guidelines and management books based on evidences and findings of the review
- Avail essential reproductive health commodities
- Produce referral standards
- Establish the inter-sectoral collaboration to address maternal and newborn health problems
- Work for higher budget allocation for maternal and newborn health
- Organize and coordinate with development partners for resource mobilization, etc.

Other stakeholders:

- Encourage women's and girls' education

Roles and responsibilities for Responses

Roles and responsibilities for a single maternal /perinatal death

For each maternal/perinatal death, the health facility RRT should review the completed investigation and verification formats (VA or FBMDA/FBPDA) to identify problems that resulted in the death. For each of the identified problems, the RRT will develop an action plan which will be implemented accordingly in order to prevent future similar deaths. The action plan should be reported to and documented at the facility CEO/medical director's office, RMNCH unit and its respective woreda health office.

During implementation, the facility surveillance focal person will monitor and document the implementation status of the action plan and report to the facility CEO/medical director. As explained above, responses can be immediate, medium term and/or long-term. Similarly, responses can be implemented by community, health post, different units of health facilities, and by higher levels starting from woreda/zone.

Response management of aggregated maternal /perinatal deaths

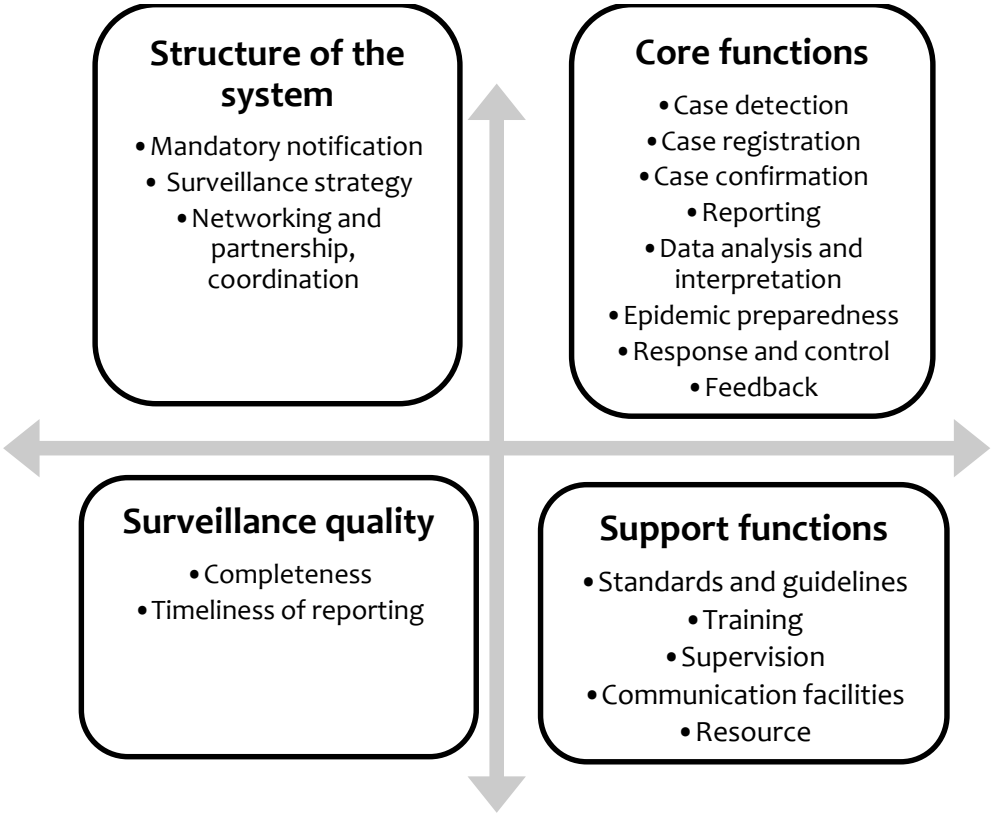
Based on the results of the aggregated data, respective MPDSR TWGs/ task forces at every level will review and make recommendations for action. The woreda RRT/ERT or MPDSR TWG will prepare a review report and its recommendations. The PHEM units will organize dissemination of the review report and recommendations to multiple sectors and partners, together with respective RMNCH units.

At woreda level, the emergency response team/RRT will develop response action plan for implementation. Additionally, the RMNCH units of woreda health office, RHBs and FMOH, and other relevant sector units will incorporate the recommendations in their monthly, quarterly, semiannual and annual program plans. At national level the findings and recommendations will guide the development of strategic plans for different sectors.

Monitoring and Evaluation of MPDSR System:

The purpose of the monitoring and evaluation framework is to monitor progress in the implementation and overall performance of the MPDSR system. The framework also assesses the relevance, effectiveness and impact of activities in the light of the objectives the surveillance and response system. Therefore, specific indicators are identified based on the WHO surveillance M&E guidance to assess the structure, core and support functions, and quality of the MPDSR system. These are illustrated as components of the M&E framework in the figure below.

Figure-5: - Components of M&E of the MPDSR System (15, 16)



Components of the System:

Structure of the System:

The structure of MPDSR system is defined by mandatory notification of maternal and perinatal deaths, the surveillance strategy for MPDSR, and networking and partnership as the elements for progress measurement using specific indicators listed under each element.

Core Functions of the System:

The indicators related to the core functions measure the process and outputs of the system. It includes elements such as death detection, death registration, death confirmation, reporting, data analysis and interpretation, epidemic preparedness, response and control, and feedback.

Support Functions of the System:

Support functions of the system facilitate implementation of the core functions and include standards and guidelines, training, supervision, communication, and resources as its elements.

Quality of the System:

The quality of the MPDSR system is defined by attributes such as completeness and timeliness of reporting of the system.

M&E Approach and Method:

The system implements robust supervision, review meetings, and regular reporting and assessment of performance as standard M&E approaches. In addition to data obtained through the routine surveillance/MPDSR reports, the system will use such techniques as key informant interviews and review of documents to gather information.

This M&E framework uses a matrix of core and optional indicators categorized by level of their importance. These indicators are also categorized by type, e.g. input, process, output, outcome and impact. The matrix also provides definitions for the indicators, frequency of data collection, data sources and collection methods. Targets have been set for a set of core indicators to monitor key achievements over time.

Component: Structure

Element: Surveillance strategy and coordination

No	Indicator	Indicator definition	Type & purpose of indicator	Expressed as	Target for 2020	Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
1	Maternal and Perinatal deaths are notifiable events	Maternal and Perinatal deaths are identified and notified through the PHEM system	**Process E**	Y/N	Y	National, Regional Woreda	**Annually**	**Supervision report, Head of surveillance unit, electronic data base**	**Document review, KI interview**	**C**
2	Assessment of Maternal & Perinatal death surveillance systems	Assessment of the national surveillance systems for Maternal & Perinatal deaths performed	Process E	Y/N		National	every 5 years	Survey	Review of assessment reports, KI interview	O
3	POA for Maternal & Perinatal death surveillance systems	Presence of operational plans for implementing and strengthening Maternal & Perinatal death surveillance and response systems	Input E	Y/N/U		National,	Annually	operational POA, KI	Observation and review of POAs, KI interview	O
4	Implementation of POA	Proportion of activities implemented according to plan	Process M&E	Percent	90%	National, Regional , Woreda	Annually, biannually and quarterly	POA, activity reports, KI	Review of documents KI interview	C
5	Monitoring system for Maternal and Perinatal death surveillance and response systems	Proportion of surveillance units that perform routine monitoring of the Maternal and Perinatal death surveillance and response systems	Process E	Percent	100%	National Regional, zone	quarterly	Monitoring reports	KI interview, document review	C
6	Performance of routine evaluation	Whether evaluations are conducted according to plan	Process M&E	Y/N	Y	National / Regional	2–5 years	Evaluation reports	KI interview, document review	C
7	Presence of a surveillance coordinating body	Presence of functional MPDSR TWG for coordination of Maternal and Perinatal death surveillance activities	Input E	Y/N	Y	National/Regional	Every years	Organogram in MOH, minutes of TWG meeting	Review	C
8	Scheduled Maternal and perinatal death surveillance coordination/ TWG meetings	Proportion of scheduled MPDSR coordination meetings held	Process M&E	Percent	100%	National/Regional	Annually	Minutes of meetings	Review of minutes	C
9	Existence of documented roles & responsibilities	Roles and responsibilities are well- documented at each level of surveillance system	Input E	Y/N		National, Regional, Woreda, Health facility	Every 3years	Documented functions and responsibilities, terms of reference,	Document review, KI interview	O

						and community		surveillance guidelines,		
10	Inter-sectoral collaboration, networking and partnership	Existence of inter-sectoral collaboration, networking and partnerships with other sectors (water and Energy, Women & Youth affairs, Roads Authority, MOE, MOJ, VERA,MOFEC etc)	Process E	Y/N		National, Regional and Woreda	Every years	KI, reports, RRT/TWG minutes of meetings	review of documents	O

Component: Core functions

Element: Case detection

No	Indicator	Indicator definition	Type & purpose of indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
11	Health facilities with standard case definitions	Proportion of health facilities with standard case definitions for Maternal and perinatal deaths to be reported regularly in the surveillance system	Input M & E	Percentage	100%	National, Regional, Woreda	Annually	Available standard case definitions in the facility	Observation	C
12	Health posts with community case definitions	Proportion of health posts with community case definitions for Maternal and perinatal deaths to be reported regularly in the surveillance system	Input M & E	Percentage	100%	National, Regional, Woreda	Annually	Available community case definitions in the health post	Observation	C
13	Health facilities notify Maternal and Perinatal deaths	Proportion of Health facilities that notify Maternal and Perinatal deaths to the respective Health facility Surveillance focal persons within 24 hrs of death	Process M& E	Percentage		National, Regional, Woreda	Annually	Log books, Filled identification and notification formats	Document review	o
14	Health posts notify Maternal and Perinatal deaths	Proportion of Health posts that notify Maternal and Perinatal deaths to the respective catchment Health center within 48 hrs of death	Process M& E	Percentage		National, Regional, Woreda	Annually	Log books, Filled identification and notification formats	Document review	o
15	Sensitivity of the surveillance system to detect maternal deaths	Proportion of reported maternal deaths divided by the total number of estimated maternal deaths								
16	Sensitivity of the surveillance system to detect perinatal deaths	Proportion of reported perinatal deaths divided by the total number of estimated perinatal deaths								

Component: Core functions

Element: Case registration

No	Indicator	Indicator definition	Type & purpose of indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
17	Availability of registers that document Maternal and Perinatal deaths	Proportion of health facilities with standardized registers that document Maternal and Perinatal deaths	Input M&E	Percentage	100%	National, Regional, Woreda	Annually	Health facility Registers/charts	Review of registers/charts sampling	C
18	Availability of registers that document Maternal and Perinatal deaths in the Health post	Proportion of health posts with standardized registers that document Maternal and Perinatal deaths	Input M&E	Percentage	100%	National, Regional, Woreda	Annually	Health Post Registers/ family folder	Review of registers/ family folder	C
19	Correct filling of registers	Proportion of HF with correctly filled registers	Process M&E	Percentage	100%	National, Regional, Woreda	Annually	Registers at health facility	Review of registers/sampling	C
20	Correct filling of registers	Proportion of Health Posts with correctly filled registers	Process M&E	Percentage	100%	National, Regional, Woreda	Annually	Registers at health post	Review of registers	C
21	Existence of rumor log that document Maternal and Perinatal deaths	Existence of rumor log or database for registration of Probable Maternal and Perinatal deaths	Input/process	Y/N		National, Regional, Woreda	Annually	Rumor log/ database for rumors	Observation	O

Component: Core functions

Element: Case confirmation

No	Indicator	Indicator definition	Type & purpose of indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category
22	Investigation of Maternal and Perinatal deaths by Health facilities	Proportion of Health facilities that conduct facility based maternal or perinatal death abstraction for all maternal or perinatal deaths that occurred in the facility	Process M&E	Percentage	100%	National, Regional, Woreda	Annually	Filled FBAF	Review	C
23	Investigation of suspected Maternal and Perinatal deaths by Health Posts	Proportion of Health posts that conduct verbal autopsies for all suspected maternal or perinatal deaths that occurred in their catchment community	Process M&E	Percentage	100%	National, Regional, Woreda	Annually	Filled VA	Review	C
24	Review of investigated Maternal and Perinatal deaths reported from community and Health facility	Proportion of Health facilities that conduct review of investigated maternal or perinatal deaths	Process M&E	Percentage	90%	National, Regional, Woreda	Annually	RRT meeting minutes , Filled MDRF/PDRF	Review of MDRF/PDRF pad	C

Component: Core functions

Element: Reporting

No	Indicator	Indicator definition	Type & purpose of indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
25	Case-based reporting rate	Proportion of Maternal and Perinatal deaths reported using case-based reporting forms in the past 12 months	Process M&E	Percentage	100%	National, Regional, Woreda, Health facility	Quarterly, annually	Reporting forms, Log books and data bases	Document review	C
26	Timely reporting of Maternal and Perinatal deaths notifications	Proportion of suspected and confirmed Maternal and Perinatal deaths notification reported through weekly PHEM reports	Output M&E	Percentage	95%	National, Regional, Woreda, Health facility	Quarterly, annually	Reporting forms, Log books and databases	Document review	C

Component: Core functions

Element: Data analysis and interpretation

No	Indicator	Indicator definition	Type & purpose of indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
27	Routine analysis of Maternal and Perinatal death data by surveillance units	Proportion of RHBs/Woreda with evidence of data analysis by time, place and person, causes and contributing factors	Output M&E	Percentage	100%	Regional, district	Annually	Summary reports, charts on the walls, computerized analysis output, review meeting reports, Prepared presentation	Observation. Review of documents	C
28	Routine analysis of MPDSR performance	Proportion of Regions/Woreda with evidence of data analysis comparing reported versus estimated deaths	Output M&E	Percentage		National, Regional	Annually	summary reports, charts on the walls, computerized analysis output, review meeting reports, Prepared presentation	Observation. Review of documents	O

Component: Core functions

Element: Epidemic preparedness

No	Indicator	Indicator definition	Type & purpose of indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
29	Epidemic preparedness plan includes Maternal and Perinatal deaths	Proportion of woreda ERT/RRTs including maternal and Perinatal death as part of their epidemic preparedness and response plan (EPRP)	Input M&E	Percentage	100%	National, Regional	Annually	annual work plans	Observation/review	C
30	Availability of IEC materials for MPDSR	Proportion of surveillance units with IEC materials/activities	Input M&E	Percentage		National, Regional, District	Annually	Existing IEC strategy & materials	Document review, KI interview	O

Component: Core functions

Element: Response and control

No	Indicator	Indicator definition	Type & purpose of indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
31	Epidemic preparedness committee addresses MPDSR	A functional epidemic preparedness committee that address MPDSR	Input E	Y/N	Y	National, Regional, District	Annually	KI, minutes of EPR/DMC meetings	Review of minutes, KI interview	C
32	Responsible body for MPDSR national and regional level	proportion of regions with MPDSR TWG	Input M&E	Proportion	100%	National, Regional	Annually	KI,TOR,minutes	KI interview, review of TOR	C
33	Districts with RRTs	Proportion of districts with RRTs that handle MPDSR	Input M&E	Percentage	100%	National, Regional,	Annually	KI,TOR	KI interview, review of TOR	C
34	Health facilities with RRTs	Proportion of Health facilities with RRTs that handle MPDSR	Input M&E	Percentage	100%	National, Regional, Woreda	Annually	KI,TOR	KI interview, review of TOR	C
35	Responses for Singe Maternal or Perinatal deaths	Proportion of Health facilities with developed action plans for every Maternal or Perinatal deaths	Output	Percentage	100%	National, Regional, Woreda	Annually	Meeting Minutes and action plans	Document review	C
36	Responses for aggregated Maternal or perinatal deaths	Availability of programmatic responses for aggregated maternal and perinatal deaths	Output	Y/N	Y	National, Regional, Woreda	Semi-Annually	Meeting Minutes and Plan of action	Document review	C
37	Responses implemented	proportion of health facilities that responded to the identified causes and contributing factors of maternal and perinatal deaths	Output	Y/N	Y	National, Regional, Woreda	Semi-Annually	Meeting Minutes, Plan of action, response monitoring sheet	Document review	C

Component: Core functions

Element: Feedback

No	Indicator	Indicator definition	Type & purpose of Indicator	Value		Surveillance level	Frequency	Data source	Method	Category of indicator
38	Existence of MPDSR regular feedback	Presence of a feedback mechanism for MPDSR	Process E	Y/N	Y	National, Regional, Woreda	Quarterly	KI, feedback reports/ Monthly MPDSR bulletins	KI interview, observation	C
39	MPDSR Feedback disseminated	Proportion of MPDSR feedback reports/bulletins disseminated	Output M&E	Percentage	100%	National, Regional, Woreda	Quarterly	KI, MPDSR feedback reports/ bulletins	KI interview, observation	C
40	MPDSR Feedback received	Proportion of MPDSR feedback bulletins/reports received from the next higher level	Output M&E	Percentage	100%	National, Regional, Woreda	Quarterly	KI, feedback reports/ bulletins	KI interview, observation	C

Component: Support functions

Element: Standards, guidelines

No	Indicator	Indicator definition	Type & purpose of indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
41	Maternal and Perinatal death Surveillance standards and guidelines	Availability of surveillance guidelines for MPDSR	Input	Y/N	Y	National	Annually	KI, existing guidelines/ standards	observation	C
42	Surveillance units with guidelines	Proportion of Regions/Woreda/Health facilities with guidelines for MPDSR	Input M & E	Percentage	100%	National, Regional, Woreda	Annually	KI, existing surveillance guidelines	observation	C
43	Availability of MPDSR investigation and reporting forms at HF/District levels	Proportion of HF/Districts that were not short of reporting MPDSR investigating and reporting forms[1] in the previous 6 months	Input	Percentage	100%	District, Regional, national	6-monthly	KI	KI interview, observation	C

Component: Support functions

Element: Training

No	Indicator	Indicator definition	Type & purpose of Indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
44	Availability of MPDSR training manuals/ modules for surveillance	Proportion of Regions/Woredas with MPDSR training manuals/modules	Input E	Percentage		National, Regional, Woreda	Annually	Surveillance units	KI interview, observation	O
45	Availability of MPDSR training plan	Proportion of surveillance units with a training plan for MPDSR	Input E	Percentage	100%	National, Region	Annually	Training plans	Observation	C
46	Staff trained on MPDSR	Proportion of Regional/Woreda/Health facility staff trained on MPDSR	Input M & E	Percentage		National, Regional, Woreda/Health facility	Annually	KI, training reports	KI interview, document review	O
47	MPDSR training in Pre Service curriculum	Availability of Pre service curriculum for Health science and medical schools	Input E	Y/N		National , Regional	2-3 years	Curriculum	Review of documents	O

Component: Support function

Element: Supervision, communication

No	Indicator	Indicator definition	Type & purpose of Indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
48	Supervisions conducted	Proportion of supervisions conducted according to plan	Process	Percentage	100%	National, Regional , Woreda	Annually	KI, surveillance levels, supervisory reports	KI interview, document review	C
49	Availability of communication facilities for MPDSR	Proportion of surveillance units with functional communication facilities for immediate, weekly, and monthly reporting of MPDSR	Input	Percentage	100%	National, Regional, Woreda	Annually	KI at different surveillance units	KI interview, observation	C
50	Identify, document and share best practices on MPDSR	Number of best practices identified, documented and shared	Output	Number		National, Regional, Woreda, facility	Biannually	report, Review of action plan and response	Supervision, KI interview, observation	C

Component: Support functions

Element: Resources

No	Indicator	Indicator definition	Type & purpose of Indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
51	Availability of budget line for MPDSR activities	Evidence of a budget line for MPDSR activities (reporting forms, feedback bulletins, communication, supervision, training, etc)	Input	Y/N	Y	National, Regional ,Woreda	Annually	Work plan and budget	Document reviews, KI interview	C
52	Availability of field epidemiologist for surveillance	Proportion of National/Regional/Woreda with field epidemiologist for surveillance	Input	Percentage	100%	National, Regional ,Woreda	Annually	Work plan	Document reviews, KI interview	C
53	Availability of functioning computers for MPDSR	Proportion of National/Regional/Woreda with functional computers for surveillance purposes	Input	Percentage	100%	National, Regional	Annually	KI	KI interview, observation	C

Component: Quality/outputs of surveillance systems

Element: Timeliness

No	Indicator	Indicator definition	Type & purpose of indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
54	Timeliness of submission of Maternal and Perinatal death surveillance reports	Proportion of surveillance units that submitted surveillance reports (immediate, weekly, monthly) to the next higher level on time	Output M&E	Percentage	100%	National, Regional ,Woreda	Annually, quarterly	Reporting log, Bulletins, Weekly and case based electronic databases	Review of documents and databases	C
55	Timeliness of receipt of Maternal and Perinatal death surveillance reports	Proportion of expected surveillance reports (weekly or monthly) received on time	Output M&E	Percentage	95%	National, Regional ,Woreda	Annually, quarterly	Reporting log	Review of documents	C
56	Timeliness of notification of suspected & confirmed maternal and perinatal deaths	Proportion of maternal or perinatal deaths notified to the next higher level within 48 hr of detection	Output M&E	Percentage	95%	National, regional and Woreda	Biannually	Reporting log	Review of documents	C
57	Timeliness of response to suspected & confirmed maternal and perinatal deaths	Proportion of suspected and confirmed maternal or perinatal deaths reviewed within 14 days of detection	Output M&E	Percent-age	95%	National, regional and Woreda	6-monthly	Surveillance logs, RRT meeting minutes and reports	Review of documents	C

Component: Quality/outputs of surveillance systems

Element: Completeness

No	Indicator	Indicator definition	Type & purpose of indicator	Value		Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
58	Completeness of Maternal and Perinatal death surveillance reporting	Proportion of total expected Maternal and Perinatal death surveillance reports(weekly and case based) received, regardless of the timeliness of submission	Output M&E	Percentage	95%	National, regional and Woreda	Biannually	Reports	Review of reports	C
59	Completeness of data reported	Proportion of case based Maternal or Perinatal death surveillance reports with no missing required information	Output M&E	Percentage	95%	National, regional and Woreda	Annually	Reports	Review of reports	C

Component: Quality/outputs of surveillance systems

Element: Impact

No	Indicator	Indicator definition	Type & purpose of indicator	Expressed as	Target *2020	Surveillance level	Frequency of data collection	Data source	Method	Category of indicator
60	Maternal Mortality ratio(MMR)	Maternal mortality ratio at the target year	Impact	Ratio	199 per 100,000 LB	National	Every 5 years	DHS	Review of DHS report	C
61	Still bith rate (SBR)	The rate of stillbirth at the target year	Impact	Rate	10 per 1000 Births	National, Regional	Every 5 years	DHS	Review of DHS report	C
62	Neonatal Mortality ratio(NMR)	Neonatal Mortality ratio at the target year	Impact	Rate	10 per 1000 LBs	National, Regional	Every 5 years	DHS	Review of DHS report	C

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Annexes:

Annex 1: Identification and Notification form for maternal death

(To be filled in two copies, one copy kept at HP or reporting ward and the remaining one copy will be documented at health facility surveillance unit)

Section one (Notification)		
1.	Maternal death Notification is reported from	☐ Community ☐ Health facility (MRN_____& Ward on which death occurred _____)
2.	Name of the deceased	_____
3.	Age of the deceased woman (in completed years)	_____
4.	Name of head of the household:	_____
5.	Household address	Woreda/Sub-city _____ Kebele _____ Gott _____ HDA team _____ house number: _____
6.	Date and time of the woman's death	DD/MM/YYY ____/____/_____ Time _____
7.	Who informed the death of the woman?	1. HDA 2. Religious leader 3. any community member 4. Self (HEW or Surveillance focal person) 5. Other Health care provider 4. Others (specify) _____
8.	Date of Notification:	DD/MM/YYY ____/____/_____
9.	Place of death:	1. At Home 2. At Health Post 3. At Clinic 4. At Health Center 5. At Hospital 6. On transit from home to Health facility 7. On transit from health facility to health facility
Screening of notified Maternal deaths [to be filled by Health Extension Worker(Community report) or facility surveillance focal person(H.F report)]		
8.	Did she die while pregnant?	☐Yes ☐ No
9	Did she die with 42 days of termination of pregnancy?	☐Yes ☐No
10	Has she missed her menses before she dies?	☐Yes ☐No ☐Unknown
Section two (Classification and decision for investigation) [To be filled by Facility Surveillance Focal Person(For both H.F report and community based report)]		
1.	Type of maternal death:	☐Probable ☐ Suspected ☐Confirmed
2	**If suspected or confirmed maternal death, write ID number/code**	_____

Annex 2: Verbal Autopsy Tool for Maternal Death Investigation (Community)

I. People who participated in the interview:				
Note: *A person who was there at the time of illness or death can participate in the interview. Up to four interviewees can be interviewed.*				
S.n	**Name of the Interviewees**	**Relationship with the diseased**	**Was around at the time of:**	
			Illness	**Death**
1			☐Yes ☐No	☐Yes ☐No
2			☐Yes ☐No	☐Yes ☐No
3			☐Yes ☐No	☐Yes ☐No
4			☐Yes ☐No	☐Yes ☐No

II. Interviewer Information		
1	Interviewer name:	_____
2	Date of interview:	DD/MM/YYYY _____/_____/_____/
3	Language of interview:	_____
4	Phone number of interviewe	_____

III. Identification/ Back ground information:		
No	Questions	Response
1	ID Number	
2	Age of deceased	
3	Time of death and date of death	
4	Ethnicity	
5	Place of death	1. Home/ Relatives' Home (Name: _____) 2. Health Post (Name of HP: _____) 3. Health Centre (Name of HC: _____) 4. Hospital (Name of hospital: _____) 5. In Transit (Distance from the destination in km: _____)
6	Place of residency of deceased	Woreda/sub-city _____ Got_____ Kebele _____ House number_____
7	Marital status of the deceased	1. Single 3. Divorced 2. Married 4. Widowed
8	Religion of deceased	1. Orthodox 3. Protestant 2. Muslim 4. Others (specify)------
9	Educational status of the deceased	1.No formal Education 4. High school 2.No formal education, but can read and write 5. College and above 4. Don't know 3.Elementary school
10	Level of education of the husband	1. No formal Education 4. High school 2. No formal education, but can read and write 5. College and above 4. Don't know 3.Elementary school
11	Occupation of the deceased	1. Farmer 5. Unemployed 2. Merchant/tradesperson 6. Public employee 3. House wife 7. Others (specify) _____ 4. Daily labourer
12	Occupation of the husband	1. Farmer 4. Daily labourer 2. Merchant/tradesperson 5. Unemployed 3. Public employee 6. Others _____
13	Family's monthly income if possible	_____ Birr
14	Do you have a death certificate?	☐ Yes ☐No

	If Yes to Q14, ask to see the documents. Record important cause of death and identified problems _____		
15	Has she ever attended basic antenatal care (ANC)	☐ Yes	☐No ☐Not known
16	If yes to Q15, where did she receive A Services (Check all that apply)	☐ HP ☐ Public HC	☐ Public Hospital ☐ Private clinic or hospital (specify) ____
17	Do you know is she had any medical problems before she died? If yes, Check *ALL* that apply		

Condition	**Check if identified**	**If Yes, When was the condition**
Malaria (fever, chills, rigors)	☐ Yes ☐No	
Tuberculosis (cough> 3 weeks, fever, night sweating, etc.)	☐ Yes ☐No	
HIV/AIDS	☐ Yes ☐No	
Anemia	☐ Yes ☐No	
Hypertension	☐ Yes ☐No	
Diabetes	☐ Yes ☐No	
Epilepsy	☐ Yes ☐No	
Others (Specify) _____	☐ Yes ☐No	

18.	. **Did she receive treatment for any of the conditions mentioned above?** *Specify Treatment provided for each condition (separating modern and traditional treatments) If NO treatment was provided, leave blank.*		
Disease		*Modern treatment*	*Traditional/cultural treatment*
Malaria (fever, chills, rigors)		☐ Yes ☐No	
Tuberculosis (cough> 3 weeks, fever, night sweating, etc.)		☐ Yes ☐No	
HIV/AIDS		☐ Yes ☐No	
Anemia		☐ Yes ☐No	
Hypertension		☐ Yes ☐No	
Diabetes		☐ Yes ☐No	
Epilepsy		☐ Yes ☐No	
Others (Specify) _____		☐ Yes ☐No	

IV. Pregnancy related questions			
1	Number of pregnancies including those that ended in miscarriage and still births _____		
2	Number of births, including that ended in Stilll births and early neonatal deaths _____		
3	Number of living children _____		
4	Duration of the index pregnancy in months_____		
5	outcome of the pregnancy at the time of death	1. Delivered live birth 2. Delivered still birth	3. Undelivered 4. Abortion
6	If it was delivery, who assisted the delivery?	1. Family/elderly 2. TBA	3. HEWs 4. HCWs
7	Were any of the following problems experienced *during pregnancy*? Tick *ALL* those that apply	1. Seizure/abnormal body movement 2. Bleeding _____	3. Fever 4. Other (specify)
8	Did she seek care for the problems experienced?	Yes ☐ No ☐ If YES, briefly DESCRIBE _____	

	V. Community factors	
1	Number of days/hours she was sick before she died (*Number of hours and days - specify*) _____	
2	Problems before she died: Tick *ALL* that apply	☐ Vaginal bleeding ☐ Baby stuck/Prolonged labor ☐ Fits ☐ Other (specify ☐ Fever
3	Was any care sought for the problem? If "No" to question number 3 go to number 9	☐ Yes ☐ No
4	If yes to Q3 above, how long after the problem/illness was detected was care sought? (*Number of hours and days - specify*) _____	
5	Where was care sought and obtained?	☐ Traditional Healer ☐ Health Centre ☐ Health Extension Worker ☐ Hospital ☐ Others (specify) _____
6	How long after seeking care did she arrive at a health facility? (*Number of hours and days - specify*) _____	
7	What mode of transport was used if care was obtained?	
8	For how long was the care given? (*Number of hours and days - specify*)	
9	If no to Q3 above, what was the main reason why care was not sought?	☐ Not knowing the impact of the illness ☐ Lack of transport ☐ Past good obstetric outcomes at home ☐ Lack of money ☐ No nearby health facility ☐ Others (Specify)
10	How long would it take to walk from this house to the nearest (*Number of hours and days - specify*	Health post _____ Hours/days Health center _____ Hours/days Hospital _____ Hours/days
11	If you want to go to health center or hospital, what mode of transport would you be able to use? (Tick *ALL* that apply)	☐ Rented /public transport ☐ Private car ☐ Ambulance ☐ Others (specify) _____

INSTRUCTION: This form should be stored with a copy of the relevant maternal death reporting format in a secured location (e.g. locked cupboard in HC manager's office)

Annex 3. Facility Based Maternal Death Abstraction Form (FBMDAF) (Health Facility)

I. Abstractor related Information		
Name of the abstractor: _____ Qualification of the Abstractor_____ Telephone number of the abstractor: _____ Date of abstraction: _____ Was the abstractor involved in the management of the case? 1. Yes 2. No		
II. Identification/ Back ground information		
No.	Question	Response
1	Medical Record Number of the deceased	
2	Age of deceased	
3	Date and time of death	Date _____Time_____
4	Ethnicity	
5	When did the death occur?	1. In transit 2. While waiting for treatment 3. Following start of treatment
6	Place of usual residence	Woreda/sub-city_____ Kebele_____ Got_____ House number_____
7	Religion	1. Orthodox 3 Protestant 2. Muslim 4. Others (specify)------
8	Educational status of the deceased	1.Illiterate 2.No formal education, but can read and write 3. Grade completed _____ 4. Don't know
9	Marital status of the deceased	1. Single 3. Divorced 2.Married 4. Widowed
10	Level of education of the husband	1.Illiterate 2.No formal education, but can read and write 3. Grade completed _____ 4. Don't know
11	Occupation of the deceased	1. Farmer 5. Unemployed 2. Merchant/tradesperson 6. Public employee 3. House wife 7. Others (specify) _____ 4. Daily labourer
12	Occupation of the husband	1. Farmer 4. Daily labourer 2. Merchant/tradesperson 5. Public employee 3. Unemployed 6. Others _____
13	Monthly income if possible	_____birr
III. Obstetric characteristics		
1	Gravidity	
2	Parity	
3	Number of living children	
4	Attended ANC?	☐ Yes ☐No ☐Not known
5	If yes Q4, where is the ANC?	1. Health post 3. Hospital 2. Health center 4. Other (specify)
6	If yes, number of visits	_____
7	Basic package of services provided in ANC (Tick *ALL* that apply)	☐RPR ☐ BP measurement during the follow up ☐Hgb ☐Iron folate supplementation ☐Blood group, ☐TT immunization

		☐HIV status, ☐Other (Specify) _____ ☐U/A
8	Problems or risk factors in the current pregnancy:	
i	***Preexisting problems*** (Tick *ALL* that apply)	☐Hypertension ☐Cardiac problem ☐Anemia ☐Tuberculosis ☐Diabetes ☐Hepatitis ☐HIV positive ☐Other (Specify) _____ ☐Malaria
ii	***Antenatal/ internatal problems/risks*** (Tick *ALL* that apply)	☐Pre-eclampsia / eclampsia ☐Anemia ☐Placenta Previa ☐ Malaria ☐Previous Caesarean Section ☐UTI/pyelonephritis ☐Multiple gestation ☐Unintended pregnancy ☐Abnormal lie/presentation ☐Other (specify)

9	State of pregnancy at the time of death	1. Ante-partum 2. Intra-partum	3. Postpartum 4. Post abortion	5. Ectopic
10	If delivered, what is the outcome?	1.Live birth	2. Stillbirth	
11	Date of delivery (DD/MM/YY) in Ethiopian calendar_____			
12	Place of delivery:	1. Health post 2. Health center	3. Hospital 4. Home	5. on transit 6. Other (specify)_____
13	If she has delivered, what was the mode of delivery?	1. Spontaneous vaginal delivery 2. Operative vaginal delivery (vacuum or forceps) 3. Destructive vaginal delivery for dead fetal outcome 4. Operative Abdominal delivery (caesarean section or Hysterectomy)		
14	Gestational Age at the time of death in antepartum and /or intrapartum events (specify time period in months & weeks)	GA_____		
15	If the death was post-partum or post abortion, after how many days did the death occur?	Days_____		

IV. Facility Episode				
1	Date and time of admission	Date_____ Time_____		
2	Day of admission	1. Working days	2. Weekends	3. Holiday
3	Main reason/symptom for admission	_____-		
4	Is it a referred case? *If "No" to question number 5 if "yes" go to number 9*	☐ Yes	☐No	
5	Referred from (Name of health facility)	_____		
6	Reason for referral	_____		
7	Comment on referral	• Accompanied by HCWs • Appropriate management		
8	Summary of management at hospital	_____ _____		
9	Qualification of the most senior attending health professional(s)	_____		
10	Primary cause of death	_____		
11	Is this preventable death?	_____		
12	If preventable maternal death, specify factors according to the three delay model			
I	Delay in seeking care			
ii	Delay in reaching at right facility			
iii	Delay within the facility (diagnostic and therapeutic)			

Annex 4: Maternal Death Reporting Format (MDRF) (Maternal Death Case Based Report)

(To be filled in 5 copies by the Health Centre/hospital. Send the rest of copies to the next level by keeping one copy)

I. Reporting Facility Information						
Reporting Health Facility name & type(H.C/Cl./Hosp): _____					Woreda: _____	
Zone : _____	Region: _____		Date of Reporting DD/MM/YYYY _____/_____/_____			
This MDSR is extracted from 1. Verbal autopsy (VA) 2. Facility based maternal death abstraction form						
II. Deceased Information						
Deceased ID(code): _____	Date of Death DD/MM/YYYY _____/_____/_____			Age at death: _____ Years		
Residence of deceased ☐ Urban ☐Rural	Region_____ Zone_____ Woreda_____ Kebele _____					
Place of Death	1. At home 2. At health post	3. At health center 4. At Hospital	5. On transit 6. Other specify _____			
Marital status	1. Single 2. Married 3. Divorced 4. Widowed					
Religion: _____	Ethnicity :_____					
Level of Education	1. No formal education 4. High school 2. No formal education, but can read and write 5. College and above 3. Elementary school 6. I do not know					
Gravidity _____	Parity_____	Number of living children				
Timing of death in relation to pregnancy	1= Antepartum	2= Intrapartum	3= Postpartum			
III. Antenatal Care (ANC)						
Attended ANC?	1. Yes 2. No 3. Not known					
If yes, where is the ANC?	1. Health post 2. Health centre 3. Hospital 4. Other (specify) _____					
If yes, number of ANC visits	_____					
If delivered, Mode of delivery?	1. Vaginal delivery 2. Abdominal operated delivery (CS or hysterectomy)					
Place of delivery or Abortion?	1 Home 2. On transit 3. H/post 4. H/center 5. Hospital 6. Clinic					
Date of delivery /Abortion	Date _____					
If it was delivery/Abortion, who assisted the delivery/Abortion?	1. Family 2. TBA 3. HEWs 4. HCWs					
Attended PNC/PAC?	1. Yes 2. No 3. Not known 4. Not applicable					
If yes for PNC/PAC, number of visits?	_____					
IV. Cause of death						
Direct obstetric	1= Haemorrhage	2= obstructed labor	3= HDP	4=abortion	5= sepsis	6. Others
Indirect obstetric	1=Anaemia,	2= malaria	3= HIV	4= TB	5. Others _____	
If delivered, what is the outcome?	1. Live birth 2. Stillbirth					
Is the death preventable?	1= Yes	2= No	3= I do not know			
Contributory factors (Thick all that apply)						
Delay 1	☐ Traditional practices ☐Lack of decision to go to health facility ☐Family poverty ☐ Delayed referral from home ☐Failure of recognition of the problem					
Delay 2	☐Delayed arrival to referred facility ☐Lack of transportation ☐Lack of roads ☐No facility within reasonable distance ☐Lack of money for transport					
Delay 3	☐Delayed arrival to next facility from another facility on referral ☐Delayed or lacking supplies and equipment(specify) ☐Delayed management after admission ☐Human error or mismanagement					

Annex 5: Weekly Report Form for Health Extension Workers (WRF_HEW)

Health Post name		Woreda	
Kebele		Zone	
Start of week from Monday _____/_____/_____ to Sunday _____/_____/_____ *(day) (month) (Year in Ethiopian Calendar) (day) (month) (Year in EC)*			

1. Record below the total number of cases for each disease/condition for the current week.

Indicator		Total Cases
Total Malaria (confirmed by RDT + clinically diagnosed as malaria)		
Total malaria suspected fever cases examined by RDT		
Number of fever cases positive for malaria parasites (by RDT)	*P. falciparum*	
	P. vivax	
Meningitis (suspected)		
Bloody Diarrhea		
Acute febrile illness (other than malaria and meningitis)		
Severe Acute Malnutrition (MUAC < 11cm and/or Bilateral Edema in under 5 years children (new cases only))		

RDT = Rapid Diagnostic Test; MUAC = mid upper arm circumference

2. Summary for Immediately Reportable Diseases/Conditions:

DISEASE	C	D	DISEASE	C	D	DISEASE	C	D
AFP/Polio			Fever + Rash			Hemorrhagic Diseases		
Anthrax			Neonatal Tetanus			Deaths of women of reproductive age (15-49)years		
Acute Watery Diarrhea			Influenza Like Illnesses			Birth of a dead fetus or death of a newborn		
Rabies			Guinea worm			Other (specify):_____		

C = case; D = death

Look at the trends, abnormal increase in cases, improving trends? Actions taken and Recommendations:

_____
_____
_____
_____.

Date sent by Health Post: _____

Date received at Cluster Health Center/Woreda: _____

Sent by: _____

Received by: _____

Tele: _____

Tel: _____

Annex 6: Weekly Disease Report Form for Outpatient and Inpatient Cases and Deaths (WRF) (community and health facility cases and deaths)

Health facility name and type		Woreda	
Zone		Region	
Start of week from Monday _____/_____/_____ to Sunday _____/_____/_____ *(day) (month) (Year in Ethiopian Calendar) (day) (month) (Year in EC)*			

3. Record below the total number of cases for each disease/condition for the current week.

Indicator		Put-patient	In patient	
		Cases	Cases	Deaths
Total Malaria (confirmed and clinical)				
Total malaria suspected fever cases examined by RDT or Microscopy				
Number cases positive for malaria parasites (either by RDT or Microscopy)	*P. falciparum*			
	P. vivax			
Meningitis				
Dysentery				
Typhoid fever				
Relapsing fever				
Epidemic Typhus				
Severe Acute Malnutrition /MUAC < 11cm and/or Bilateral Edema in under 5 years children (new cases only)				

RDT = Rapid Diagnostic Test; MUAC = mid upper arm circumference

4. Report timeliness and completeness (to be filled only by Woreda Health Office and Zone/Regional Health Bureaus)

Indicator	Government			NGO Health Facility	Others
	H. Post	H. Centre	Hospital		
Number of sites that are supposed to report weekly					
Number of sites that reported on time					

5. Summary for Immediately Reportable Case-based Disease / Conditions: (Total cases and deaths reported on case-based forms or line lists during the reporting week)

DISEASE	C	D	DISEASE	C	D	DISEASE	C	D
AFP/Polio			Maternal Death (confirmed)			Small pox		
Anthrax			Measles			Viral hemorrhagic fever		
Cholera			Neonatal Tetanus			Yellow fever		
Dracunculiais (Guinea worm)			Pandemic Influenza			Deaths of women of reproductive age (15-49)years		
Death of woman of reproductive age(15-49) years			Rabies			Birth of a dead fetus or death of a newborn		
Maternal death(suspected)			SARS			Other (specify):_____		

C = case; D = death; SARS = severe acute respiratory syndrome NOTE: Official counts of immediately notified cases come only from case forms or line lists.

Look at the trends, abnormal increase in cases, deaths, or case fatality ratios? Improving trends? Actions taken and Recommendations

_____

_____

_____

Date sent by HF/Woreda/Zone/Region: _____ Date received at Woreda/Zone/Region: _____

Sent by: _____ Received by: _____

Tele: _____ Tel: _____

E-mail: _____ E-mail: _____

Annex 7: Identification and Notification Form for Perinatal Deaths

(To be filled in two copies, one copy kept at HP or reporting ward and the remaining one copy will be documented at health facility surveillance unit)

Notification (section one)		
1.	Perinatal death Notification is reported from	☐ Community ☐ Health facility (MRN _____ Ward on which death occurred _____)
3.	Name of the mother	_____
2.	Name of head of the household:	_____
3.	Household address:	Woreda/Sub-city _____ Kebele _____ Gott _____ HDA team _____ house number: _____
4.	Date of birth	DD/MM/YYY ____/____/_____ Time _____
5.	Date of identification of the death	DD/MM/YYY ____/____/_____ Time _____
6.	Data of notification	DD/MM/YYY ____/____/_____ Time _____
7.	Who informed the death of the perinatal death	1. HDA 2. Religious leader 3. any community member 4. Self (HEW or Surveillance focal person) 5. Other Health care provider 4. Others (specify) _____
8.	Place of still birth/Neonatal death:	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)
Screening of a notified perinatal death to determine whether it is probable, suspected or confirmed [to be filled by Health Extension Worker(community report) or facility surveillance focal person(H.F report)]		
9.	Was the birth after 7 months of pregnancy?	□ Yes □ No
10.	Was the newborn dead at birth?	□ Yes □ No
11.	Did the Baby die within 28 days after birth?	□ Yes □ No
Section two (Classification and decision for investigation) [to be filled by Health Extension Worker(community report) or facility surveillance focal person(H.F report)]		
1.	Type of perinatal death:	☐ probable ☐ Suspected ☐ Confirmed
2	If suspected or confirmed perinatal death, write ID number/code	_____

Name of reporting person_____ signature_____

Annex 8: Verbal Autopsy Tool for Perinatal Death Investigation (Community)

[To be undertaken for all suspected perinatal deaths irrespective of place of death, inside/outside facility)

I. People who participated in the interview:				
Note: *A person who was there at the time of illness or death can participate in the interview. Up to four interviewees can be interviewed.*				
S.N	**Name of the Interviewee**	**Relationship with the deceased**	**Was around at the time of:**	
			Illness	**Death**
1			☐Yes ☐No	☐Yes ☐No
2			☐Yes ☐No	☐Yes ☐No
3			☐Yes ☐No	☐Yes ☐No
4			☐Yes ☐No	☐Yes ☐No

II. Interviewer Information		
1	Name	_____
2	Date of interview	DD/MM/YYYY _____/_____/_____/
3	Language of interview	_____
4	Phone number	_____

III. General information of the deceased:			
1	Unique ID Number		
2	Date and time of birth	DD/MM/YYYY _____/_____/_____-/ Day ☐ Night ☐ Time: _____	
	Status of the newborn at birth	Alive ☐ Dead ☐	
3	Date and time of death (Not applicable for stillborn)	DD/MM/YYYY _____/_____/_____/ Day ☐ Night ☐ Time: _____	
5	Sex of the deceased	Male☐ Female ☐	
6	Place of still births/ Neonatal Death	1.Home 2. Health Post 3. Health Centre 4. Hospital	5. on transit from home to health facility (estimated time/distance from the destination to facility in hours/kms: _____) 6. During referral from facility to facility (estimated time/distance from the destination to facility in hours/kms: _____) 7. other(specify)_____
7	Place of residency of the deceased/parents	Rural☐ Urban ☐	Region_____Zone/sub-city _____ Woreda_____ Kebele _____ House number_____

Iv. General information of the mother:				
1	Ethnicity of the mother	_____		
2	Is the mother of the deceased alive?	Yes ☐ No ☐		
3	Age of the mother			
4	Marital status of the mother	1. Single 2. Married	3. Divorced 4. Widowed	
5	Religion of the mother	1. Orthodox 2. Muslim	3. Protestant 4. Catholic	5. Others (specify)_____
6	Educational status of the mother	1.No formal Education 2.No formal education, but can read and write 3.Elementary school		4. High school 5. College and above 4. Not known
7	Occupation of the mother	1. Professional 2.Clerical 3. Sales and Services	4.Manual Skilled 5. Manual Unskilled 6. Agriculture	7. Unemployed 8. Others (Specify) _____

8	Occupation of the father	1. Professional 2.Clerical 3.Sales and Services	4.Manual Skilled 5. Manual Unskilled 6. Agriculture	7. Unemployed 8. Others (Specify) _____

V. General Obstetric history of the mother			
1	Number of pregnancies _____		
2	Total number of births at ≥ 7 months of pregnancy _____	Number of still births _____ Number of neonatal deaths_____	
3	Number of miscarriages at less than 7 months of pregnancy _____		
4.	Number and mode of delivery	Spontaneous vaginal delivery _____ Operative abdominal delivery(c/s or hysterectomy) _____	Operative vaginal delivery(vacuum, forceps or destructive) _____

VI. Antenatal history of the mother during pregnancy of the index perinatal death		
1	Did the mother receive any ANC care during the preg	☐ Yes ☐ No ☐ Not known
2	If yes, at what month of her pregnancy did she atte first ANC?	_____
3	If yes, how many ANC visits did she have during the pregnancy?	_____
8	where did she receive ANC Services? (Check all that apply)	☐ Health Post ☐ Public Hospital ☐ Health center ☐ Private hospital ☐ Private clinic ☐ Others (specify) _____

9. Medical conditions of the mother during pregnancy of the index perinatal death			
Was the mother suffering from any of the following illness? circle all that apply	1. High blood pressure 2. Heart disease 3. Diabetes 4. Epilepsy/convulsion	5. Malnutrition 6. Malaria 7. TB 8. Anemia	9. Syphilis 10. STI 11. Other (specify)_____ 12. unknown
During pregnancy of the index perinatal death, did the mother have any of the following symptoms before delivery? : circle all that apply	1. Vaginal bleeding 2. Foul smelling vaginal discharge 3. swelling fingers, face, legs	4. Headache 5. Blurred vision 6. Convulsion 7. Febrile illness 8. Severe abdominal pain	9. Pallor/shortness of breath (both 10. Yellow discoloration of the eyes 11. Other illness (specify)
Did the mother receive any of the following during preconception and pregnancy?	1. Nutritious tablet for the first 2 months of pregnancy 2. Iron folate tablet for more than 3 months of pregnancy 3. Injection on the arm for prevention of tetanus 4. Any drug during pregnancy , specify _____		

VII. Intrapartum history of the mother of the index perinatal death		
1	Status of the baby at birth	Alive ☐ Dead ☐
2	Estimated GA at delivery	_____months
3	How many hours was she in labor before delivery	_____hours
4	When did the water break	Before labor started ☐ During labor ☐ Unknown ☐
5	How many hours passed between her water breaking and birth?	_____hours
6	What was the color of the water?	1 clear 2. Yellow 3. Green 4. Brown 5. Dark red 6. Bright red 7. Unknown

7	Did the water smell bad?	Yes ☐ No ☐			
8	Where was the deceased baby born?	1. Home 2. On transit 3. H/post 4. H/center 5. Hospital 6. Private Clinic			
9	Who assisted the delivery of the deceased baby?	1. Family member 2. Elderly in the community	3. TBA 4. HEWs	5. HCWs 6. Unattended	
10	Mode of delivery of the deceased baby	1. Spontaneous vaginal delivery 2. Operative vaginal delivery (vacuum, forceps or destructive) 3. Operative abdominal delivery (c/s or hysterectomy)			
11	Were any of the following problems experienced *during delivery*	1. Excessive Vaginal bleeding 2. Severe abdominal pain 3. Headache,	4. Blurred vision 5. Convulsion 6. Foul Smelling vaginal discharge	7. Fever 8. Pallor/shortness of breath (both 9. Other illness (specify)	
12	Did the baby cry immediately after birth?	Yes☐ No ☐ Don't Know ☐			
13	Did the baby have any abnormality at birth?	1. No abnormality(normal) 2. Swelling/defect on the Back 3. Very large head	4. Very Small Head 5. Unknown 6. Other (Specify)_____		
VIII. Postnatal history of the index perinatal death					
1	Was the baby ever breast fed?	Yes☐ No ☐ Don't Know ☐			
2	Did the baby have any of the following danger signs?	1. Failure to suck 2. Fever 3. cold when touched	4. cough 5. fast breathing 6. difficulty in breathing	7. Noisy breathing (grunting or wheezing)? 8. Abnormal body movement 9. unresponsive or unconscious	
3	Did the baby receive any treatment before s/he died?	Yes☐ No ☐ Don't Know ☐			
IX. Community factors contributing to the index perinatal death					
1	Delay one : Delay in seeking care	1. Family poverty 2. Unaware of the danger signs of the newborn 3. Unaware of the danger sign of the pregnancy 4. Did not know where to go 5. Had no one to take care of other children	6. Family/Husband negatively influenced 7. Reliant on traditional practice/medicine 8. Did Not Trust Quality of Health Care 9. Staff May Blame Mother for Home Deliver 10. Others,_____		
2	Delay two: Delay in reaching care	1. Transport was not available 2. Transport was too expensive 3. No facility within reasonable distance	4. Lack of road access 5. Others_____		
3	Delay three: Delay in receiving care	1. Delayed arrival to next facility from another referring facility 2. Family Lacked Money for Health Care 3. Provider Refuse to Wake During the Night 4. Fear To Be Scolded or Shouted At By The Staff	5. Lack of supplies or equipment, specify_____ 6. Lack of medicine, specify _____ 7. Delay in first evaluation by care giver after admission 8. Accessing the service providing unit 9. Others,_____		

Annex 9: Facility Based Perinatal Death Abstraction Form (FBPDAF) (Health Facility Death)

I. Abstractor related Information				
Name of the abstractor: _____ Qualification of the Abstractor_____ Telephone number of the abstractor:_____ Date of abstraction:_____				
II. General information Of the deceased:				
1	Unique ID Number_____			
2	Date and time of birth	DD/MM/YYYY ___/___/_____ Day ☐ Night ☐ Time_____		
3	Status of the newborn at birth	Alive(live birth) ☐ Dead(stillbirth) ☐		
4	Date and time of perinatal death	DD/MM/YYYY ___/___/_____ Day ☐ Night ☐ Time_____		
5	Sex of the deceased	Male ☐ Female ☐		
6	Place of still birth or neonatal death	1. Home 2. Health Post	3. Health Centre 4. Hospital	5. On transit from home to facility) 6. During referral from facility to facility
7	Place of residency of deceased/parents	Rural☐ Urban ☐	Region _____ Zone/sub-city_____ Woreda_____ Kebele ____House number_____	
General Information of the mother:				
8	Ethnicity of the mother	_____		
9	Religion of the mother	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others (specify)_____		
10	Marital status of the mother	1. Single 2. Divorced 3. Married 4. Widowed		
11	Age of the mother	_____(years)		
12	Is the mother of the deceased alive?	Yes ☐ No ☐		
13	Educational status of the mother	1.No formal Education 2.No formal education, but can read and write 3.Elementary school	4. High school 5. College and above 4. Unknown	
14	Occupation of the mother	1.Pofessional 2.Clerical 3.Sales and Services	4.Manual Skilled 5. Manual Unskilled 6. Agriculture	7. Unemployed 8. Others (Specify) _____
15	Occupation of the father	1.Pofessional 2.Clerical 3.Sales and Services	4.Manual Skilled 5. Manual Unskilled 6. Agriculture	7. Unemployed 8. Others (Specify)_____
III. General Obstetric history Of the mother				
1.	Number of pregnancies: _____ Number of alive children: _____			
2.	Total number of births at ≥ 7 months of pregnancy: _____	Number of neonatal deaths: _____ Number of still births: _____		
3.	Number of miscarriages at less than 7 months of pregnancy _____			
4.	• Number of Spontaneous vaginal delivery: _____ • Number of Operative vaginal delivery (vacuum, forceps or destructive): _____ • Number of cesarean delivery: _____			
IV. Antenatal history of the mother during pregnancy of the index perinatal death				
1	Number of ANC visits in relation to index perinatal death (report "0" if no ANC visits) _____			
2	Place ANC attended (Tick all that apply)	☐ Health Post ☐ Public Hospital Others (specify)_____ ☐ Public HC ☐Private clinic or hospital		
3	Did the mother receive any of the following during preconception and pregnancy	☐ Iron folate tablet for more than 3 months ☐ TT injection at least 2 in this pregnancy ☐ Multivitamin and mineral tablets for the first 2 months ☐ Other drugs specify _____		

4	Maternal disease and/o condition identified during Pregnancy (Tick all that apply)	☐Pre-eclampsia or Eclampsia ☐Heart Disease ☐ Diabetes Mellitus	☐Anemia ☐APH ☐Malaria ☐HIV	☐Tuberculosis ☐Syphilis ☐UTI/pyelonephritis ☐Multiple gestation	☐Abnormal lie/presentation ☐Unknown ☐Other (specify)_____

V. Intrapartum history of the mother of the index perinatal death

1	Estimated Gestational age at delivery in weeks _____		
2	Was Parthograph used?	yes☐ No☐	
3	Status of the fetal heartbeat during labor	☐120-160 BPM ☐ <120 or >160 BPM ☐Absent	
4	Mode of deliv	1. Spontaneous vaginal delivery 2. Vacuum 3. Forceps 4. Destructive delivery 5. Cesarean section S 6. Hysterectomy	
5	Place of birth of the index perinatal death	1. Home 2. On transit 3. Health post 4. Health center 5. Hospital 6. Clinic 7. On transit from facility to facility 8. Other _____	
6	Total duration of labor _____Hours		
7	Total duration of rupture of membrane _____ Hours		
8	APGAR score of the baby at 1st minute: _____APGAR score of the baby at 5th minute: _____		
9	Weight of Baby (in grams): ___, Head Circumference of the baby (cm):____, Length of the baby (cm):____		
10	Who assisted the delivery?	1. Family member 2. Elderly in the community	3. TBA 4. HEWs 5. HCWs (Midwife, nurses, IESO, obstetrician, GP) 6. Unattended
11	Did any of the following problems experienced during delivery?	1. Obstructed labor 2. Ruptured uterus 3. APH	4. Pre-eclampsia /eclampsia 5. Anemia 6. Congestive heart failure 7. Cord prolapse 8. Mal-presentation 6.Other _____

VI. Post-natal history of the index perinatal death

1	Did the baby receive any of these care listed? (Tick all that apply)	1. Dry and stimulate the baby 2. Keep the baby warm by skin to skin 3. Appropriate Cord care	4. Initiate breast feeding within 1 hr of birth 5. Vitamin K injection
2	Did the baby have any the following? (Tick all that apply)	1. Sepsis 2. Meningitis 3. Pneumonia	4. Birth Asphyxia 5. Lethal congenital malformation 6. Complication of Prematurity 7. Meconium aspiration Syndrome 8. Hyaline membrane Disease 9. Others _____

VII. Cause and timing of death

1	Primary cause of death _____			
2	Timing of the death	1. Before labor 2. During Labor	3. In the first 24 after birth 4. Between 1st day and 7 day	5. Between 8 day and 28 days

VIII. Contributory factors according to the three delay model

1	Delay one : Delay in seeking care	1. Family poverty 2. Did not recognize the danger signs of newborn infants 3. Unaware of the warning signs of problems during pregnancy	4. Did not know where to go 5. Had no one to take care of other children 6. Reliant on traditional practice/medicine 7. Lack of decision to go to the health facility
2	Delay two: Delay in reaching care	1. Transport was not available 2. Transport was too expensive	3. No facility within reasonable distance 4. Lack of road access 5. Others _____
3	Delay three: Delay in receiving care	1. Delayed arrival to next facility from another referring facility 2. Family lacked money for health care 3. delayed management after admission 4. Fear to be scolded or shouted at by the staff	5. Human error or mismanagement' and 6. Delay in first evaluation by care giver after admission 7. Lack of supplies or equipment, specify_____

Annex 10: Perinatal Death Reporting Form (PDRF) (Perinatal Death Case Based Report)

(To be filled in 5 copies by the Health Centre/hospital. Send the rest of copies to the next level by keeping one copy)

Reporting Facility Information			
Reporting Health Facility name type(H.C/Cl./Hosp):_____			Woreda: _____
Zone: _____	Region: _____	Date of Reporting DD/MM/YYYY ____/____/_____	
This PDRF is extracted from: 1. VA	2. Facility based Perinatal death abstraction form		
Deceased Information			
Deceased ID(code): _____			
Residence of deceased/parents ☐Urban ☐Rural	Region_____ Zone_____ Woreda_____ Kebele _____		
Date and time of birth	DD/MM/YYYY ___/____/____/ Day ☐ Night ☐ (hrs/min)____/____		
Date and time of death (Not applicable for stillborn)	DD/MM/YYYY _____/_____/_____/ Day ☐ Night ☐ Time in (hrs/min)_____/_____		
Sex of the deceased	1. Male	2. Female	
Estimated gestational age at delivery in weeks	_____ weeks		
Place of Death	1. Home/ Relatives' Home 2. Health Post	3. Health Centre 4. Hospital	5. In Transit 6. During referral (from facility to facility)
General information of the mother			
Is the mother of the deceased perinate alive?	Yes ☐ No ☐		
Age of the mother_____(years)	Parity_____	Number of alive children _____	
Religion of the mother	1. Orthodox 2. Muslim 3. Protestant 4. Catholic 5. Others (specify)_____		
Educational status Of the mother	1.No formal Education 2.No formal education, but can read and write	3.Elementary school 4. High school	5. College and above 6. Unknown
Occupation of the mother	1.Pofessional 2.Clerical 3.Sales and Services	4.Manual Skilled 5. Manual Unskilled 6. Agriculture	7. Unemployed 8. Others (Specify) _____
Obstetric History of the mother in relation to this deceased case			
Number of ANC visits in relation to the deceased case (report "0" if no ANC visits) _____			
Number of TT vaccine during the pregnancy of the deceased case: 1. No TT 2. One TT 3. Two and above TT			
Mode of delivery of the deceased baby	1. SVD 2. Operative vaginal delivery 3. Forceps 4. Vacuum 5. C/S		
Status of the baby at birth	Alive/live born ☐ Dead/Still birth ☐ if alive APGAR score at 5th minute _____		
Where was the deceased baby born?	1. Home 2. On transit 3. H/post 4. H/center 5. Hospital 6.Clinic		
Maternal disease or condition identified_____			
Perinatal Cause of death			
Neonatal Cause of death	1. Complications Prematurity 2. Asphyxia	3. Sepsis/pneumonia/meningitis 4. Neonatal Tetanus	5. Lethal congenital anomaly 6. Other _____
Maternal causes of death	1. Obstructed labor 2. Ruptured Uterus	3. Preeclampsia/ Eclampsia 4. APH (Placenta Previa or abruption)	5. Obstetric Sepsis 6.Others_____
Timing of the death	**1.** Antepartum stillbirth **2.** Intrapartum stillbirth	**3.** Still birth of un known time **4.** Death In the first 24 after birth	**5.** Death Between 1st day and 7 day **6.** Death Between 8 day and 28 days
Is the death preventable?	1= Yes	2= No	3= Unknown
Contributory factors (Thick all that apply)			
Delay 1	1. Family poverty 2. Did not recognize the danger signs of newborn infants 3. Unaware of the warning signs of problems during pregnancy	4. Did not know where to go 5. Had no one to take care of other children 6. Reliant on traditional practice/medicine 7. Lack of decision to go to the health facility	
Delay 2	1. Transport was not available 2. Transport was too expensive	3. No facility within reasonable distance 4. Lack of road access 5. Others _____	
Delay 3	1. Delayed arrival to next facility from another referring facility 2. Family lacked money for health care 3. delayed management after admission 4. Fear to be scolded or shouted at by the staff	5. Human error or mismanagement' and 6. Delay in first evaluation by care giver after admission 7. Lack of supplies or equipment, specify_____	

Reported by: _____ signature: _____ seal_____