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Maternal and Child Survival Program

Maternal and Perinatal Death Surveillance and Response Capacity Building Materials: MDSR Module

Learner's Guide

www.mcsprogram.org

The Maternal and Child Survival Program (MCSP) is a global, United States Agency for International Development (USAID) Cooperative Agreement to introduce and support high-impact health interventions with a focus on 25 high-priority countries with the ultimate goal of ending preventable child and maternal deaths within a generation. The Program is focused on ensuring that all women, newborns and children most in need have equitable access to quality health care services to save lives. MCSP supports programming in maternal, newborn and child health, immunization, family planning and reproductive health, nutrition, health systems strengthening, water/sanitation/hygiene, malaria, prevention of mother-to-child transmission of HIV, and pediatric HIV care and treatment. Visit www.mcsprogram.org to learn more.

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Acknowledgments

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Some of the content in this module was adapted from materials developed by other agencies and organizations, including the International Federation of Gynecology and Obstetrics and WHO. Citations are provided for module content adapted from other sources.

Introduction

Several recent assessments[1] have demonstrated that Maternal and Perinatal Death Surveillance and Response (MPDSR) implementation lags behind national policy in many countries and that there are few global or local resources to build manager and health worker skills to implement MPDSR processes in low-resource settings. This module is part of a set of aligned MPDSR guidance and capacity-building materials supported by the World Health Organization (WHO), UNICEF, partners and members of the Global MPDSR Technical Working Group. Designed to support policy makers, subnational managers and facility health workers to strengthen MPDSR systems, materials thus far include this MDSR capacity-building module; an aligned UNICEF-led perinatal death surveillance and response (PDSR) capacity-building module (*available here*); and MPDSR operational guidance under development by WHO.

The purpose of this MDSR module is to build the capacity of district managers and facility providers to strengthen MDSR processes. The module focuses on facility maternal deaths and should complement (not replace) existing national MDSR or MPDSR guidelines and materials already in use. Future capacity-building modules may address maternal deaths outside the facility, especially important in settings where a high proportion of maternal deaths occur in the community.

The interactive sessions in this module include practice-based case-study exercises, PowerPoint presentations, and job aids designed to build health worker skills to correctly implement the six-step death audit cycle, including: identifying and notifying maternal deaths; correctly assigning cause of maternal death using the International Statistical Classification of Diseases for Maternal Mortality (ICD-MM); analysing key contributors to a death; and developing, implementing and monitoring a "response/action" based on identified contributors.

Additional sessions build district manager and health worker skills to create and manage MPDSR committees; to monitor trends in leading local causes of maternal death, triangulating death audit and routine health information sources; to analyse the most commonly identified contributors across death audits for leading causes of death; and to define, implement and monitor a set of priority "actions/responses" based on identified trends (at the facility and district/subnational level)

Though many of the sessions and specific case studies in this module focus on maternal health several sessions are relevant to maternal, perinatal, and child death surveillance and response implementation regardless of the type of deaths being reviewed maternal, perinatal or child deaths). For example, sessions on the formation of an MPDSR team are relevant for integrated MPDSR systems. As useful, many of the case studies can be adapted to incorporate perinatal and child health content to support PDSR and child death surveillance and response capacity-building, as was done in the PDSR module published by UNICEF *(add link)*.

Finally, it is not necessary to implement the module sessions sequentially or in one workshop at a single point in time. Program implementers and educators may selectively use, sequence and combine sessions based on their local needs, activities and resources.

[1] MCSP MPDSR assessment, WHO AFRO assessment, WHO Global assessment (under publication)

Workshop Overview

The MDSR module includes 16 sessions with a linked Facilitator's Guide, a Learner's Guide, and PowerPoint slides and session handouts. For simplicity of presentation, this module is organized around a 3-day workshop.

Workshop Goal

The goal of this 3-day workshop is to strengthen manager and provider skills to support strong MDSR processes that contribute to facility and sub-national efforts to improve the quality of maternal health care and eliminate preventable maternal deaths.

Workshop Objectives

By the end of the workshop, learners will be able to:

1. Identify and notify maternal deaths
2. Create and/or strengthen capacity of district/subnational and facility MPDSR or MDSR committees to implement MDSR processes
3. Review maternal deaths, assign cause of death using the ICD-10 MM and identify contributing factors
4. Define, implement and monitor responses based on individual death audits
5. Monitor and analyse trends in causes of maternal death and findings of death reviews over time, and define, implement and monitor a set of priority responses based on identified trends (at the facility and district/subnational level)

Session Plans

Day 1
Session 1: Welcome and Introduction to MPDSR
Session 2: Individual Learning Plan and MPDSR Knowledge Assessment Pre-Test
Session 3: Understanding Pathways to Maternal Death
Session 4: Six-Step Mortality Audit Cycle
Session 5: Identifying Maternal Deaths
Session 6: Day One Wrap-up Discussion

Day 2
Session 1: Day One Review and Knowledge Check
Session 2: Creating or Strengthening MPDSR Committees
Session 3: Introduction to MDSR Forms
Session 4: Cause Assignment Using the ICD-MM
Session 5: Day Two Wrap-up and Discussion

Day 3
Session 1: Day Two Review
Session 2: Identifying Modifiable Contributing Factors for a Maternal Death and Priority Responses to Implement and Monitor
Session 3: Monitoring and Analysing Trends in Causes of Maternal Deaths and Findings of Death Reviews to Prioritize Aggregated Responses
Session 4: MDSR Workshop Final Knowledge Assessment and Review
Session 5: Workshop Wrap-up and Closing Ceremony

Day 1/Session 1: Welcome and Introduction to MPDSR

Session Plan

Duration: 30 min

Session Objectives: By the end of this session, learners will be able to:

- Describe the training format
- Explain how to use the learner's guide

Notes

Day 1/Session 2: Individual Learning Plan and MPDSR Knowledge Assessment Pre-Test

Session Plan

Duration: 30 min

Session Objectives: By the end of this session, learners will be able to:

- Identify areas of MPDSR where they feel competent and where they require further instruction
- Complete the MPDSR knowledge assessment pre-test

Notes

Day 1/Session 3: Understanding Pathways to Maternal Death

Session Plan

Duration: 90 min

Session Objectives: By the end of this session, learners will be able to:

- Describe the goals of a continual MPDSR process
- Explain the three delays model

Notes

Day 1/Session 4: Six-Step Mortality Audit Cycle

Session Plan

Duration: 60 min

Session Objectives: By the end of this session, learners will be able to:

- Identify modifiable contributing factors that led to Mrs. X's death
- Describe the six steps of the mortality audit cycle

Notes

Day 1/Session 5: Identifying Maternal Deaths

Session Plan

Duration: 60 min

Session Objectives: By the end of this session, learners will be able to:

- Distinguish between deaths that are maternal deaths and those that are not maternal deaths
- Differentiate between direct causes and indirect causes of maternal death
- Describe the process of identifying maternal deaths in their facilities

Notes

Identifying Maternal Deaths

Learner Instructions: Read each of the scenarios below and determine whether the scenario described is a maternal death. If it is a maternal death, determine whether the maternal death is due to direct or indirect causes

Scenario 1

A 21-year-old woman went into labour and delivered a healthy baby at home normally. One hour later, she was bleeding heavily. She was rushed to the health facility but died two hours upon arrival.

Scenario 2

A 30-year-old pregnant woman at 7 months of her pregnancy was on her way to the clinic when the vehicle they are travelling in overturned. She was severely injured and taken to the hospital but died a few hours later.

Scenario 3

A 19-year-old woman was rushed to the outpatient department of a small hospital with severe headache. Her husband said she was pregnant at 8 months but was on regular antenatal care (ANC) at her local primary health care centre. It was her first pregnancy. She had severe seizures just prior to arrival at the hospital. She was admitted and died immediately

Scenario 4

A pregnant woman at 4 months was having fever at night, with sweats and cough. She had not been to any ANC visits. She was HIV positive. She was rushed to the hospital with shortness of breath and difficulty in breathing. She was found to have pneumonia and started on treatment but died a few hours later.

Scenario 5

A 21-year-old woman missed her periods and went for a test. When she found out she was pregnant, she went to a local clinic and bought some medicine to try to end the pregnancy. She started bleeding heavily and died a few hours after arriving at the hospital.

Scenario 6

A 35-year-old woman arrived at the health facility exhausted and pale. The husband said she was in labour for the last 12 hours at home, since all her previous deliveries were at home and without problems, they kept her at home. On examination the midwife found that the head was still high, but the cervix was fully dilated. They immediately prepared her for an emergency caesarean section, however, the woman died before the C-section could be performed.

Scenario 7

A 29-year-old woman who is 30 weeks pregnant had fever, vomiting and joints pain. She started having high fever and was taken to the hospital and was put on anti-malaria medication for 24 hours. However, her condition deteriorated overnight, and she died.

Scenario 8

A 35-year-old woman was in her third pregnancy and did not have any problems. She went into labour and her husband kept her at home because her two previous babies had been born at home. She was attended by a local traditional birth attendant who performed repeated vaginal examinations to check her progress. After 24 hours she did not deliver so the husband took her to the hospital. The baby was breech. Assisted breech delivery was required. She did not receive any antibiotics after the assisted delivery but was kept for observation for 8 hours in the hospital before being discharged and sent home. She returned to the maternity ward complaining of excessive foul-smelling discharge and high fever. She died a day later.

Day 1/Session 6: Day One Wrap-up Discussion

Session Plan

Duration: 30 min

Session Objectives: By the end of this session, learners will be able to:

- Review content discussed over the last 5 sessions

Assignment:

- Review the ICD-MM reference aid and form on Pages 37-38
- Ask learners to bring real case summaries or case notes to review
- Review the M/PDSR national guidelines

Notes

Day 2/Session 1: Day One Review and Knowledge Check

Session Plan

Duration: 30 min

Session Objectives: By the end of this session, learners will be able to:

- Describe the goals of continual MDSR process
- Describe and identify the six steps of the mortality audit cycle
- Distinguish between deaths that are maternal deaths and those that are not maternal deaths
- Differentiate between direct causes and indirect causes of maternal death

Notes

Day 2/Session 2: Creating or strengthening MPDSR Committees

Session Plan

Duration: 60 min

Session Objectives: By the end of this session, learners will be able to:

- Create a facility or district/subnational MPDSR committee
- Strengthen a facility or district/subnational MPDSR committee to optimize MPDSR processes

Notes

Illustrative Roles and Responsibilities for an MPDSR Committee

Adapted from: De Brouwere V., Zinnen V., Delvaux T. (2013) How to conduct Maternal Death Reviews (MDR). Guidelines and tools for health professionals. London, International Federation of Gynecologists ad Obstetricians, FIGO LOGIC, http://www.figo.org/files/figo-corp/MDR_Guidelines_2013.pdf accessed January 2018

Table 1: Illustrative roles and responsibilities

Role	Responsibilities	Skills	Reports to/ Consults with
Moderator/ Chair	• Convene the MPDSR committee at regular intervals • Facilitate discussion and encourage respectful and open discussion • Establish ground rules and remind participants of the code of conduct including confidentiality, and no blame principle • Lead review of previous meeting's recommendations and status updates	Facilitation, Listening, Being impartial	District manager, Ministry of Health (MOH)
Presenter	**Before the review meeting:** • Identify maternal deaths • Gather all information relevant to the cases to be reviewed • Conduct the interviews with staff involved with case **During the review meeting:** • Present summary of clinical cases under review at committee meetings • Complete MPDSR form and medical certificate of cause of death (MCCD) • Follow committee code of conduct and ensure **no-blame environment**	Tact, sensitive, attention to detail	Secretary
Secretary	• Work with the chair to prepare the agenda for the meeting • In consultation with presenter, ensure relevant documents are available for the review meeting • Summarize the case analysis • Send completed form to appropriate person/focal point • Develop and share report of the review meeting • Follow committee code of conduct and ensure **no-blame environment**	Writing, coordination of tasks	Moderator/Chair, Presenter
Data Manager	• Periodically review data trends • Monitor data input quality • Input data into database • Send data to receiving parties (MOH, etc.) • Dashboard development and data visualization • Follow committee code of conduct and ensure **no-blame environment**	Monitoring and evaluation, data management	Moderator/Chair, Presenter, Secretary

Role	Responsibilities	Skills	Reports to/ Consults with
Members	• Participate in review of maternal deaths in the facility • Recommend and participate in implementation and follow up of individual and aggregated death review responses • Ensure confidentiality of meeting proceedings • Follow committee code of conduct and ensure **no-blame environment**		
Quality improvement (QI) team representative	• Participate in review of maternal deaths in the facility • Recommend and participate in implementation and follow up of individual and aggregated death review responses • Transmit QI interventions developed by the MPDSR committee to the QI team • Coordinate and report on status of QI team's interventions to the MPDSR committee • Ensure confidentiality of meeting proceedings • Follow committee code of conduct and ensure **no-blame environment**		

Day 2/Session 3: Introduction to MDSR Forms

Session Plan

Duration: 90 min

Session Objectives: By the end of this session, learners will be able to:

- Identify the key components of country-specific MDSR forms
- Describe the sample MDSR forms that will be used in the workshop to build core MDSR skills
- Demonstrate how to complete a case summary of a maternal death using a sample MDSR form

Notes

Maternal Death Review and Clinical Summary Forms[2] (Scenario A): Abortion

Table 2: Clinical Summary Form - Abortion

Date of MDR: 10 December 2017	**MDR session N°:** 000 - example

Patient code: Patient001		**Patient Age:** 23 Years
Marital status: ☐**married/cohabitant**	☐**divorced**	☒**single**
Gravida: 1	**Para:** 0	**Live children:** 0
Number of previous caesarean sections: 0		**Date of last CS:** 0
Prior obstetric complications: None		
Pre-existing medical problems: None		
Number of ANC visits in this pregnancy: 0		
Risk factor(s)/complications detected during this pregnancy/labour: None		

If delivered/aborted before admission: None

Date: **Duration of amenorrhea:** **Alive baby:** ☐Yes ☐No

Place of birth/abortion: **Assisted by:**

Complications occurred: ☐Yes ☐No

If pregnant on admission:

Duration of amenorrhea: 3 months

Referred from another institution: ☒Yes ☐No **Type of institution?** Health centre

Reason for coming to hospital: Severe lower abdominal pain, Bleeding with passage of fleshy mass from the vagina

History of the referral/process of reaching the institution: She was unmarried and had wanted to terminate the pregnancy. A woman in the village gave her some herbs to insert into her vagina. After some days, she began bleeding and passed several small pieces of fleshy tissue from her vagina. She developed abdominal pain and foul-smelling discharge and was rushed to the health centre, which referred her to the hospital.

What are possible associated factors that may have contributed to this death (e.g. woman's status in community)? She was an unmarried, young woman, unable to access safe abortion services

Date and time of admission: 01 December 2017; 7:00 pm

Main reason for admission: Incomplete abortion (induced abortion)

[2] Adapted from: De Brouwere V., Zinnen V., Delvaux T. (2013) How to Conduct Maternal Death Reviews (MDR). Guidelines and Tools for Health Professionals. London, International Federation of Gynecologists
ad Obstetricians, FIGO LOGIC, https://www.figo.org/sites/default/files/uploads/project-publications/LOGIC/VfinalEdited%20MDR%20Guidelines%20final%202014.pdf

Initial clinical assessment/Ultrasound/laboratory findings at admission: General condition was poor. Ultrasound revealed echogenic content suggestive of product of conception with free fluid in the uterus and pelvic cavity
Diagnosis made at admission: Incomplete abortion

Summary of the case evolution if complication(s) occurred after admission: After failure of expulsion of the products of conception, she developed foul discharge and was rushed to the hospital where her condition worsened

Sequence of events if abortion/delivery occurred: see summary above
Complications: Sepsis
Clinical assessment/Ultrasound/laboratory findings: Incomplete septic abortion
Diagnosis: Incomplete septic abortion
How does the woman's status in the community affect the process after admission in this particular case?

Main treatment(s) given: IV fluids; antibiotics
Time between diagnosis of complication and appropriate treatment: 3 hours
Complementary tests and laboratory results after treatment:
Summary of case evolution and monitoring put in place (t°, BP, Pulse, and Bleeding): She was admitted, and put on IV fluids, and antibiotics and blood transfusion. Central venous catheterization was also done. She was taken to the theatre for evacuation of the products of conception, which was found to be foul smelling. She developed persistent hypotension with BP 49/25 mmHg; Pulse: 120 bpm; Temperature: 36.6°C; Haemoglobin: 6gm/dl and was not responding to the fluids.
Date of death: 01 December 2017
Time elapsed between complication and death: 5 Hours

Cause of death notified in records: Incomplete Septic Abortion
Pregnancy outcome (Live birth, SB, Early death, Miscarriage): Miscarriage

Other information available (from family, health centres, community, etc.)

Summary of the case, to be presented to the MPDSR team:
A 23-year-old woman was admitted to the hospital at 12 weeks' gestation in a general poor health with low blood pressure and tachycardia. She had blood pressure of 49/25 mmHg, tachycardia (120 beats/min) and body temperature of 36.6°C. She said she was given some herbs by a woman in the village to insert into her vagina to try to end the pregnancy, since she was unmarried. She was put on isotonic solution while further assessments were completed. Her haemoglobin was 6 grams/dL. Ultrasound revealed echogenic content suggestive of product of conception with free fluid in the in the uterus and pelvic cavity. She was taken to the theatre where an evacuation of the uterus was performed. Foul smelling products of conception were removed. She was put on IV fluids and antibiotics. Despite aggressive hydration therapy including blood products, by central venous catheterization, she had persistent bradycardia and hypotension. The woman died after 5 hours despite all the efforts.

Maternal Death Review and Clinical Summary Forms[3] (Scenario 1): PPH

Table 3: Clinical Summary Form - PPH

Date of MDR: 25 July, 2016	**MDR session N°:** 001

Patient code: Patient002		**Patient Age:** 35 Years
Marital status: ☒**married/cohabitant**	☐**divorced**	☐**single**
Gravida: 5	**Para:** 4	**Live children:** 4
Number of previous caesarean sections: 0		**Date of last CS:** 0
Prior obstetric complications: Retained placenta		
Pre-existing medical problems: Anaemia		
Number of ANC visits in this pregnancy: 3		
Risk factor(s)/complications detected during this pregnancy/labour: Anaemia		

If delivered/aborted before admission:

Date: **Duration of amenorrhea:** **Alive baby:** ☐Yes ☐No

Place of birth/abortion: **Assisted by:**

Complications occurred: ☐Yes ☐No

If pregnant on admission:

Duration of amenorrhea: 38 Weeks

Referred from another institution: ☐Yes ☐No **Type of institution?** No

Reason for coming to hospital: Labour pains

History of the referral/process of reaching the institution: None

What are possible associated factors that may have contributed to this death (e.g. woman's status in community)? None

Date and time of admission: 17 July 2016 12:00 AM

Main reason for admission: Normal labour

Initial clinical assessment/Ultrasound/laboratory findings at admission: Patient stable but has regular abdominal pains consistent with labour. Foetal heart sound – 120 beats/min; BP 110/70 mmHg; Hb 9 grams/dl; Urine examination normal; On examination cervix dilated 8 cm; membranes intact.

[3] Adapted from: De Brouwere V., Zinnen V., Delvaux T. (2013) How to Conduct Maternal Death Reviews (MDR). Guidelines and Tools for Health Professionals. London, International Federation of Gynecologists ad Obstetricians, FIGO LOGIC, https://www.figo.org/sites/default/files/uploads/project-publications/LOGIC/VfinalEdited%20MDR%20Guidelines%20final%202014.pdf

Diagnosis made at admission: Normal labour

Summary of the case evolution if complication(s) occurred after admission: The woman was admitted to the labour ward for observation and to the delivery room where she delivered normally. However, after two hours developed severe vaginal bleeding. She was taken back for evaluation and given IV oxytocin 20 IU.

Sequence of events if abortion/delivery occurred: See above
Complications: Bleeding after delivery
Clinical assessment/Ultrasound/laboratory findings: None
Diagnosis: Postpartum haemorrhage
How does the woman's status in the community affect the process after admission in this particular case?

Main treatment(s) given: IV fluids; antibiotics; 20 IU of oxytocin
Time between diagnosis of complication and appropriate treatment: 4 hours
Complementary tests and laboratory results after treatment: None
Summary of case evolution and monitoring put in place (t°, BP, Pulse, and Bleeding): After delivery, the woman was admitted to the ward for observation before discharge. After two hours, she complained of drowsiness and the midwife was called. She found that her vital signs were abnormal with blood pressure of 90/60 and a pulse rate of 100/min and temperature of 37^0 C. On examining the woman, the midwife found she has vaginal bleeding and her uterus was soft. The woman was immediately put on 1000 ml of normal saline solution. The midwife re-examined her and found that her uterus was still soft and added 20 IU of oxytocin. When bleeding did not stop, she was rushed to the labour room for full examination which showed that there were no cervical tears and was returned to the ward. The doctor ordered two pints of blood; however, blood was not available. The woman went into hypovolemic shock and died three hours later.

Date of death: 19 July 2016
Time elapsed between complication and death: 3 Hours

Cause of death notified in records: Postpartum Haemorrhage due to uterine atony
Pregnancy outcome (Live birth, SB, Early death, Miscarriage): A live baby, weighing 2200 grams.

Other information available (from family, health centres, community, etc.)

Summary of the case, to be presented to the team:

Maternal Death Review and Clinical Summary Forms[4] (Scenario 2): Uterine Rupture

Table 4: Clinical Summary Form - Uterine Rupture

Date of MDR: 14 September 2017	**MDR session N°:** 002

Patient code: Patient003		**Patient Age:** 39 Years
Marital status: ☒**married/cohabitant**	☐**divorced**	☐**single:**
Gravida: 8	**Para:** 0	**Live children:** 7
Number of previous caesarean sections: 0		**Date of last CS:** 0
Prior obstetric complications: None		
Pre-existing medical problems: None		
Number of ANC visits in this pregnancy: 2		
Risk factor(s)/complications detected during this pregnancy/labour: None		

If delivered/aborted before admission: No

Date: **Duration of amenorrhea:** **Alive baby:** ☐Yes ☐No

Place of birth/abortion: **Assisted by:**

Complications occurred: ☐Yes ☐No

If pregnant on admission:

Duration of amenorrhea: 38 weeks

Referred from another institution: ☒Yes ☐No **Type of institution?** Health Centre

Reason for coming to hospital: Abdominal pains and vaginal bleeding

History of the referral/process of reaching the institution: The woman was in labour for 20 hours at the rural health centre. When she did not deliver and started to have vaginal bleeding, the midwife decided to refer her to the main hospital in the town using a pickup truck rented by the family because the community ambulance has no fuel.

What are possible associated factors that may have contributed to this death (e.g. woman's status in community)? None

Date and time of admission: 03 September 2017; 12:00PM

Main reason for admission: Labour pains and vaginal bleeding

Initial clinical assessment/Ultrasound/laboratory findings at admission: The woman was in pain and had vaginal bleeding**.** On examination she was weak and pale and had a tender abdomen and no foetal heart sound could be heard. Her BP was 90/50 mmHg; pulse rate 110 per minute and respiratory rate of 50 per

[4] Adapted from: De Brouwere V., Zinnen V., Delvaux T. (2013) How to Conduct Maternal Death Reviews (MDR). Guidelines and Tools for Health Professionals. London, International Federation of Gynecologists ad Obstetricians, FIGO LOGIC, https://www.figo.org/sites/default/files/uploads/project-publications/LOGIC/VfinalEdited%20MDR%20Guidelines%20final%202014.pdf

minute. The Hb was requested and found to be 4 grams/dl. An ultrasound scan revealed the foetus in the abdominal cavity and significant free fluid in the peritoneum.

Diagnosis made at admission:

Summary of the case evolution if complication(s) occurred after admission: The doctor immediately made a diagnosis of uterine rupture.
Sequence of events if abortion/delivery occurred: No delivery occurred
Complications: Abdominal pain; vaginal bleeding
Clinical assessment/Ultrasound/laboratory findings: She appeared clinically dehydrated, with concentrated urine. On examination there were no foetal heart sounds and there was generalized abdominal tenderness with distention.
Ultrasound revealed significant free fluid in the peritoneum and the foetus in the abdominal cavity
Diagnosis: Ruptured uterus
How does the woman's status in the community affect the process after admission in this particular case?

Main treatment(s) given: IV antibiotics, 2 litres of IV normal saline. An ultrasound scan
Time between diagnosis of complication and appropriate treatment: One hour
Complementary tests and laboratory results after treatment: None
Summary of case evolution and monitoring put in place (t°, BP, Pulse, and Bleeding): A senior doctor was called but did not arrive. A junior doctor decided to conduct an emergency exploratory laparotomy. A posterior uterine rupture in a transverse direction was found, with blood-stained fluids visible on the intra-abdominal organs. A none-viable foetus was delivered from the abdominal cavity. A sub-total hysterectomy was performed by a junior doctor and the abdomen was washed-out and closed. The woman's condition deteriorated in the recovery ward and she died two hours later.
Date of death: 03 September 2017
Time elapsed between complication and death: 5 Hours

Cause of death notified in records: Ruptured uterus
Pregnancy outcome (Live birth, SB, Early death, Miscarriage): Still birth; 2900 grams

Other information available (from family, health centres, community, etc.)

Summary of the case, to be presented to the team:

Maternal Death Review and Clinical Summary Forms[5] (Scenario 3): PE/E

Table 5: Clinical Summary Form - PE/E

Date of MDR: 10 June, 2017	**MDR session N°:** 003

Patient code: Patient004		**Patient Age:** 38 Years
Marital status: ☒**married/cohabitant**	☐**divorced**	☐**single:**
Gravida: 1	**Para:** 0	**Live children:** 0
Number of previous caesarean sections: 0		**Date of last CS:** 0
Prior obstetric complications: gestational hypertension		
Pre-existing medical problems: None		
Number of ANC visits in this pregnancy: 3		
Risk factor(s)/complications detected during this pregnancy/labour: None		

If delivered/aborted before admission: None

Date: **Duration of amenorrhea:** **Alive baby:**☐Yes ☐No

Place of birth/abortion: **Assisted by:**

Complications occurred: ☐Yes ☐No

If pregnant on admission:

Duration of amenorrhea: 36 weeks

Referred from another institution? ☐Yes ☒No **Type of institution?**

Reason for coming to hospital: Severe Headache

History of the referral/process of reaching the institution:

What are possible associated factors that may have contributed to this death (e.g. woman's status in community)?

Date and time of admission: 05 June 2017; 6:00PM

Main reason for admission: Pregnancy with severe headache and high blood pressure

Initial clinical assessment/Ultrasound/laboratory findings at admission: Blood pressure of 180/110, lower limb oedema, uterine fundus height of 30 cm, closed cervix, no uterine contractions, and foetal heart sound heard.

Diagnosis made at admission: Pre-eclampsia

[5] Adapted from: De Brouwere V., Zinnen V., Delvaux T. (2013) How to Conduct Maternal Death Reviews (MDR). Guidelines and Tools for Health Professionals. London, International Federation of Gynecologists ad Obstetricians, FIGO LOGIC, https://www.figo.org/sites/default/files/uploads/project-publications/LOGIC/VfinalEdited%20MDR%20Guidelines%20final%202014.pdf

Summary of the case evolution if complication(s) occurred after admission: Following assessment, the woman was transferred immediately to the delivery room where she had her first eclamptic fit. The nurses waited for the obstetrician before initiating the loading dose of magnesium sulphate. The obstetrician arrived one hour after the woman's first eclamptic fit and started management with magnesium sulphate and antihypertensive.

Sequence of events if abortion/delivery occurred: See above
Complications: Fits/seizures
Clinical assessment/Ultrasound/laboratory findings:

Diagnosis: Eclampsia
How does the woman's status in the community affect the process after admission in this particular case?

Main treatment(s) given: A urinary catheter and intravenous line were placed; antihypertensive treatment and loading dose of magnesium sulphate. The woman was transferred to the intensive care unit
Time between diagnosis of complication and appropriate treatment: One hour
Complementary tests and laboratory results after treatment: None. The US revealed a live foetus of 36 weeks
Summary of case evolution and monitoring put in place (t°, BP, Pulse, and Bleeding): A caesarean section was performed in the central block at 8 pm. The obstetrician extracted a live male baby (Apgar 6), who was transferred to the paediatric ward. During the post-operative period, vital signs were hardly monitored at all (BP taken three hours after surgery). The woman went into a coma in the intensive care unit and died 16 hours after admission.
Date of death: 06 June 2017
Time elapsed between complication and death: 16 Hours

Cause of death notified in records: Eclampsia
Pregnancy outcome (Live birth, SB, Early death, Miscarriage): A live infant weighing 2300g

Other information available (from family, health centres, community, etc.)

Summary of the case, to be presented to the team:

Maternal Death Review and Clinical Summary Forms[6] (Scenario 4): Anaesthesia

Table 6: Clinical Summary Form – Anaesthesia

Date of MDR: 16 March, 2015	**MDR session N°:** 005

Patient code: Patient005		**Patient Age:** 29
Marital status: ☒**married/cohabitant**	☐**divorced**	☐**single:**
Gravida: 3	**Para:** 2	**Live children:** 1
Number of previous caesarean sections: 0		**Date of last CS: X**
Prior obstetric complications: None		
Pre-existing medical problems: Asthma		
Number of ANC visits in this pregnancy: 3		
Risk factor(s)/complications detected during this pregnancy/labour: None		

If delivered/aborted before admission: No		
Date:	**Duration of amenorrhea:**	**Alive baby:** ☐Yes ☐No
Place of birth/abortion:	**Assisted by:**	
Complications occurred: ☐Yes ☐No		

If pregnant on admission:
Duration of amenorrhea: 40 weeks

Referred from another institution: ☐Yes ☒No	**Type of institution?** Unknown
Reason for coming to hospital: Labour	
History of the referral/process of reaching the institution: None	
What are possible associated factors that may have contributed to this death (e.g. woman's status in community)? None	
Date and time of admission: 04 March 2015; 4:00 AM	
Main reason for admission: Normal Labour	

Initial clinical assessment/Ultrasound/laboratory findings at admission: On examination, her BP was 120/80 mm Hg, pulse rate was 80 beats per minute and the foetal heart sound was 120 per minute. Her Hb and urine exams were normal. On vaginal examinations, the cervix was open 4 cm, the membranes were intact, and no discharge of fluids was seen.
Diagnosis made at admission: Normal labour

[6] Adapted from: De Brouwere V., Zinnen V., Delvaux T. (2013) How to Conduct Maternal Death Reviews (MDR). Guidelines and Tools for Health Professionals. London, International Federation of Gynecologists ad Obstetricians, FIGO LOGIC, https://www.figo.org/sites/default/files/uploads/project-publications/LOGIC/VfinalEdited%20MDR%20Guidelines%20final%202014.pdf

Summary of the case evolution if complication(s) occurred after admission: The patient was admitted in the labour room and her progress monitored by partograph. Four hours later, the membranes broke, which was meconium stained and the foetal heart sound was 90 beats per minute, the cervix was 8 cm dilated but the head was still high. A decision was made to perform an emergency caesarean section due to foetal distress.

Sequence of events if abortion/delivery occurred: See summary
Complications: Foetal distress
Clinical assessment/Ultrasound/laboratory findings:

Diagnosis: Foetal distress
How does the woman's status in the community affect the process after admission in this particular case? None

Main treatment(s) given: Emergency caesarean section was performed under general anaesthesia (because spinal anaesthesia failed). Anaesthesia was administered by an anaesthetic assistant with limited experience. A live foetus weighing 2800 grams was delivered. After closure of the abdomen, the patient did not wake up from anaesthesia and had difficulty breathing on her own. Breathing was assisted by bag and mask, and she was put on IV fluids and taken to the ICU but died a few hours later.

Time between diagnosis of complication and appropriate treatment: One hour
Complementary tests and laboratory results after treatment: HB: 10 grams/ld.; Urine: normal
Summary of case evolution and monitoring put in place (t°, BP, Pulse, and Bleeding): Temperature: 36 0 Celsius; BP: 90/60 mm Hg; Pulse: 100 bpm; No vaginal bleeding

Date of death: 06 March 2015
Time elapsed between complication and death: six (6) hours

Cause of death notified in records: Complications of Anaesthesia (failed spinal anaesthesia)
Pregnancy outcome (Live birth, SB, Early death, Miscarriage): Live baby, male, weighing 2800 grams

Other information available (from family, health centres, community, etc.):
Her first child, who was fully immunized, died of pneumonia at 2 years.

Summary of the case, to be presented to the team:

Day 2/Session 4: Cause Assignment Using the ICD-MM

Session Plan

Duration: 90 min

Session Objectives: By the end of this session, learners will be able to:

- Correctly assign the causes of maternal deaths using the ICD-MM classification system

Notes

ICD-MM Reference Aid

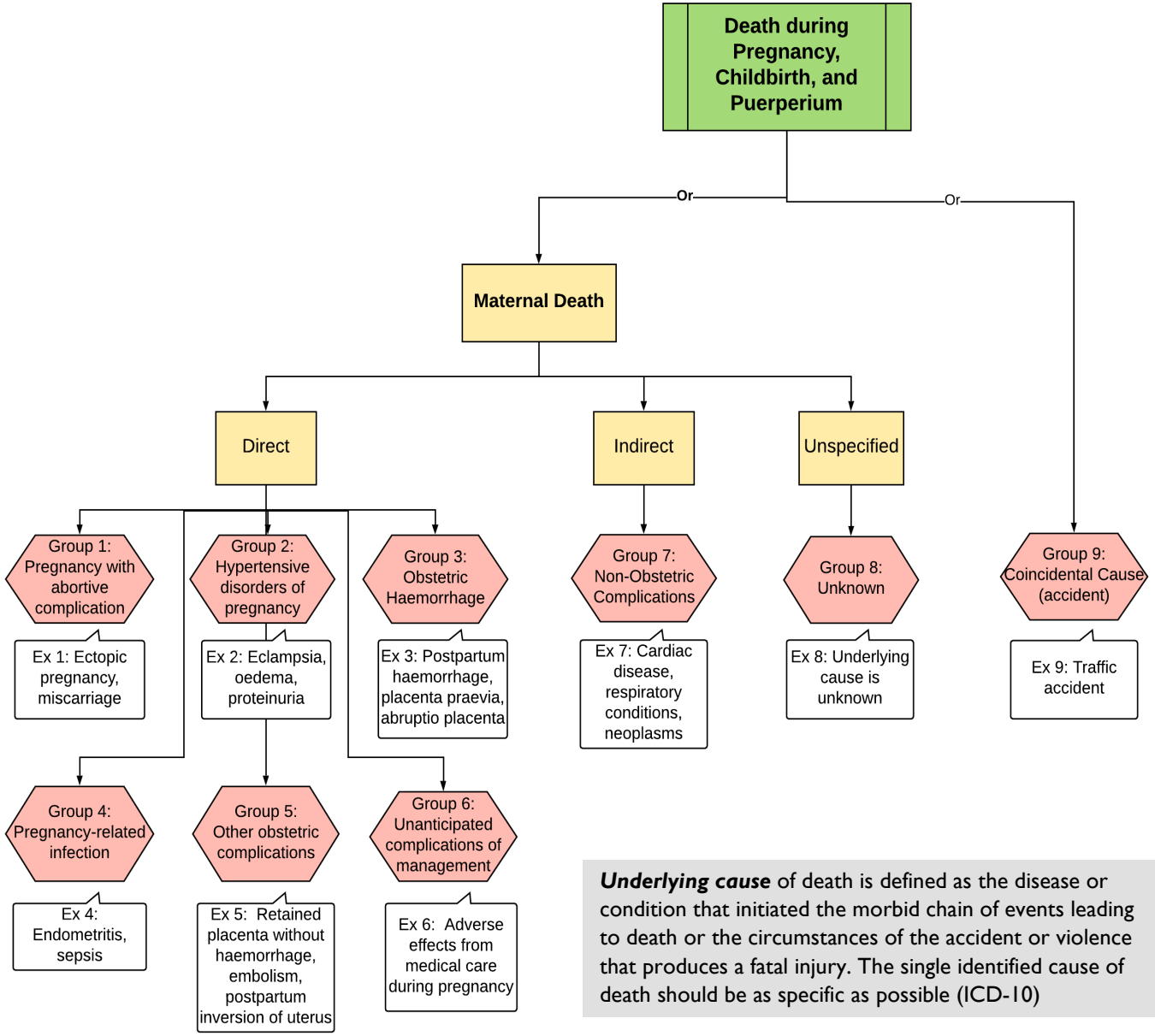
Groups of the Underlying Cause of Death during Pregnancy, Childbirth, and Puerperium

Definitions of deaths

Death occurring during pregnancy, childbirth and the puerperium is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death.

Maternal death
A maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes (irrespective of the duration and the site of the pregnancy).

Late maternal death
A late maternal death is the death of a woman from direct or indirect causes more than 42 days but less than one year after termination of pregnancy.



Underlying cause of death is defined as the disease or condition that initiated the morbid chain of events leading to death or the circumstances of the accident or violence that produces a fatal injury. The single identified cause of death should be as specific as possible (ICD-10)

Definitions of Cause Groups with Examples

Categories of underlying causes of death are aggregated in nine groups of causes of death during pregnancy, childbirth and the puerperium. These groups are clinically and epidemiologically relevant, mutually exclusive and totally inclusive and descriptive of all causes of maternal and pregnancy-related deaths.

Table 1: Groups of underlying causes of death during pregnancy, childbirth & the puerperium in mutually exclusive, totally inclusive groups7

Type	Group name/number	EXAMPLES of potential causes of death
Maternal death: direct	1. Pregnancies with abortive outcome	Abortion, miscarriage, ectopic pregnancy and other conditions leading to maternal death and a pregnancy with abortive outcome
Maternal death: direct	2. Hypertensive disorders in pregnancy, childbirth, and the puerperium	Hypertensive disorders of pregnancy, childbirth and puerperium including preeclampsia, eclampsia and gestational hypertension[8]
Maternal death: direct	3. Obstetric haemorrhage	Obstetric diseases or conditions directly associated with haemorrhage
Maternal death: direct	4. Pregnancy-related infection	Pregnancy-related, infection-based diseases or conditions
Maternal death: direct	5. Other obstetric complications	All other direct obstetric conditions not included in groups to 1–4
Maternal death: direct	6. Unanticipated complications of management	Severe adverse effects and other unanticipated complications of medical and surgical care during pregnancy, childbirth or the puerperium
Maternal death: indirect	7. Non-obstetric complications	Non-obstetric conditions • Cardiac disease (including pre-existing hyper-tension) • Endocrine conditions • Gastrointestinal tract conditions • Central nervous system conditions • Respiratory conditions • Genitourinary conditions • Autoimmune disorders • Skeletal diseases • Psychiatric disorders • Neoplasms • Infections that are not a direct result of pregnancy
Maternal death: unspecified[9]	8. Unknown/undetermined	Maternal death during pregnancy, childbirth and the puerperium where the underlying cause is unknown or was not determined
Death during pregnancy, childbirth and the puerperium	9. Coincidental causes	Death during pregnancy, childbirth and the puerperium due to external causes

[7] Adapted from World Health Organization. (2012). The WHO Application of ICD-10 to deaths during pregnancy, childbirth and puerperium: ICD-MM. World Health Organization.
[8] World Health Organization, & UNICEF. (2017). Managing complications in pregnancy and childbirth: a guide for midwives and doctors.
[9] In some settings, teams mark the cause of death as unspecified to avoid litigation or disciplinary action. It is important to foster a "no blame" atmosphere to promote learning and action as a result of a maternal death, a primary goal of MPDSR. The death should be marked as unspecified only when the cause of death truly cannot be ascertained.

Medical Certificate of Cause of Death

ICD-MM

Example of medical certificate of cause of death (MCCD).[10] If the death certificate has been completed correctly, the underlying cause of death should normally be the single condition which the certifier has written on the lowest used line of Part 1.

Cause of death (*The disease or condition determined to be the underlying cause of death should appear in the lowest completed line of part I)*		Approximate interval between onset and death
Part I Disease or condition leading directly to death	a)	
Antecedent causes: Due to or as a consequence of	b)	
Due to or as a consequence of	c)	
Due to or as a consequence of	d)	
Part II Other significant conditions Contributing to death but not related to the disease or condition causing it		
The woman was: ☐ pregnant at the time of death ☐ not pregnant at the time of death (but pregnant within 42 days) ☐ pregnant within the past year		

[10] Source: The WHO Application of ICD-10 to deaths during pregnancy, childbirth and the puerperium: ICD-MM

MCCD Exercise Examples

Example 1

A woman who had anaemia during pregnancy and after delivery had a postpartum haemorrhage due to uterine atony and died as a result of hypovolaemic shock.

Medical certificate of cause of death

Cause of death *the disease or condition thought to be the underlying cause should appear in the lowest completed line of Part I*		Approximate interval between onset and death
1. Disease or condition leading directly to death	(a) hypovolaemic shock	10 minutes
	A contributory cause indicated in Part 1. This is assigned a code when multiple cause coding is undertaken	
Antecedent causes: Due to or as a consequence of	(b) postpartum haemorrhage	30 minutes
Due to or as a consequence of	(c) uterine atony	45 minutes
	The underlying cause. This is the last condition noted in Part 1 and is a condition found in Annex B1	
Due to or as a consequence of	(d)	
2. Other significant conditions Contributing to death but not related to the disease or condition causing it	Anaemia	pre-existing
The woman was: ☒ pregnant at the time of death ☐ not pregnant at the time of death (but pregnant within 42 days) ☐ pregnant within the past year		

If deceased was a woman, was she pregnant when she died or within 42 days before she died? Yes

(Part I shaded for purposes of the example)

Example 2

A woman infected with HIV who has a spontaneous abortion that becomes infected and dies due to septic shock and renal failure.

Medical certificate of cause of death

Cause of death *the disease or condition thought to be the underlying cause should appear in the lowest completed line of Part I*		Approximate interval between onset and death
1. Disease or condition leading directly to death	(a) renal failure	2 hours
	A contributory condition, indicated in Part 1	
Antecedent causes: Due to or as a consequence of	(b) septic shock	24 hours
Due to or as a consequence of	(c) septic miscarriage	36 hours
	The underlying cause. This is the last condition noted in Part 1 and is a condition found in Annex B	
Due to or as a consequence of	(d)	
2 . Other significant conditions Contributing to death but not related to the disease or condition causing it	HIV	pre-existing
	A contributory condition, indicated in Part IIB	
The woman was: ☒ pregnant at the time of death ☐ not pregnant at the time of death (but pregnant within 42 days) ☐ pregnant within the past year		

If deceased was a woman, was she pregnant when she died or within 42 days before she died? Yes

(Part I shaded for purposes of the example)

Medical Certificate of Cause of Death (Example A – Abortion)

Example of medical certificate of cause of death (MCCD).[11] If the death certificate has been completed correctly, the underlying cause of death should normally be the single condition which the certifier has written on the lowest used line of Part 1.

Table 7: MCCD- Abortion

Cause of death (*The disease or condition thought to be the underlying cause should appear in the lowest completed line of part I)*		Approximate interval between onset and death
Part I Disease or condition leading directly to death	a) Septic shock	5 hours
Antecedent causes: Due to or as a consequence of	b) Septicaemia	24 hours
Due to or as a consequence of	c) Septic incomplete abortion	72 hours
Due to or as a consequence of	d)	
Part II Other significant conditions Contributing to death but not related to the disease or condition causing it		
The woman was: X pregnant at the time of death ☐ not pregnant at the time of death (but pregnant within 42 days) ☐ pregnant within the past year		

[11] Source: The WHO Application of ICD-10 to deaths during pregnancy, childbirth and the puerperium: ICD-MM

Day 2/Session 5: Day Two Wrap up and Discussion

Session Plan

Duration: 30 min

Session Objectives: By the end of this session, learners will be able to:

- Review content discussed over the last 4 sessions

Assignment

- Review the MDSR Individual Death Review Response Plan on Pages 47-48
- Review the data exercises located on Pages 50-56
- Complete the health management information system (HMIS) Data Availability Review Form on Pages 57-58

Notes

Day 3/Session 1: Day Two Review

Session Plan

Duration: 25 min

Session Objectives: By the end of this session, learners will be able to:

- Review content learned in the previous days
- Review the ICD-MM reference aid

Notes

Day 3/Session 2: Identifying Modifiable Contributing Factors for a Maternal Death and Priority Responses to Implement and Monitor

Session Plan

Duration: 90 min

Session Objectives: By the end of this session, learners will be able to:

- Identify modifiable factors that contributed to a maternal death
- Describe components of a SMART (Specific, Measurable, Attainable, Relevant and Timely) response based on identified modifiable factors
- Develop response plans (facility and district level) for implementing and monitoring based on identified modifiable factors

Notes

[SAMPLE] MDSR Individual Death Review Response Plan

MDSR Form: Modifiable Factors

District:	**HF:**	**Meeting Date (MM/DD/YY):……/……../…….**
Maternal Death Event Date (MM/DD/YR):	**Address of the deceased**	
Place of death:	**Date of Form Completion (MM/DD/YY)**	
Case Summary: *(Can be pasted in, if completed during previous meetings)*		
Modifiable Contributing Factors ***(organized within the 3 delay model)***		
First Delay: Recognition and decision to seek care (Home/family/community)		
Second Delay: Transport to care, delays reaching an appropriate facility		
Third Delay: Quality of care received in the health facility		

MDSR Form: Priority responses to implement and monitor

Modifiable Contributing Factors	Response (What to do)	Responsible person (Ensures completion of response) Specify facility and/or district	Target completion date	Follow up Progress Notes (completed/ ongoing/failed)

Day 3/Session 3: Monitoring and Analysing Trends in Causes of Maternal Deaths and Findings of Death Reviews to Prioritize Aggregated Responses

Session Plan

Duration: 90 min

Session Objectives: By the end of this session, learners will be able to:

- Practice monitoring and analysing trends in causes of facility maternal death and findings of death reviews for leading local causes of death
- Practice prioritizing aggregated responses at the facility and district/subnational level based on analysis of local trends in causes of maternal death and findings of death reviews
- Review availability of maternal death data elements in country HMIS materials (facility and subnational) and discuss ways to strengthen availability of maternal health and death data in HMIS

Notes

Activity: Monitoring and Analysing Maternal Death and Death Review Trends

Introduction (setting the stage): You have been working hard as an MDSR team in a **very** busy district hospital to review all maternal deaths in your facility. Over the past 6 months, you have audited and completed a response plan for every maternal death for a total of 105 audits in the last 6 months. Two providers from your maternity team have been re-assigned to another district and you are all feeling very overstretched. Your MDSR committee is having trouble meeting regularly, completing death audits in time, and is struggling to follow up on every individual death review response. You have organized a meeting to take stock of your MDSR efforts. To prepare for your meeting, you decide to review the causes of maternal deaths and the key contributors to leading causes of deaths (based on death review reports) in your facility over the past 6 months. These reviews will help you prioritize efforts that you think will make the biggest difference for reducing maternal deaths.

Exercise A: Calculating percent of maternal deaths by cause

Table 14 shows the total number of maternal deaths and the numbers of deaths by cause in your facility over the last 6 months. You have taken these numbers from your monthly HMIS summary reporting forms. **Complete Rows H – L in the table below to calculate the proportion (%) of deaths by cause for each month.**

Table 8: Monthly number of total maternal deaths and monthly number and percent of deaths by cause (January – June 2017)

	January	February	March	April	May	June
A. Total number of deliveries (including stillbirths)	713	644	589	630	558	540
B. Total number of maternal deaths	18	19	20	17	17	14
C. Deaths due to PPH	8	8	8	7	7	6
D. Deaths to PE/E	5	5	4	5	4	3
E. Deaths due to pregnancy-related infection	2	3	4	2	2	1
F. Deaths due to malaria complications	1	2	1	2	2	2
G. Deaths due to other causes	2	1	3	1	2	2
H. Proportion of deaths due to PPH *(Row C divided by Row B)*						
I. Proportion of deaths due to PE/E *(Row D divided by Row B)*						
J. Proportion of deaths due to infection *(Row E divided by Row B)*						
K. Proportion of deaths due to malaria *(Row F divided by Row B)*						
L. Proportion of deaths due to "other" causes *(Row C divided by Row G)*						

What are the first and second leading causes of maternal deaths in your facility over the past 6 months?

1. First leading cause of death:
2. Second leading cause of death:

Exercise B: Response Review and Analysis

In the previous exercise, you determined that PPH is the current leading cause of maternal death in your facility. Given this finding you decide to review the last 9 response plans of deaths of women due to PPH in your facility. You want to understand if there are common modifiable factors on which you can focus your efforts. Table 15 shows modifiable factors and responses identified in the death review response actions for deaths due to PPH for the last 9 death reviews

Table 9: Summary of modifiable factors and recommended actions from audits of the nine most recent maternal deaths due to PPH

Number	Modifiable contributing factors (from past individual review of maternal deaths due to PPH)	Summary of prioritized responses (from past individual reviews of maternal deaths due to PPH.)
1	• No uterotonic for prevention and management of PPH in the labour ward • Provider did not know how to manage PPH	• Ensure availability of oxytocin in the labour ward 24/7 • Develop a log to track availability of oxytocin • Ensure that providers know how to manage uterine atony and other causes of PPH
2	• Immediate postpartum prophylactic uterotonic not administered (active management of the third stage of labor) • Woman not monitored for bleeding after delivery	• Ensure that all providers are competent and understand importance of providing active management of the third stage of labor • Introduce a systematic written protocol, with assigned staff, to monitor all women for bleeding and other danger signs after birth
3	• Delayed identification of PPH in the postnatal ward • Lack of blood / blood products	• Ensure that providers conduct regular postnatal checks in the postnatal ward • Ensure that providers document regular postnatal checks in the client file • Ensure existence and implementation of log/system to monitor and document availability of blood and blood products • Ensure blood and blood products are always available and stored properly at the facility blood bank • Introduce a written communication protocol for maternity and blood bank staff to ensure immediate release of blood to the maternity in an emergency
4	• Delay in getting to the health facility due to lack of timely, affordable transportation	• Work with district and community leaders to establish a system for emergency transport of pregnant women with complications from the community to the hospital • Orient community health workers and health facility staff to the transportation system • Purchase ambulance to transport pregnant women from community to health facility

Number	Modifiable contributing factors (from past individual review of maternal deaths due to PPH)	Summary of prioritized responses (from past individual reviews of maternal deaths due to PPH.)
5	• Provider did not know how to manage PPH • Lack of blood / blood products	• Strengthen skills of providers to manage atonic uterus and other causes of PPH • Ensure existence of log/system to monitor and document availability of blood and blood products • Introduce team-based PPH simulation drills to strengthen coordination and performance of all relevant staff in an emergency (midwives, nurses, auxiliary assistants, doctors, laboratory technicians, pharmacists, housekeepers, etc.)
6	• Severe anaemia not diagnosed in pregnancy (no ANC screening of haemoglobin) • Iron and Folate supplements not given • No Packed cells available	• Post written protocol for ANC screening and treatment of anaemia • Monitor availability and distribution of Iron supplementation during ANC visits • Monitor anaemia screening and results as part of ANC visits • Ensure Packed cells are always available and stored properly at the facility blood bank
8	• Delay in getting to the health facility due to lack of timely, affordable transportation • No triage protocol for rapid assessment and treatment of pregnant, labouring and postnatal women • skilled Provider not available to triage women in the maternity	• Work with district and community leaders to establish a system for transportation of pregnant women from the community to the hospital • Review and revise maternity triage protocols; post written protocol in maternity • Ensure skilled provider always available to triage women • Review delays in usual patient pathway from arrival at hospital gate to maternity triage area and develop written plan to address gaps and monitor
9	• Delayed identification of PPH in the postnatal ward • No uterotonic available in the postnatal ward	• Ensure that providers conduct regular postnatal checks in the postnatal ward • Ensure that providers document regular postnatal checks in the client file • Ensure availability of oxytocin in the postnatal ward 24/7 • Develop a log to track availability of oxytocin

Small Group Discussion: Review Table 15 as a group

- What patterns do you see, if any, in the modifiable factors identified in the last 9 audits of deaths of women due to PPH?
- What do you see as the most important and common modifiable factors contributing to PPH that your team should prioritize?
- Based on these common modifiable factors and the responses recommended, discuss **how your committee will prioritize aggregate responses** to accelerate the reduction of deaths of women due to PPH in your facility?
- If time allows, begin to fill out the "Aggregated Deaths Response Plan" below based on your prioritized responses. Be as specific as possible and prepare to discuss in plenary
- Table 16 may be a useful tool for MPDSR Committees working to address common and persistent modifiable factors that have led to **multiple deaths** in previous months

Table 10: Aggregate MDSR Form: Common Modifiable Factors and Aggregated Response Priority responses to accelerate reduction of maternal deaths due to PPH

Common Modifiable Contributing Factors	Action (What to do)	Responsible person (Ensures completion of action) Specify facility and/or district	Target completion date	Follow up Progress Notes (completed/ ongoing/failed)

Exercise C: Visualizing Trends in Causes of Maternal Deaths

Six months later you have implemented the priority responses you identified in Exercise B to address the key factors contributing to PPH deaths at your facility. To track your progress, you decide to review the causes of maternal deaths once again in your facility over the past 6 months. The results of your data review are presented in Table 17. To visualize the changes over the past 6 months, **create a bar graph** that displays the monthly proportion of specific causes of maternal deaths from July to December 2017.

Table 11: Monthly number of maternal deaths and proportion (%) of deaths by cause (July – December 2017)

	July	August	September	October	November	December
A. Total number of deliveries (including stillbirths)	713	558	690	589	570	651
B. Total number of maternal deaths	17	13	13	9	11	10
C. Deaths due to PPH	4	3	2	2	2	2
D. Deaths to PE/E	5	4	4	3	3	3
E. Deaths due to pregnancy-related infection	4	3	3	1	2	2
F. Deaths due to malaria complications	2	1	1	1	2	2
G. Deaths due to other causes	2	2	3	2	2	2
H. Proportion of deaths due to PPH *(Row C divided by Row B)*	24%	23%	15%	22%	18%	20%
I. Proportion of deaths due to PE/E *(Row D divided by Row B)*	29%	31%	31%	33%	27%	30%
J. Proportion of deaths due to infection *(Row E divided by Row B)*	24%	23%	23%	11%	18%	20%
K. Proportion of deaths due to malaria *(Row F divided by Row B)*	12%	8%	8%	11%	18%	20%
L. Proportion of deaths due to "other" causes *(Row C divided by Row G)*	12%	15%	23%	22%	18%	20%

Conclusion

You are encouraged to see the progress you are making based on the distribution of causes of maternal death over the past 6 months visualized in your bar graph. You note that the total number of maternal deaths has been decreasing and that the proportion of deaths due to PPH has decreased (while the monthly volume of births in your facility has remained constant.) You proudly display your bar graph in a public area of the maternity for all to see! You are now ready to sustain your gains in reducing deaths due to PPH and to tackle the next leading cause of maternal deaths.

Homework: Availability of Maternal Death Data in the National HMIS
(To be completed on the evening of Day 2)

In many countries, basic information about frequency and causes of maternal death is not available in HMIS materials (including individual patient medical records, facility registers (clinic, hospital) and monthly summary forms that are used to aggregate data in the national HMIS). It is important to understand whether

information on the frequency and causes of maternal deaths is available to you in your role supporting MPDSR and quality improvement, whether as a member of a facility or a district MPDSR or QI committee. Based on the forms you commonly use to record and/or analyze maternal health information, please note the availability of designated spaces for specified maternal data elements in each type of form listed in the table below.

Table 12: HMIS Data Availability Review Form

Your Role/Title					
Where do you work?	☐Health center ☐District hospital ☐District health office ☐Other (Please specify)				
Please check which types of HMIS forms you use on a regular basis and fill in the answers below for these forms (leave blank for the forms you do not use)	☒ **Patient record (partograph or other individual chart / record)**	☐ **Hospital register**	☐ **Health Center register**	☒ **HMIS Monthly Summary Reporting Form**	☐ **Other forms or data sources? (Please specify)**
For each type of form that you use, check if there is a designated space (standard data element) to record **individual (or cumulative)** maternal deaths? (leave blank for forms you do not use)	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No
For each type of form, is there a designated space to record the **cause** of maternal deaths? (leave blank for forms you do not use)	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No
If YES, please indicate how the **cause** of maternal deaths is documented/ captured in each form? (leave blank for forms you do not use)	☐ Open ended space (to write in cause) ☐ Designated data elements (e.g. box to check for individual causes of death) ☐Not applicable	☐ Open ended space (to write in cause) ☐ Designated data elements (e.g. box to check for individual causes of death) ☐Not applicable	☐ Open ended space (to write in cause) ☐ Designated data elements (e.g. box to check for individual causes of death) ☐Not applicable	☐ Open ended space (to write in cause) ☐ Designated data elements (e.g. box to check for individual causes of death) ☐Not applicable	☐ Open ended space (to write in cause) ☐ Designated data elements (e.g. box to check for individual causes of death) ☐Not applicable

IF_there is a designated data element for individual causes of maternal deaths, please check **which causes of maternal death have designated data elements** in each type of form (leave blank for forms you do not use)	☐PPH ☐APH ☐PE/E ☐Sepsis ☐Obstructed labour ☐Abortion complications ☐Malaria ☐HIV ☐Others, *please specify* ☐Not applicable	☐PPH ☐APH ☐PE/E ☐Sepsis ☐Obstructed labour ☐Abortion complications ☐Malaria ☐HIV ☐Others, *please specify* ☐Not applicable	☐PPH ☐APH ☐PE/E ☐Sepsis ☐Obstructed labour ☐Abortion complications ☐Malaria ☐HIV ☐Others, *please specify* ☐Not applicable	☐PPH ☐APH ☐PE/E ☐Sepsis ☐Obstructed labour ☐Abortion complications ☐Malaria ☐HIV ☐Others, *please specify* ☐Not applicable	☐PPH ☐APH ☐PE/E ☐Sepsis ☐Obstructed labour ☐Abortion complications ☐Malaria ☐HIV ☐Others, *please specify* ☐Not applicable
Is there a column or space to indicate whether the maternal death was audited in each form	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No	☐Yes ☐No

On Day 3 of this training, you will be asked to write down 2-3 actions that you would take to strengthen the HMIS forms in your country to enable regular tracking of trends in the most common causes of maternal deaths.

Day 3/Session 4: MDSR Workshop Final Knowledge Assessment and Review

Session Plan

Duration: 45 min

Session Objectives: By the end of this session, learners will be able to:

- Demonstrate knowledge and skills learned in the workshop
- Complete Post-Test

Notes

Day 3/Session 5: Workshop Wrap-up and Closing Ceremony

Session Plan

Duration: 50 min

Session Objectives: By the end of this session, learners will be able to:

- Describe how they will apply the knowledge and skills obtained during the workshop
- Provide feedback on the workshop

Notes