Basic Emergency Obstetric and Newborn Care in Humanitarian Settings: Select Signal Functions

Facilitator's Guide

Refresher Training Module for Health Care Providers Implementing the MISP

Inter-agency Working Group on Reproductive Health in Crises Training Partnership

Acknowledgements

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Authors

This facilitator's guide was developed based on input from the IAWG membership. The materials were created based on World Health Organization (WHO) guidelines. The authors are grateful to Tomo Watanabe, who contributed substantially to drafting the training module content. Kristen Harker, Dr. Wilma Doedens, and Dr. Nguyen-Toan Tran also contributed technical input.

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For more information on the Inter-agency Working Group on Reproductive Health in Crises and the IAWG-Training Partnership: www.iawg.net

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Facilitator's Guide Overview

Introduction

The Minimum Initial Service Package (MISP) for Sexual and Reproductive Health (SRH) is a priority set of life-saving activities to be implemented at the onset of every humanitarian crisis. The MISP has five objectives[1]:

1. Ensure the health sector/cluster identifies an organization and a SRH coordinator to lead and coordinate the implementation of the MISP.
2. Prevent and manage the consequences of sexual violence.
3. Reduce HIV transmission.
4. Prevent excess maternal and newborn morbidity and mortality.
5. Plan for comprehensive SRH services, integrated into primary health care as the situation permits.

Neglecting the MISP in humanitarian settings has serious consequences: preventable maternal and newborn deaths; sexual violence and subsequent trauma; sexually transmitted infections; unwanted pregnancies and unsafe abortions; and the possible spread of HIV.

Nurses, midwives, and doctors working in emergencies provide the clinical services needed to achieve objectives 2, 3, and 4 of the MISP. These services include clinical management of survivors of sexual violence and basic emergency obstetric care, while ensuring infection prevention practices at all times in all settings.

The IAWG designed a series of short clinical outreach refresher training modules to reinforce previously acquired knowledge and skills of health care staff that are tasked with providing these services. This module is one of four refresher training modules that together address all seven signal functions of basic emergency obstetric and newborn care (BEmONC). Information on the other refresher training modules – *Assisted Vaginal Delivery via Vacuum Extraction, Uterine Evacuation using Manual Vacuum Aspiration*, and the *Clinical Management of Sexual Violence Survivors* – is available through the IAWG Training Partnership.

Objective

The objective of the *Basic Emergency Obstetric and Newborn Care in Humanitarian Settings, Select Signal Functions: Facilitator's Guide* is to guide clinical trainers in conducting rapid face-to-face trainings on key components of BEmONC. The trainings are intended for crisis settings and to refresh health care providers' knowledge and skills.

Target Audience

This training module is designed for clinical service providers, including midwives, nurses or other mid-level providers, general practice physicians, and obstetricians/gynecologists who are currently attending or will attend deliveries in the acute phase of a humanitarian response.

[1] The MISP will be revised in 2017. Please be aware that this content is subject to modification.

Participant Prerequisites

Participants should already be able to:

- Demonstrate knowledge of the female reproductive system.
- Take a medical history and conduct a physical exam.
- Conduct spontaneous vaginal deliveries.

Participants should have received past training on:

- Performing spontaneous vaginal deliveries.
- Providing subsequent care for a mother and newborn.
- Recognizing and managing common complications of the peripartum period.
- Establishing intravenous access.

Assess Participants

It is important to assess the experience of participants prior to finalizing the participant roster. Only fully qualified clinical service providers who are currently attending normal and complicated deliveries are eligible for this short refresher course. To attend this course, participants must already be competent in performing normal vaginal deliveries.

If you find that there is a need for basic obstetric training for clinicians with no experience:

- Advise the participants' agency to plan for an extended BEmONC training.
- Inform the IAWG Training Partnership Coordinator (training@iawg.net).

Description of the Facilitator's Guide

This facilitator's guide includes presentation notes, case studies, and simulation activities. It provides information on the necessary skills for handling common obstetric emergencies at multiple levels of care, including postpartum infection, pre-eclampsia/eclampsia, and postpartum hemorrhage.

This training module is divided into ten units, which include the following elements:

1. **Time:** An estimate of how long it should take to complete the unit.
2. **Objectives:** Specific objectives to be met by the end of each unit.
3. **Materials:** Copies of all learner materials for distribution and answer keys for trainers.
4. **Instructions:** A list of the handouts, presentations, and other resources needed for each activity, followed by step-by-step guidance on how to facilitate interactive learning.

Trainers are highly encouraged to adapt the units to fit local training needs and objectives. This course is designed to be co-facilitated by a minimum of two trainers. The nature of the competency-based activities and concurrent simulation sessions requires more than one trainer to successfully implement the course. The recommended ratio is one facilitator per six learners.

In this guide, slide presentations are organized with a thumbnail image on the left and facilitation notes directly beside it on the right side of the page. The instructions walk the trainer through which points to emphasize and the interactive portions of the presentation.

Documentation and Certificates

Trainers should document participants' attendance and present certificates of attendance at the end of the course. Participants will also complete a multiple-choice pre-test and post-test on their knowledge in this area.

Competency Assessment

This module is a refresher training course for health service providers with existing skills. Trainers should assess both knowledge and skills to determine the competency of each participant. The pre-test and post-test serve as knowledge assessments. The checklists contained in this module can be used to assess skills during simulated practice. Trainers should identify and select clinical service providers deemed competent to perform the skills, and also identify learners who require further supportive supervision prior to performing the intervention.

Participant Evaluation

Trainers should conduct an informal process evaluation at the end of each workshop day to assess participants' satisfaction with the topics and activities. At the end of the course, participants should complete the final evaluation to provide feedback for further trainings.

Sample Agenda

This is an example of an agenda for this training module. Trainers may need to adjust the order of some content and the time allowed based on the setting and the experience level of the participants. There is an adaptable and printable version of the course agenda on the accompanying USB key and on the IAWG website.

UNIT	TIMING	CONTENT	OBJECTIVES *At the end of the unit, participants will be able to:*	METHODOLOGY
Day 1				
	8:00-8:30 (30 minutes)	Registration of participants • Estimating blood loss stations • Pre-test		Learning activity
Introduction				
Unit 1	8:30-9:00 (30 minutes)	Welcome and introduction • Icebreaker • Expectations and ground rules	• reflect on their expectations of the training • understand the objectives of the training • agree on the ground rules of the training	Presentation Discussion
Unit 2	9:00 – 9:20 (20 minutes)	• Respectful maternity care in emergencies	• discuss how basic emergency obstetric and newborn care (BEmONC) supports the implementation of the MISP in an emergency • explain the concept of respectful maternity care	Presentation Discussion
Oxytocic Drugs for Postpartum hemorrhage				
Unit 3	9:20-10:05 (45 min)	• Preparing for delivery • Identifying postpartum hemorrhage • Management of postpartum hemorrhage	• identify the most common causes of postpartum hemorrhage following a normal vaginal delivery • review management of bleeding after birth	Role play Discussion Video
	10:05-10:35 (30 min)	• Oxytocic drugs • Appropriate use of oxytocic drugs	• accurately identify normal and abnormal postpartum blood loss • verbalize supplies available in emergency kits to treat postpartum hemorrhage • choose appropriate medications for managing postpartum hemorrhage	Exercise Learning activity
	10:35-10:45 (10 min)	• Referral to a higher level of care	• identify appropriate treatment vs. referral for patients requiring emergency treatment	Documentation

UNIT	TIMING	CONTENT	OBJECTIVES *At the end of the unit, participants will be able to:*	METHODOLOGY
	10:45-11:30 (45 min)	• Case study • Group debriefing	• practice clinical decision-making for a patient with postpartum bleeding	Small groups
	11:30-11:45 (45 min)	Break		
Manual Removal of the Placenta				
Unit 4	11:45-12:20 (35 min)	• Review of third stage of labor • Manual delivery of placenta	• recognize indications for manual removal of the placenta at multiple levels of care • verbalize the procedure for manual removal of the placenta	Presentation Video
	12:20-12:45 (25 min)	• Active management of third stage of labor (AMTSL)	• demonstrate competence in AMTSL	Discussion Learning activity
	12:45-13:45 (60 min)	Lunch		
	13:45-14:30 (45 min)	• Group 1 – AMTSL • Group 2 – Manual removal of placenta	• demonstrate competence in AMTSL • demonstrate understanding of manual removal of placenta	Skills practice Case study
	14:30-15:15 (45 min)	• Group 2 – AMTSL • Group 1 – Manual removal of placenta	• demonstrate competence in AMTSL • demonstrate understanding of manual removal of placenta	Skills practice Case study
	15:15-15:45 (30 min)	• Group debriefing of skills practice		Discussion
	15:45-16:00 (15 min)	Break		
	16:00-16:45 (45 min)	• Transport and referral • Intravenous (IV) insertion and fluid administration	• how to safely stabilize and prepare a patient for transport after postpartum hemorrhage • review of IV insertion and fluid administration	Presentation Skills practice
	16:45-18:00 (75 min)	• Open skills practice		

UNIT	TIMING	CONTENT	OBJECTIVES *At the end of the unit, participants will be able to:*	METHODOLOGY
Day 2				
Antibiotics for Postpartum Infection				
Unit 6	8:15-8:30 (15 min)	• Review of previous day • Introduction to the day • Questions		
	8:30-9:00 (30 min)	• Identification and treatment of postpartum infections	• review assessment, diagnosis, treatment, and evaluation to care for a woman showing signs of infection in the postpartum period	Presentation Discussion
	9:00-10:00 (60 min)	• Case study • Group debrief	• apply assessment, diagnosis, treatment, and evaluation for care for a patient showing signs of infection	Learning activity Discussion
	10:00-10:15 (15 min)	Break		
Magnesium Sulfate for Severe Pre-eclampsia/Eclampsia				
Unit 7	10:15-11:00 (30 min)	• Classifying hypertensive disorders of pregnancy • Accurate blood pressure and urine assessment • Assess danger signs	• understand the continuum of hypertensive disorders in pregnancy • demonstrate an ability to accurately measure and record blood pressure • demonstrate an ability to assess for severe pre-eclampsia and eclampsia in limited resource settings	Role play Discussion Presentation
	11:00-12:00 (60 min)	• Safe administration of magnesium sulfate • Safe administration of antihypertensive medications	• demonstrate an ability to safely prepare magnesium sulfate for intramuscular (IM) and IV administration • understand treatment protocols for antihypertensive medication administration	Presentation Skills practice
	12:00-13:00 (60 min)	• Clinical Simulation • Debriefing	• diagnose and initiate treatment of a patient	Simulation
	13:00-14:00 (60 min)	Lunch		

UNIT	TIMING	CONTENT	OBJECTIVES *At the end of the unit, participants will be able to:*	METHODOLOGY
Identification and Treatment of Shock				
Unit 8*	14:00-14:45 (45 min)	• Rapid assessment and management • Identification and treatment of shock	• quickly identify and treat an emergency • treat the symptoms of shock	
Summary and Closing				
Unit 11	14:45-15:00 (15 min)	• Review of available resources	• understand further training and resources available for increasing skills	
	15:00-15:30 (30 min)	• Ongoing education process and practice exercises • Clinical mentors	• identify strong clinical leaders to champion ongoing practice in the health care facility • introduce the exercises and drill process for ongoing support and practice	
	15:30-16:00 (30 min)	• Post-test • Course evaluation • Closing/Certificates		

* **Unit 9: Newborn Resuscitation** – is available as an add-on to the schedule, as required by the context. This unit (45 minutes) can be added to the end of the second day, after the conclusion of Unit 8.

* **Unit 10: Partogram** – is available as an add-on to the schedule, as required by the context. This unit (45 minutes) can run concurrently with Unit 9, if using.

Preparation for the Training

Trainers should go through the tables below that outline the preparatory work that must be undertaken to successfully implement this course.

Course Materials List

This training module is designed to demonstrate and practice use of the supplies in the Inter-Agency Reproductive Health (RH) Kits. These supplies should be available in the setting where the participants are working at the time of the course.

The following is a complete list of all the medical equipment and course supplies that are needed for the successful implementation of the course. Verify that the medical equipment is already available at the training venue and make arrangements to bring any missing supplies with you.

Please note that any simulators provided by the IAWG Training Partnership are the responsibility of the facilitator and will need to be brought to and from the training location.

Course Materials Checklist

UNIT	MATERIALS	QTY	CHECK
All	A projector compatible to a computer with sound	1	
All	Flip charts with paper and markers	2	
All	Power supply	1	
All	Room for 15 participants with 2 tables, preferably at work site	1	
3,4,5,6	Handouts as indicated in the *Advanced Preparation Checklist*	1 per person	
All	Childbirth and neonatal simulators or local alternative	2	
3	Red dye or other appropriate simulated blood		
	• White towel with 600 cc simulated blood		
	• Gauze bandage with 100 cc simulated blood		
	• 300 cc simulated blood as liquid in a basin		
	• 500 cc red fruit jam		
	Simulated medications		
3	• Oxytocin, misoprostol, and ergometrine	2-3	
4	• Magnesium sulfate, calcium gluconate, 2% lignocaine	2-3	
5	• Clindamycin and gentamicin	2-3	
All	Normal delivery supplies		
	• Gloves – sterile and non-sterile	1-2 boxes	
	• Blood pressure cuff (sphygmomanometer)	2-3	
	• IV infusion start equipment	10	
	• Syringes and needles	10	

UNIT	MATERIALS	QTY	CHECK
	• Catheter for bladder	2	
	• Adult and newborn bag/mask	2	
	• Reflex hammer	2	
	• Bin for placenta	2	
	• Speculum	2	
	• Sponge forceps	2	
	• Needle holder	2	
	• Scissors	2	
	• Suture	2	
	• Melon or other local fruit	5-6	
	• Sharps container	2	

Note to Trainers: In crisis settings, refresher courses typically take place on-site. Be sure to bring all supplies to the training, including paper certificates, copies of handouts, and additional resources in paper format. Bring paper copies of slides and extra flip chart paper as back up.

Advance Preparation Checklist

Use the following checklist to ensure that all the necessary materials are prepared in the weeks before delivering the training:

ITEM TO PREPARE	UNIT	COMPLETE
Check projector for image and sound quality of videos and presentations	General	
Review all slide presentations and hide any optional slides if not applicable to the context	General	
Review the instructions and answer keys for all activities	General	
Check that all course materials are available and ready to use	General	
Ensure access to childbirth simulator and comfort with all functionalities	General	
Flipchart sheets on: Ground rules, parking lot, Icebreaker (if adapting)	General	
Gather all materials listed for the course	General	
Print one copy of the following hand-outs for each participant:		
Course agenda	1	
Pre-test	1	
Post-test	9	
Certificate of attendance	9	
Course evaluation	9	
Familiarize yourself with slides on the formulation of magnesium sulfate and how to explain dosage concentrations	7	
Set up blood estimation exercise materials	1 and 3	

Further Reading:

- Inter-agency Working Group on Reproductive Health in Crises, *Inter-agency Field Manual for Reproductive Health in Crises*, Ch. 6, Maternal and Newborn Health. Geneva. 2010.
- World Health Organization, *Integrated Management of Pregnancy and Childbirth*. Geneva. 2015.
- UNFPA, *Inter-agency Reproductive Health Kits for Crisis Situations*. 5th Ed. New York. 2011.

These and other publications can be downloaded at www.iawg.net or by contacting training@iawg.net.

Accompanying USB

The accompanying USB key includes several resources to be used in the workshop activities, including all handouts and slide presentations. The key also includes sample certificates of completion and competence, which trainers can personalize.

Materials are also available on the Training Partnership Initiative page of the IAWG website : iawg.net/tpi-home/. Please see the "Resources" tab for this and other trainings on the clinical components of the MISP.

Alert: Important recommendations for before and after the training

This module is designed to be a 2 or 3-day clinical refresher training for already trained health care service providers in humanitarian contexts. The IAWG Training Partnership Initiative conducted research about the barriers and facilitators to implementing such trainings in crises settings, and has the following recommendations **for trainers and program managers**:

- Before the training:
  - Limit the selection of participants to those who meet the specified pre-requisite qualifications in the facilitator's guide.
  - Assess qualified participants' learning needs to prepare for how best to address knowledge gaps. To do so, use the pre-test included in the *Select Signal Functions of Basic Emergency Obstetric and Newborn Care* module or interview participants.
  - Based on identified trainees' needs, provide additional training resources to expand the training as needed.
  - Ensure that participants become certified in the MISP Distance Learning Module (available at http://iawg.net/minimum-initial-service-package/) as a foundation prior to the training, if possible.
- After the training:
  - Discuss and possibly organize a log book and a calendar of opportunities for trainees to practice their skills at their institution.
  - Regularly schedule ongoing supportive supervision for the providers as soon as the security situation allows.

For more information, please see the following guidance note: *Sexual and Reproductive Health Clinical Outreach Refresher Trainings (S-CORTs): Operational considerations and programmatic guidance for SRH trainers, program managers, and coordinators.*

Characteristics of an Effective Training

The following recommendations are necessary to ensure the effective transfer of information during adult learning:

- Clearly communicate the purpose of the training to both trainers and learners;
- State exactly what learners are expected to do at the end of the course;
- Use training methods that build on participants' existing skills and experience, enabling them to meet the objectives;
- Present new knowledge and skills in a relevant context;
- Actively engage learners in the process;
- Use an effective mix of training methods to meet the needs of different learning styles;
- Offer learners the opportunity to practice applying new knowledge and skills;
- Provide learners with constructive feedback on their performance;
- Allow enough time for learners to meet the objectives of the training; and
- Offer trainers and learners the opportunity to evaluate the course, measuring the extent to which trainers and learners met the training objectives, and accept feedback from learners to make improvements to the course.

From Ipas, Women-Centered Postabortion Care: Reference Manual, Second edition. Chapel Hill. 2013.

Sensitivity and Flexibility in a Crisis Setting

Sensitivity and flexibility are crucial in a crisis setting. When planning this training, trainers should keep the following notes in mind:

- Minimize the time providers spend away from their duty stations.
- Be sensitive to the long hours and double shifts health care providers may be working.
- Remember that some participants may have long travel times.
- Be prepared for participants with a range of abilities and experiences – some participants may be very new to the setting.
- Be aware that participants will most likely include a mix of nurses, midwives, doctors, and clinical officers.
- Be sensitive to the emotional needs of health care providers/participants in a crisis setting.
- Remember that some experienced providers may be inexperienced in providing care during a crisis.

Unit 1: Course Overview

Time
30 minutes

Objectives
By the end of this unit, participants should be able to:
- Reflect on their expectations of the training.
- Understand the objectives of the training.
- Agree on the ground rules of the training.

Materials
Prepare the following in advance:
- Two flip charts: one titled "Ground Rules" and one titled "Parking Lot"
- *Course Agenda* and *Pre-test*, one each per participant
- Markers in various colors, three or four per table
- Post-it notes in various colors, three or four per participant
- Blood estimation materials
  - A dyed white towel or culturally appropriate cloth (600 cc simulated blood - red dye or an available alternative)
  - A dyed gauze bandage (100 cc simulated blood - red dye or an available alternative)
  - Red liquid in a basin (300 cc simulated blood - red dye or an available alternative)
  - Red fruit jam in a container to represent a blood clot (500 cc)

Instructions
Place the *Course Agenda*, markers, and Post-it notes on the tables for the participants prior to beginning the unit. There may be some formal opening requests from national dignitaries. Please try to accommodate such requests in the shortest time possible.

During this session, participants will be introduced to each other and the facilitators. Participants will conduct the blood estimations exercise below and complete and return the *Pre-test*.

Blood Estimation Exercise
Adapted with permission from Jhpiego. Helping Mothers Survive – Bleeding after birth. 2015.

Before the training begins, set up four stations showing blood loss in different amounts and ways with the materials outlined above, and label them A, B, C, and D. As the participants become settled, invite them to walk through the blood estimation exercise and record their estimates of how much blood they think was lost in each of the stations. The estimates will be discussed in Unit 3.

After all participants record their estimates, start the training and work through the rest of the material outlined in this unit.

Housekeeping

Tell participants where the restrooms are and encourage them to leave the training room quietly, if needed. Mention that there will be morning and afternoon breaks with lunch in between and where these will take place.

Ground Rules

Present a flipchart sheet titled "Ground Rules":

- Explain that ground rules are mutually agreed-upon guidelines to help the group work together, create a safe and respectful learning environment, and accomplish tasks efficiently.
- Ask participants to suggest ground rules. Write their suggestions on the flip chart.
- Possible ground rules may include participating, listening respectfully, speaking one at a time, turning off cell phones and pagers, and maintaining confidentiality.

Expectations and Agenda

Ask participants to write one to three expectations of what they hope to learn during the course on Post-it notes. Tell participants to use one Post-it note for each expectation. Have the participants put the notes on the wall or a flip chart at the front of the room. Review and group the expectations into categories. Briefly go through the agenda. Explain the objectives of the training and which expectations can and cannot be addressed.

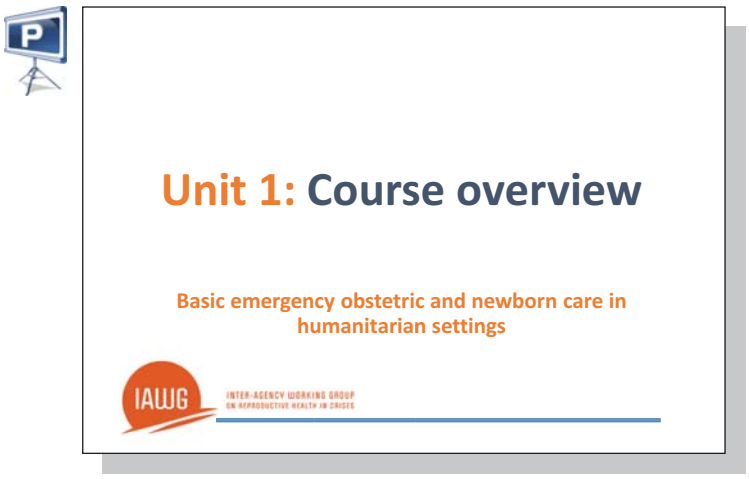
Parking Lot

Present the flip chart titled "Parking Lot." Explain that questions that arise during the course that cannot be immediately addressed will be put in the "Parking Lot." Throughout the course, questions will be referred to and addressed when they are most relevant.

Knowledge Pre-test

Distribute the *Pre-test* (available on the USB key and IAWG website) and tell participants that they have about 15 minutes to complete the questions. Ask them to write their names at the top of the document, and collect all tests at the end of the allotted time.

Presentation



Unit 2: Respectful Maternity Care in Emergencies

Time
20 minutes

Objectives
By the end of this unit, participants will be able to:
- Discuss how basic emergency obstetric and newborn care supports the implementation of the MISP in an emergency.
- Explain the concept of respectful maternity care.

Materials
- Projector and computer with sound
- Slide presentation
- *Respectful Maternity Care Charter* handout, one per participant

Instructions
Follow the **slide presentation** and emphasize the notes listed below the slides. After reviewing the last slide about the right of childbearing women to respectful maternity care, **facilitate a short discussion** by asking the participants how they can demonstrate respect for the women they serve. Hand out the *Respectful Maternity Care Charter* to aid this discussion.

(The following responses are taken with permission from Jhpiego. Helping Mothers Survive – Bleeding after birth. 2015.)

Appropriate responses include:
- Introduce yourself by name and smile.
- Look at the woman when speaking to her.
- Use simple, clear language and explain everything you are going to do.
- Speak calmly.
- Pay attention when the woman speaks and listen to what she says.
- Include women and their families in discussions about care.
- Always explain procedures and get the woman's consent before you begin.

Next, ask the participants:
- Have you ever had a patient refuse care?
- Was this woman handled with respect?
- In the future, would you do anything differently in a similar situation?

End by emphasizing that all women deserve respect, including women affected by humanitarian emergencies.

Presentation

Unit 2: Respectful maternity care in emergencies

Basic emergency obstetric and newborn care in humanitarian settings

IAWG INTER-AGENCY WORKING GROUP ON REPRODUCTIVE HEALTH IN CRISES

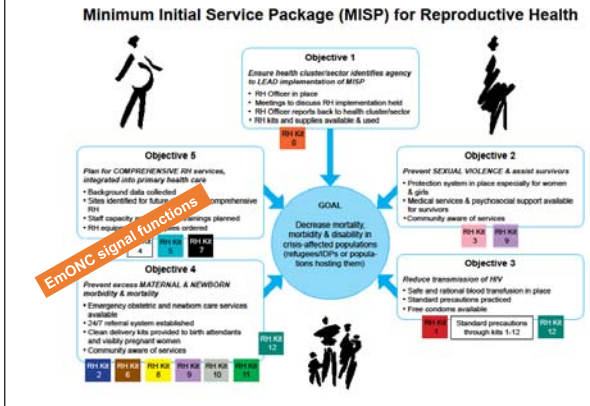
Background

- In a displaced population, approx. 4% of the total population will be pregnant at any given time
- Maternal deaths: Estimated 289,000 in 2013
- Lifetime risk of maternal death:
  Sub-Saharan Africa: 1 in 38
  Oceania: 1 in 140
  Southern Asia: 1 in 200
- Causes
  Severe bleeding
  Infection
  Eclampsia
  Obstructed labor

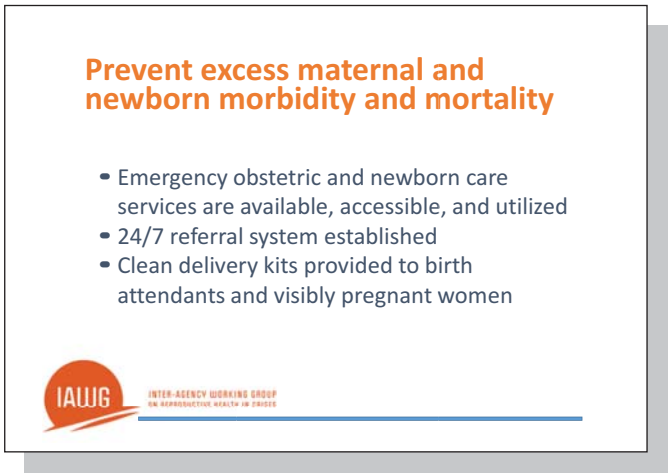
61% of maternal deaths worldwide occur in fragile states, many of them affected by conflict and recurring natural disasters

IAWG INTER-AGENCY WORKING GROUP ON REPRODUCTIVE HEALTH IN CRISES

The most common life-threatening obstetric complications are severe bleeding, infection, eclampsia, and obstructed labor. There is a separate clinical refresher training module devoted to obstructed labor. This module focuses on the skills related to managing severe bleeding, infection, and eclampsia.



Review the MISP and explain that objective 4 includes the basic and comprehensive emergency obstetric care signal functions that are needed to prevent excess maternal and newborn morbidity and mortality.



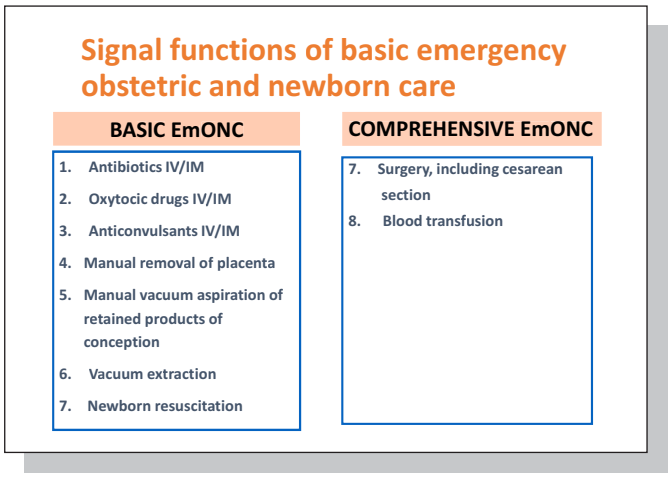
The detailed version of Objective 4 is further described below:

- Ensure availability, accessibility, and utilization of delivery, essential newborn care, and emergency obstetric and newborn care (EmONC) services:

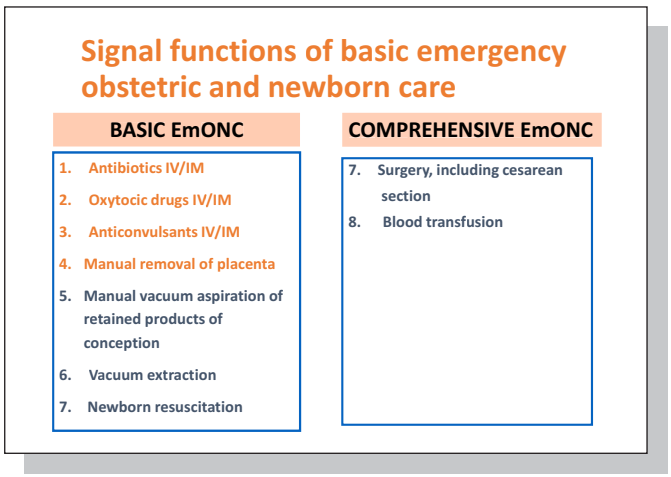
  At health facilities: This includes skilled birth attendants and supplies for normal births, essential newborn care, and management of basic obstetric and newborn complications (basic EmONC).

  At referral hospitals: This includes all the health facility activities plus skilled medical staff and supplies for the management of comprehensive obstetric and newborn emergencies (comprehensive EmONC).

- Establish a referral system to facilitate transport and communication from the community to the health center, and between the health center and the hospital.
- Ensure availability of a package of supplies and commodities for clean delivery and newborn care, where access to a health facility is not possible.



This slide describes the signal functions of basic emergency obstetric care that should be readily available at community-level health facilities (1 facility per 30,000 people). The signal functions are the minimal competencies for health care providers when providing obstetric care.



Basic EmONC signal functions are a set of life saving services used in the treatment of acute obstetric complications. This outreach training focuses on signal functions one through four, to address the leading causes of maternal morbidity and mortality. Signal functions five, six, and seven are addressed in other refresher training modules.

Every woman regardless of ethnic background, culture, social standing, religion, education level, and marital or economic status deserves respectful maternity care.
Ask the participants: How does respectful care save lives?
Answer: Women may not seek care if they expect they will not be treated well.

Unit 3: Oxytocic Drugs for Postpartum Hemorrhage

Time
90 minutes

Objectives
By the end of this unit, participants will be able to:
- Accurately identify normal and abnormal postpartum blood loss.
- Identify and manage the most common causes of postpartum hemorrhage following a normal vaginal delivery.
- Utilize supplies available in the Inter-Agency Reproductive Health Kits to treat postpartum hemorrhage.
- Identify and appropriately refer patients requiring a higher level of care.

Materials
- Video – postpartum hemorrhage (on the USB key and IAWG website)
- Normal delivery supplies (see the Course Materials Checklist)
- Childbirth simulator
- Simulated medications – oxytocin, misoprostol, ergometrine
- Intravenous (IV) fluids
- *Case Study* handout, one per participant

Instructions
This unit introduces a woman presenting to the health care facility with an imminent vaginal delivery. Explain that the woman is actively laboring and arrives close to delivery. **Role play the woman who is actively laboring** using a simulator or other available supplies. Have the second facilitator follow the steps below to model appropriate respectful maternity care and the steps of a normal vaginal delivery followed by a postpartum hemorrhage. If facilitating alone (it is highly recommended that two facilitators are present), then elicit help from the learners. This activity will give you an idea of how learners usually practice and what to emphasize during the training.

Role Play Checklist
Adapted with permission from Jhpiego. Helping Mothers Survive: Bleeding after Birth. 2015.

- ❑ Deliver baby onto mother's stomach.
- ❑ Dry baby thoroughly and assess for crying or breathing; cover with a dry cloth and place on mother's chest.
- ❑ Check for a second baby. If there is none, then continue with third stage care while continuing to observe the baby.
- ❑ Give a uterotonic (oxytocin or misoprostol) within one minute of delivery.
- ❑ While awaiting the placenta, remove the first pair of gloves – if double-gloved – or change gloves and clamp and cut the cord between 1-3 minutes after birth.
- ❑ Perform controlled cord traction during contractions.
- ❑ Feel the uterus once the placenta delivers and massage if soft.
- ❑ Stop the role play and address the learners indicating the mother has too much bleeding.

After the role play, guide a discussion using the following questions:

- Have you ever see someone die from bleeding after birth?
- What happened?
- Was there anything else that could have been done if the mother had been somewhere else?

Note to Trainers: This refresher training assumes a baseline level of familiarity with management of postpartum hemorrhage and management of normal vaginal delivery. If the need for further training on normal childbirth is identified, then give appropriate feedback to the training coordinator.

Introduce the video (22 minutes) as a refresher to the steps of managing and treating postpartum hemorrhage. Show the video and place any questions after the video into the parking lot.

Review the estimates from the blood loss estimation exercise at the beginning of the day when you reach the slide about the amount of normal blood loss. Discuss participants' estimates and how easy it can be to underestimate blood loss.

Notes for the remainder of the slides are listed underneath each slide in the presentation.

At the end of the presentation, hand out the **case study** (as listed below) and instruct the participants to work in small groups to answer the questions. Come back together after 30 minutes. Review the answers to the case study and give feedback on general impressions of the skills checklist to the group. **Ask the participants** what they learned from the case study.

Case Study

Mrs. F is a 20-year-old para 1 who has been brought to the health center by the local traditional birth attendant (TBA) because she has been bleeding heavily since childbirth at home 2 hours ago. The TBA reports that the birth was a spontaneous vaginal delivery of a full-term newborn. Mrs. F and the TBA report that the duration of labor was 12 hours, the birth was normal, and the placenta was delivered 20 minutes after the birth of the newborn.

Assessment (history, physical examination, screening procedures/laboratory tests)

1. What will you include in your initial assessment of Mrs. F? Why?
   - Vital signs
   - Uterine tone
   - Amount of vaginal bleeding
   - Status of placenta
   - Medications or herbs given

2. What particular aspects of Mrs. F's physical examination will help you make a diagnosis or identify her problems/needs? Why?
   - Fundal tone
   - Amount vaginal bleeding
   - Presence of vaginal trauma
   - Presence of symptoms of shock

Diagnosis (identification of problems/needs)

You have completed your rapid assessment of Mrs. F, and your main findings include the following:

History

- The TBA says that she thinks the placenta and membranes were delivered without difficulty and were complete.

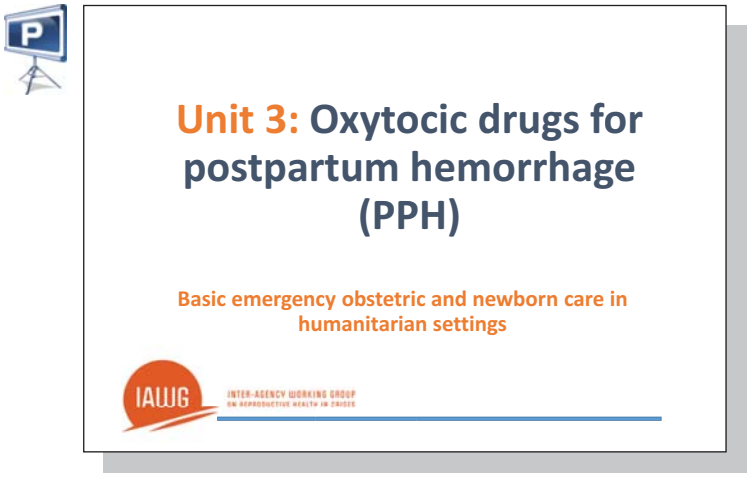
Physical examination

- Mrs. F's temperature is 36.8°C, her pulse rate is 108 per minute, her blood pressure is 80/60 and her respirations are 24 per minute. She is pale and sweating. Her uterus is soft and does not contract with fundal massage. She has heavy, bright red vaginal bleeding. On inspection, there is no evidence of perineal, vaginal, or cervical tears.

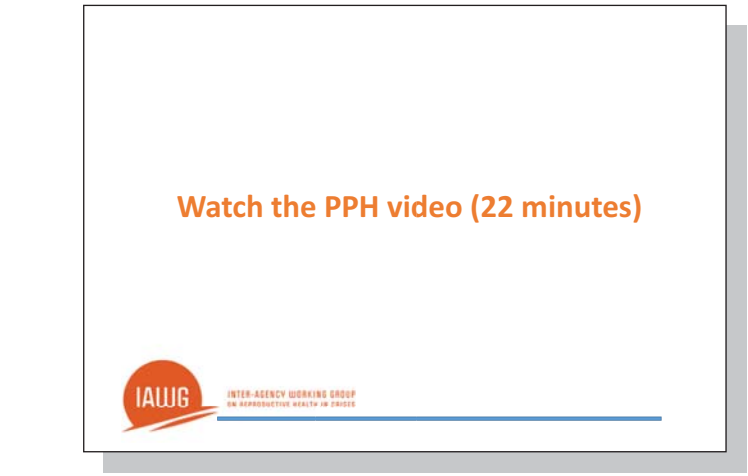
3. Based on these findings, what is Mrs. F's diagnosis (problem/need)? Why?
   - Postpartum hemorrhage with uterine atony
   - Shock

Care provision (planning and intervention)

4. Based on your diagnosis (problem/need identification), what is your plan of care for Mrs. F? Why?
   - IV fluids
   - Stabilize and refer
   - Oxytocin and/or misoprostol
   - Attempt manual removal of the placenta

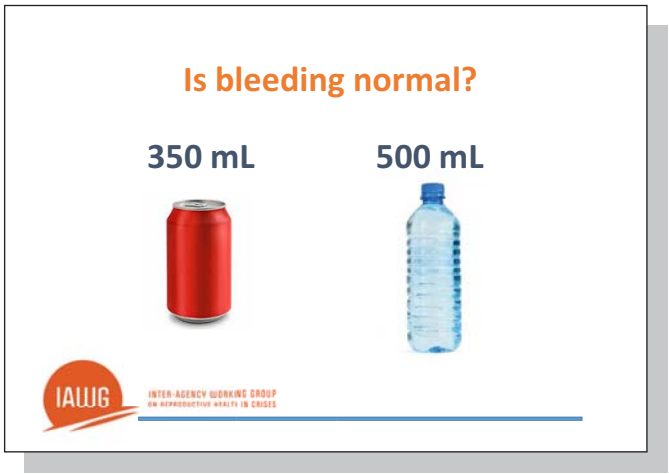


Start this segment with the **role play** of a normal childbirth followed by a postpartum hemorrhage (PPH). Stop the role play when excessive bleeding with a soft uterus is identified.

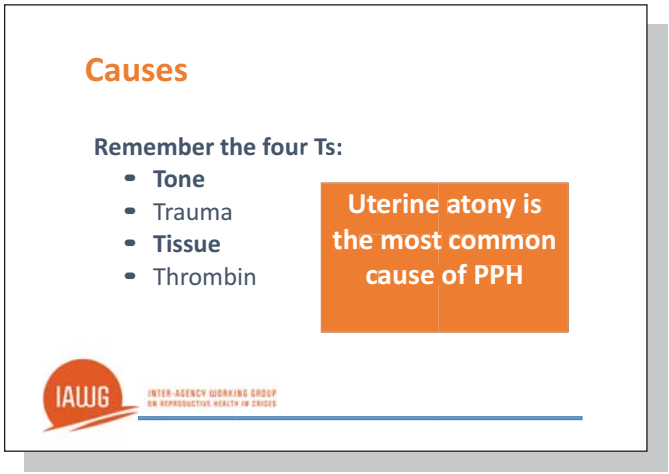


Watch the video as a refresher to the steps of managing and treating postpartum hemorrhage. If participants have questions, place them in the "parking lot" for now.

Women who have anemia or are malnourished have less reserves to cope with blood loss following childbirth. Be prepared to manage bleeding at every birth by knowing who to call for help and acting quickly, and having supplies available – IV, medication, and fluids.

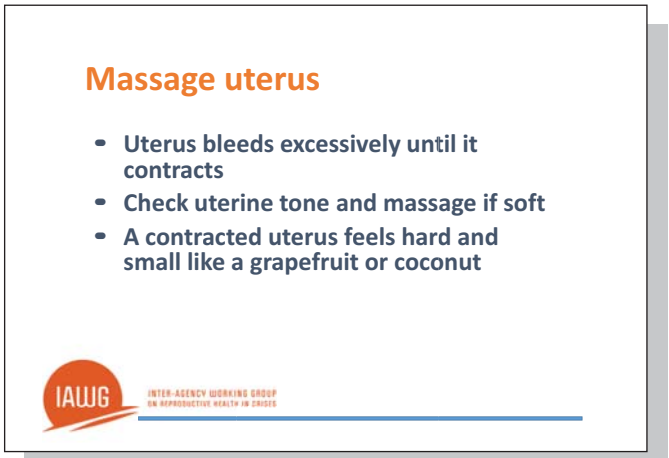


All women are at risk for bleeding after birth. Bleeding can happen as a quick gush or be a slow, constant stream of blood. Both are dangerous. Losing more than 500 mL of blood is considered a hemorrhage. **Ask the participants to share their estimations for blood loss from the stations that were set up at the start of the training.** After hearing the responses, give the right answers. Explain that it is easy to underestimate blood loss and that it is important to act quickly to stop bleeding after birth.



The priority in postpartum hemorrhage is to find the cause of the bleeding, stop the bleeding, and stabilize the patient. This refresher training emphasizes emergency management of uterine atony (tone) and retained placenta (tissue). Failure of the uterus to contract (atonic uterus) is the most common cause of bleeding after childbirth. After the placenta separates, the contractions of the uterus occlude the blood vessels supplying the placenta and prevent excessive blood loss.

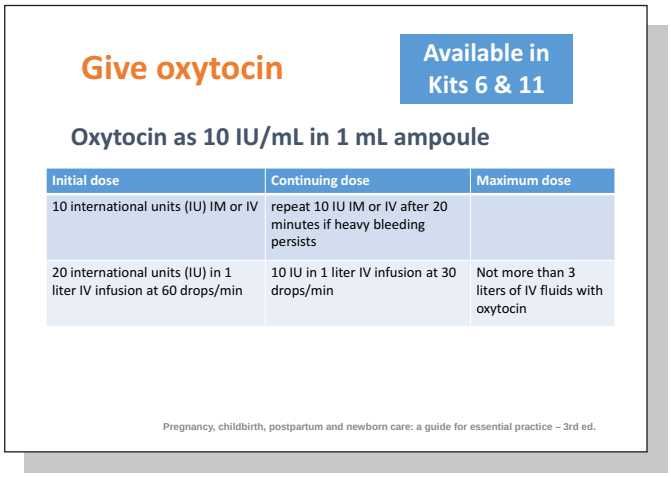
If the uterus is hard and the mother is still bleeding, tears are likely even if they cannot be seen. Very rarely, clotting disorders also lead to excessive bleeding after childbirth.



Most bleeding after birth is caused by a uterus that will not get or stay hard (uterine atony) after the birth of the placenta. Blood vessels continue to pump blood into the uterus if the uterus is not hard. Contributing factors may include birth of a large baby, a prolonged labor, or a history of many births. A full bladder can also cause uterine atony.

Explain to the participants that a hard uterus feels like the forehead and soft uterus feels like the tip of the nose. When performing uterine massage, explain what you are doing to the mother and why. It may be uncomfortable for the mother. Use a cupped palm and massage the uterus in a circular motion until it feels contracted.

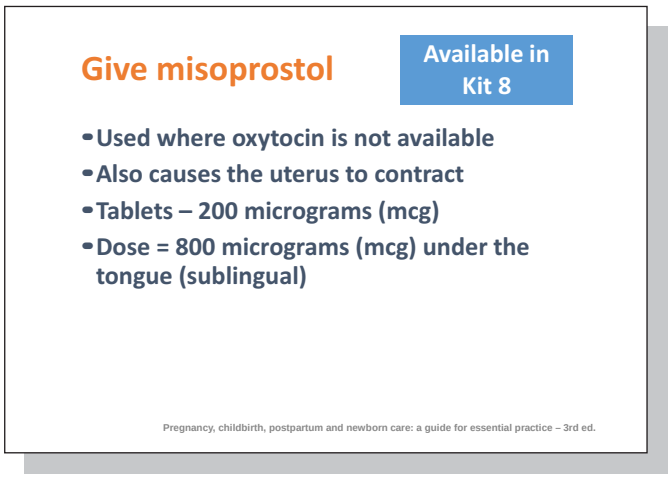
Ask the participants which uterotonics they have available for use in their facility. Discuss with them any issues they may have regarding use: stock-outs, storage, comfort with use, and/or acceptance by women, for example.



Oxytocin is the medicine of choice used to help uterine atony. It causes the uterus to contract.

It can be given in the muscle of the deltoid or anterior thigh after the birth of the baby, if actively managing the third stage of labor or after the birth of the placenta. Oxytocin needs to be kept at 25°C or less. It is shipped via cold chain with Inter-Agency RH Kits 6 and 11.

Put active management of the third stage of labor (AMTSL) in the parking lot because you will have a broader discussion about the topic later in the training.

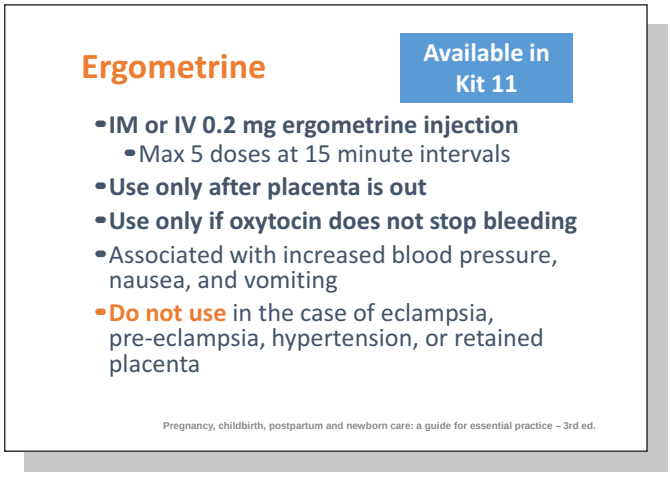


Oxytocin remains the drug of choice for prevention of postpartum hemorrhage and should be provided when available. Misoprostol can be used where oxytocin is not available, or where the provider is not able to give injections. It is available in Inter-Agency RH Kit 8.

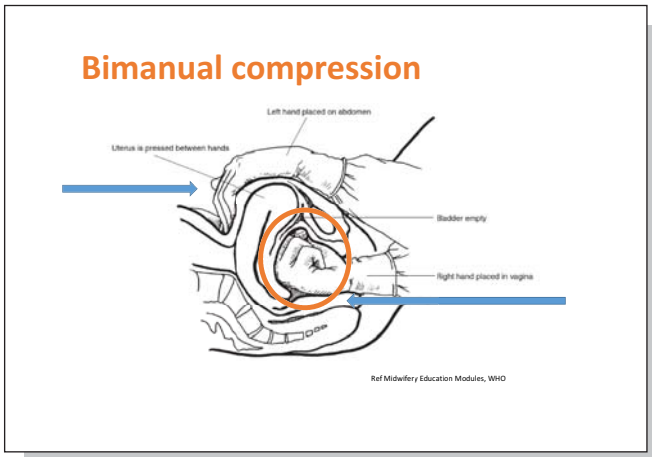
Misoprostol is a medication that also causes the uterus to contract and does not need to be kept at less than 25°C. It is more stable in hot climates.

The correct dose of misoprostol is 800 mcg sublingually (under the tongue). It comes in 200 mcg tablets. Give 4 tablets. Some sources will also say that it can be given rectally. The use of misoprostol for the prevention of postpartum hemorrhage has been shown to be as effective as oxytocin, when given by a trained provider. Side effects are more common with misoprostol. The mother should be told what to expect: shivering, nausea, diarrhea, and fever.

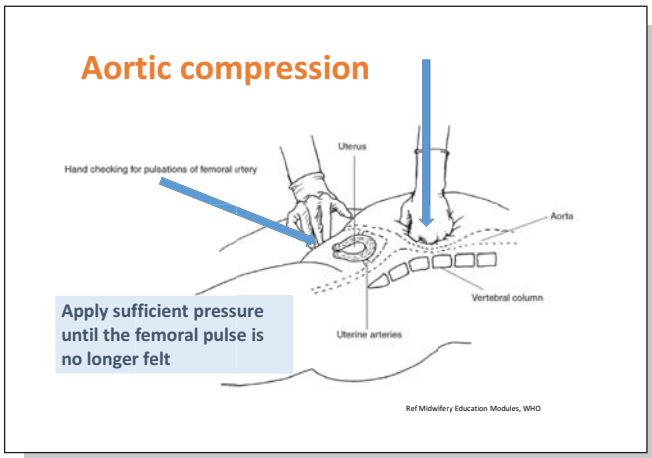
Untrained providers should give misoprostol **only after** delivery of the placenta.



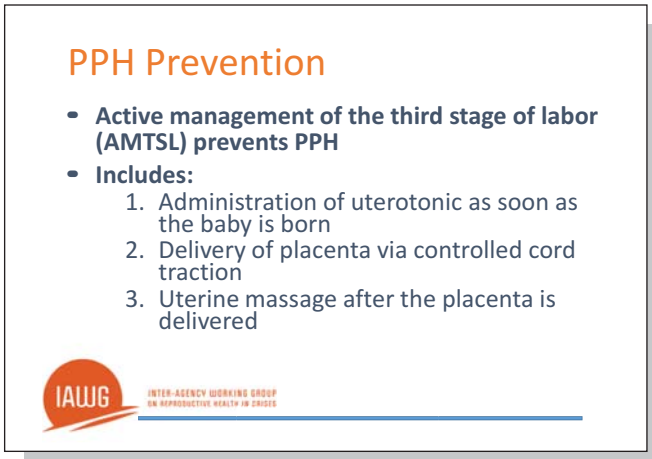
Ergometrine is included in Inter-Agency RH Kit 11. It is **not** recommended as the first line medication for treatment of postpartum hemorrhage. Unlike oxytocin, it is associated with increased blood pressure, nausea, and vomiting. Do not use this medication to treat a patient with eclampsia, pre-eclampsia, hypertension, or a placenta that has not yet been delivered. Storage of ergometrine can also be an issue. The medication deteriorates faster than oxytocin in tropical conditions.



If heavy postpartum bleeding persists despite uterine massage, uterotonics, and removal of the placenta, then perform bimanual compression. To perform, wear sterile or clean gloves. Introduce the right hand into the vagina and clench into a fist, with the back of the hand directed posteriorly and the knuckles in the anterior fornix. Place the left hand on the abdomen behind the uterus and squeeze the uterus firmly between the two hands. Continue compression for five minutes or until the bleeding stops. If bleeding persists when bimanual compression is removed after a maximum of five minutes, apply aortic compression and transport the woman to the hospital.



Feel for the femoral pulse, then apply enough pressure above the umbilicus with a clenched fist to stop the bleeding. Apply sufficient pressure until the femoral pulse is not felt. After finding the correct site, show an assistant or relative how to apply pressure. Continue pressure throughout transport to the hospital.



It is important to carefully monitor the mother for bleeding, especially in the first two hours after childbirth.

It may not be possible to offer the full package of interventions for AMTSL in emergencies because of a lack of skilled staff, difficulty in ensuring safe injection practices, and/or a lack of refrigeration.

1. Administration of a uterotonic is the most important component of AMTSL.
2. Delivery of the placenta by controlled cord traction is recommend where skilled birth attendants are available and the provider and mother agree that a small amount of blood loss is important.
3. Postpartum abdominal uterine tone assessment is recommended for all women. Perform the uterine massage after the placenta is delivered until firm; sustained massage is not necessary.
4. Early cord clamping is no longer a component of AMTSL.

Ask participants: How do you practice in your work setting? Are there any changes that can be made to the care you provide based on the resources available? What is needed to provide AMTSL for all women?

Unit 4: Manual Removal of the Placenta

Time
60 minutes

Objectives
By the end of this unit, participants will be able to:
- Demonstrate competence in active management of the third stage of labor (AMTSL).
- Recognize indications for manual removal of the placenta at multiple levels of care.
- Explain the procedure for manual removal of the placenta.

Materials
- Video - manual removal of placenta (available on the USB key and IAWG website)
- *Active Management of Third Stage of Labor Skills Checklist* and *Manual Removal of Placenta Skills Checklist* handouts, one each per participant
- Presentation
- Normal delivery supplies (see Course Materials Checklist)

Instructions
Start this unit by reviewing the normal physiology of AMTSL and signs of placental separation using the **presentation** slides. After reviewing information on heavy bleeding before the birth of the placenta, prepare to **show the video** on manual removal of the placenta. The video is 15 minutes long and reviews the indications for and the procedure of manually removing the placenta.

After the video, **ask the participants:**
- Do you have experience with removing the placenta manually?
- Are the resources available at your respective facilities for managing this emergency?
- If not, then where would the patient be transported?

Briefly review the slides on indications for manual removal of the placenta and follow-up care after manual removal. **Emphasize that manual removal of the placenta should take place in a referral hospital and can only be performed outside the hospital to save the mother's life in an emergency.**

Move on from the presentation about the prevention of postpartum hemorrhage and retained placenta to discuss AMTSL. AMTSL is a central component of reducing postpartum hemorrhage. It has been shown to reduce postpartum hemorrhage in over 60% of women and decreases the risk of retained placenta.

After reviewing the steps of AMTSL, **ask participants:**
- How do you practice in your work settings?
- Are there any changes that can be made to the care you provide based on the resources available?
- What is needed to provide AMTSL for all women?

Exercise

Demonstrate the steps of active management using the childbirth simulator or similar. Make sure to clearly demonstrate each step listed on the *Active Management of Third Stage of Labor Skills Checklist* (available on the USB key and IAWG website).

ACTIVE MANAGEMENT OF THE THIRD STAGE OF LABOR SKILLS CHECKLIST	YES	NO
1. Following delivery of the infant, the provider checks for a second baby		
2. Tells the woman what medication she is being given		
3. Gives uterotonic medication within 1 minute of delivery of the infant		
4. Tells the patient why she is getting the medication		
5. Cuts the cord. Observe for (1) changing/or taking off the first pair of gloves and (2) cutting after giving the uterotonic.		
6. Applies counter-pressure while performing controlled cord traction		
7. Only performs controlled cord traction when the patient is having a contraction		
8. Uses both hands to catch the placenta		
9. Gently turns the placenta while it is being delivered		
10. Assesses fundal tone immediately following the delivery of the placenta		
11. Inspects the placenta and membranes for completeness		
12. Checks the woman's bleeding		

Adapted with permission from Jhpiego. Helping Mothers Survive: Bleeding after Birth. 2015.

Presentation

Unit 4: Manual removal of the placenta

Basic emergency obstetric and newborn care in humanitarian settings

IAWG INTER-AGENCY WORKING GROUP ON REPRODUCTIVE HEALTH IN CRISES

Signs of placenta separation

- Third stage of labor
- Normal gush of blood before the placenta
- Lengthening of the cord
- Change in position of the uterus
- If no signs after 30 minutes:
  - Maintain skin-to-skin, breastfeeding
  - Empty bladder
- If no signs after 60 minutes:
  - Transfer to a higher level of care

IAWG INTER-AGENCY WORKING GROUP ON REPRODUCTIVE HEALTH IN CRISES

It is normal to see a gush of blood from the vagina when the placenta separates from the uterine wall. The cord will also look longer as it drops closer to the vaginal opening. The top of the uterus will rise to the umbilicus or above. Gently push the uterus upward from just above the pubic bone to see if the placenta is still attached. If the cord moves back up into the vagina, the placenta may not have separated.

The mother and baby will already be skin-to-skin. Increased nipple stimulation from the baby via breastfeeding or hand motions will help the mother to release oxytocin and facilitate the delivery of the placenta.

Perform controlled cord traction to deliver placenta

- Must be gentle and only during a contraction
- Always stabilize the uterus
- Only pull the cord in a downward, steady direction

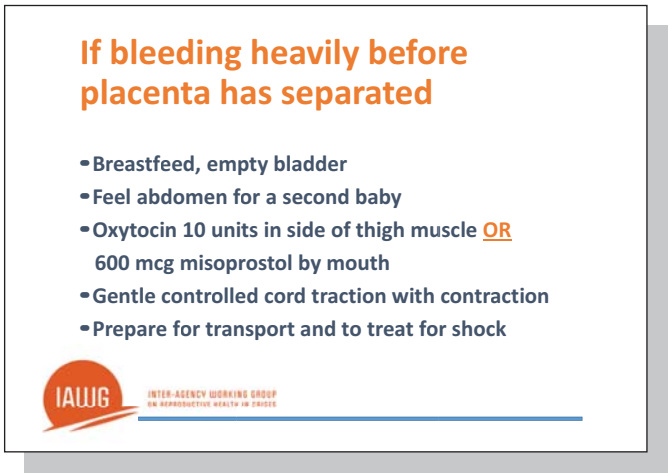
STOP

- If the uterus moves downward
- If the cord is tearing
- If the pulling hurts the mother

After there have been signs of placental separation, wait for a contraction and provide counter-traction to stabilize the uterus by using one hand to guard the uterus just above the pubic bone. Pull gently down on the cord with the other hand during a contraction with a downward, outward motion while the mother pushes.

As the placenta comes out, twist it to keep the membranes from tearing and remove slowly from the vagina. When the placenta is delivered, check to make sure the placenta and accompanying membranes are complete. Retained fragments can cause the uterus to not contract.

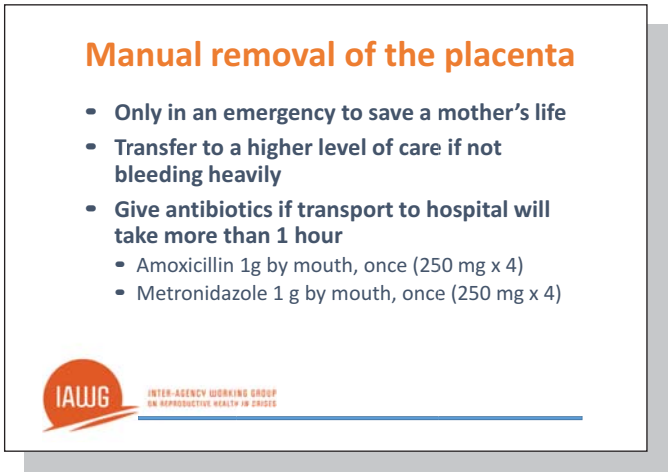
Stop pulling on the cord if you notice signs that the placenta has not separated. Pulling on the cord when the placenta is still attached or when the uterus is not contracted is dangerous. The cord can break (evulse) or the uterus can come out of the body, both of which can be life-threatening emergencies.



Constant bleeding before the placenta has separated is not normal. If the mother is bleeding heavily after the birth of the baby and before the placenta has separated, it is important to try to deliver the placenta quickly. If out of the hospital, this emergency is an indication to deliver the placenta manually. Note that the dose of misoprostol is 600 mcg by mouth (oral administration) before delivery of the placenta, as opposed to 800 mcg sublingually for postpartum hemorrhage.

Pause the presentation here and **play the accompanying video** on manual removal of the placenta (available on the IAWG website and USB key).

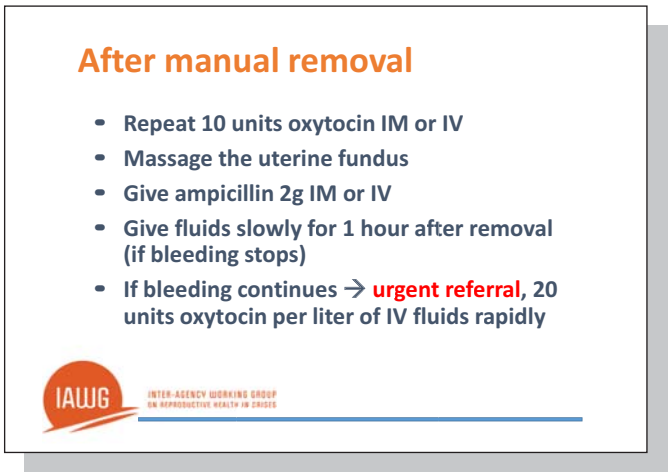
After the video, **ask the participants** if they have experience with removing the placenta manually. Are resources available at their respective facilities for managing this emergency? If not, then where would the patient be transported?



Remove the placenta manually if you think the woman will bleed to death before you can reach a higher level of care. For example, if heavy vaginal bleeding continues after the massage and oxytocin and the placenta cannot be delivered by controlled cord traction, or if the placenta is incomplete and bleeding continues after administering oxytocics and applying compression.

If the placenta needs to be removed manually and the mother is **not bleeding heavily**, then plan to transfer the mother to a higher level of care as soon as possible. At the hospital, the mother will be able to receive appropriate pain medication, antibiotic therapy, and monitoring after the procedure.

Give medicine to prevent infection if it will take more than one hour to get to the hospital or other advanced help. Oral tablets are available in Inter-Agency RH Kit 6.



After this slide, begin the demonstration of AMTSL and have the participants follow along using the checklist.

Unit 4 Activities

Time

1 hour and 30 minutes

Objectives

By the end of this unit, participants should be able to:

- Demonstrate competence in AMTSL.
- Demonstrate an understanding of the steps of manual removal of the placenta.

Divide the participants into two groups. Individuals in the first group will take turns demonstrating the steps of AMTSL while the performance is marked off on the *Active Management of Third Stage of Labor Skills Checklist*. Each participant will have four minutes and feedback will be given to the entire group during the debriefing. The second group will take turns demonstrating the steps for manual removal of the placenta while the performance is marked off on the *Manual Removal of the Placenta Skills Checklist* (both checklists are available on the USB key and IAWG website).

	MANUAL REMOVAL OF PLACENTA SKILLS CHECKLIST	YES	NO
	Preparation		
1	Explain the procedure to the woman and provide emotional support		
2	Insert an IV line with fluids rapidly infusing (active bleeding)		
3	Assist the woman onto her back		
4	Give diazepam * 10 mg IM/IV		
5	Clean vulva and perineal area		
6	Ensure bladder is empty; catheter if necessary		
7	Wash hands and forearm well and put on sterile gloves (long if available)		
	Technique		
8	With one hand, hold the umbilical cord at the clamp; pull cord gently until horizontal		
9	Insert other hand into the vagina and follow the cord up into the uterus		
10	Drop the cord with external hand, hold the fundus, provide counter-traction, and prevent inversion		
11	Move fingers of internal hand sideways to locate the edge of the placenta		
12	Keep fingers tightly together and use edge of hand to gradually make space between the placenta and uterine wall		
13	Proceed gradually until the entire placenta is detached from the uterine wall		
14	Withdraw internal hand from the uterus gradually, bringing the placenta with it		
15	Use the internal hand to explore the inside of the uterine cavity to ensure all placental tissue has been removed		
16	Examine the uterine surface of the placenta to ensure lobes and membranes are complete		
17	Give prophylactic antibiotics *Ampicillin 2g IV or IM		

Adapted from WHO Pregnancy, Newborn and Childbirth Care: A guide for essential practice. 2015. 3rd Edition.

Unit 5: Transport and Referral

Time
45 minutes

Objectives
By the end of this unit, participants should be able to:
- Safely stabilize and prepare a patient for transport after postpartum hemorrhage.
- Practice IV access and fluid administration.

Materials
- Presentation
- Normal delivery supplies (see Course Materials Checklist)
- IV supplies

Instructions
This unit addresses how to safely transport and refer a patient to a higher level of care during or after a postpartum hemorrhage. The ability to safely transfer care of a patient experiencing an obstetric emergency needs to be addressed for each of the conditions discussed in this module. This unit serves as a thorough review of the process. It will subsequently be returned to for discussion with other conditions as the module progresses. Explain that the principles of transport and referral will apply to a patient being transported for any obstetric emergency.

Start this unit with a **discussion about patient transport**:
- Where do patients go if they have an obstetric emergency?
- Who arranges transportation?
- Is there a protocol in place at the facility for transferring a patient?
- If not, who would be responsible for setting up this system?

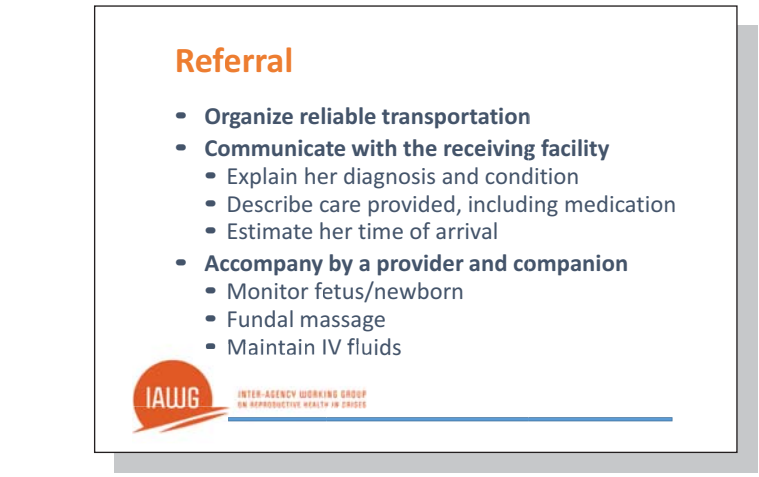
Move through the slides, addressing the principles of effective referral. The dialogue will then shift to IV fluid administration, which is crucial for safely transporting patients with active bleeding. **Demonstrate** how to appropriately start an IV by walking through the steps of the *IV Skills Checklist*. **Ask the participants** how frequently they start IVs to gauge their experience with this skill. There is time built into the end of the day to act as skills building time for IV administration. **Complete a skills checklist** for each participant if the participants state that they do not feel confident with IV administration.

	INTRAVENOUS (IV) SKILLS CHECKLIST	YES	NO
1	Explain the procedure to the woman and provide emotional support		
2	Gather all the supplies ❖ sterile IV fluids ❖ sterile plastic tubing ❖ sterile IV ❖ tape ❖ skin antiseptic		
3	Wash hands with soap and water; wear clean gloves		
4	Open the package of sterile tubing and attach it to the fluids using sterile technique		
5	Hang up the bag of solution high enough to let it flow to the end of the tubing		
6	Tie the tube off at the end to prevent fluid waste		
7	Use cloth or a rubber tourniquet on the upper arm		
8	Identify a vein and clean the skin		
9	Hold the vein steady between the first finger and thumb with one hand, and carefully insert the needle into the vein with the other hand. Look for blood in the needle hub. Lay the needle almost flat and slide it the rest of the way into the vein.		
10	Remove the tourniquet and attach a fluid tube to the needle		
11	Use tape to hold the needle in place		
12	Regulate the amount and speed of IV fluid flow depending on the medical condition		

Presentation

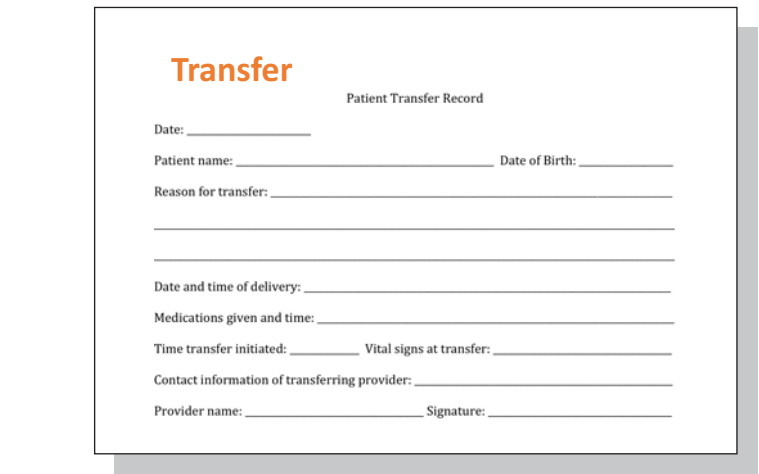
This unit provides a review of transport and referral for a patient who needs to move to a higher level of care during or after postpartum hemorrhage. Explain that the principles of transport and referral will apply to a patient being transported for any obstetric emergency.

Discuss: Where do patients go if they have an obstetric emergency? Who arranges transportation? Is there a protocol in place at the facility for transferring a patient? If not, who would be responsible for setting up this system?

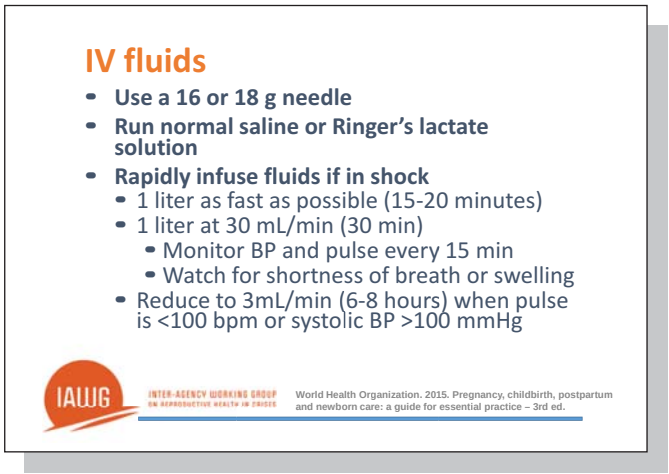


Discuss: What are the steps in executing an effective referral? Guide learners to the following responses:

- Organize reliable transportation.
- Communicate with the referral facility:
  - Explain her diagnosis and condition.
  - Describe care provided, including medicines.
  - Estimate her time of arrival.
- Ensure that the woman is accompanied by a companion.
- If possible, send a provider to go with her to:
  - Monitor her and the fetus/newborn.
  - Check for uterine atony.
  - Keep her IV in place with fluids infusing as required. Fluids are infused rapidly if active, heavy bleeding. Fluids are infused slowly if the bleeding is slow or the patient is stabilized.
  - Complete the referral record to send with her.
- Record the referral.
- Obtain the report from the referral facility and ensure that she receives follow-up care.



It is best practice to maintain documentation of a patient transfer for appropriate follow-up and organizational review. This slide has an example of a patient transfer record.

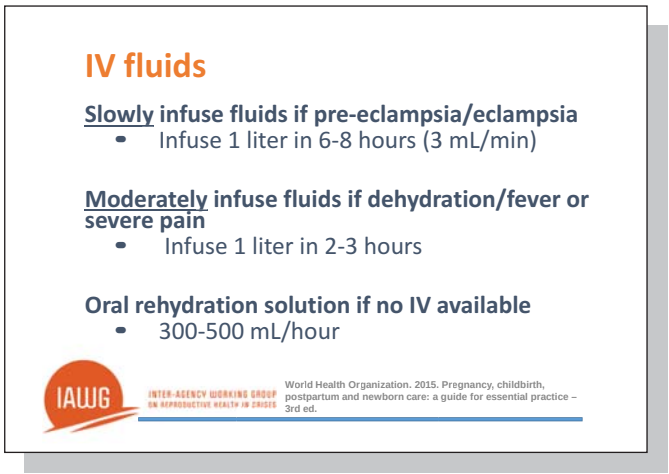


Give IV fluids at a **rapid rate** if the patient in shock, systolic blood pressure (BP) is <90 mmHg, pulse>110/minute, or she has heavy vaginal bleeding.

Reduce the infusion rate to 3 mL/minute (1 liter in 6-8 hours) when pulse slows to less than 100/minute, or systolic blood pressure increases to 100 mmHg or higher.

Reduce the infusion rate to 0.5 mL/minute if breathing difficulty or puffiness develops.

It is important to monitor urine output and the total amount of IV fluids given. Record the time and amount of fluids given during the transfer.



- Give fluids at a **slow rate** if severe anemia/severe pre-eclampsia or eclampsia are present. It is not safe to rapidly infuse fluids into a woman with elevated blood pressure.
- Give fluids at a **moderate rate** if severe abdominal pain, dangerous fever, or dehydration is present.
- Give oral rehydration solution (ORS) by mouth if the woman is able to drink. Never give ORS to a woman who is unconscious or having convulsions.

Unit 6: Antibiotics for Postpartum Infection

Time
1 hour and 45 minutes

Objectives
By the end of this unit, participants will be able to:
- Review and apply assessment, diagnosis, treatment, and evaluation of postpartum infection.
- Appropriately identify and refer women to a higher level of care for severe infection.

Materials
- *Case Study – Fever after childbirth* handout, one per participant
- Normal delivery supplies (see Course Materials Checklist)
- Simulated medications – antibiotics
- IV supplies: Infusion sets, IV cannulas, bags of IV fluids

Instructions
Open this unit with a **role play**. As a postpartum woman, come in acting very ill and complain of pain and fever. Act minimally responsive and weak. Have the co-facilitator state that an IV is needed.

Ask the learners:
- Have you ever seen a woman come in after having a baby who is very sick?
- What happened?
- Is there any other treatment that could have been available if the woman had delivered in a hospital? Is there access to IV supplies at your health facilities?

Wrap up the discussion and start the slide **presentation**. Go through the slides and discuss the related notes. Finish the slides related to treatment at the referral level of care. Explain that later in the afternoon, there will be an opportunity to practice with IV infusion supplies.

Case Study
Utilize the prompt and the following instructions for the case study activity:
- Divide participants into small groups of two to three and ask the learners to go through the case study together.
- Give the groups 30 minutes to go over the case study and then come back together as a group to discuss the case.

Take a short break after debriefing from the case study before starting the next unit.

Case Study: Fever After Childbirth

Mrs. E is a 35-year-old para three. Mrs. E's husband has brought her to the health center today because she has had a fever and chills for the past 24 hours. She gave birth to a full-term infant at home 72 hours ago. Her birth attendant was the local traditional birth attendant (TBA). Labor lasted two days and the TBA inserted herbs into Mrs. E's vagina to help speed up the childbirth. The newborn breathed spontaneously and appears healthy.

Assessment (history, physical examination, screening procedures/laboratory tests)

1. What will you include in your initial assessment of Mrs. E? Why?
   - ❖ History of labor
   - ❖ Presence of chills/fever/pain/vaginal bleeding
   - ❖ History of malaria, HIV, or anemia
   - ❖ Vital signs
   - ❖ Uterine tone and tenderness

2. What particular aspects of Mrs. E's physical examination will help you make a diagnosis or identify her problems/needs? Why?
   - ❖ Fever greater than 38°C
   - ❖ Chills or malaise
   - ❖ Uterine tenderness or subinvolution
   - ❖ Purulent or foul lochia
   - ❖ Signs of shock
   - ❖ Pulmonary edema

Diagnosis (identification of problems/needs)

You have completed your assessment of Mrs. E and your main findings include the following:

History: Mrs. E admits that she has felt weak and lethargic, has abdominal pain, and has noticed a foul-smelling vaginal discharge. She does not have pain when she urinates and does not live in an area with malaria. She had a tetanus immunization and a booster 3 years ago. It is unknown whether her placenta was complete.

Physical Examination

- ❖ Vital signs: temperature 39.8°C, pulse 136 beats per minute, respirations 24 per minute
- ❖ Pale, lethargic, and slightly confused
- ❖ Uterus at 1 cm below the umbilicus and tender
- ❖ Foul-smelling vaginal discharge, no tears or lesions
- ❖ Cervix is 2 cm dilated with cervical motion tenderness

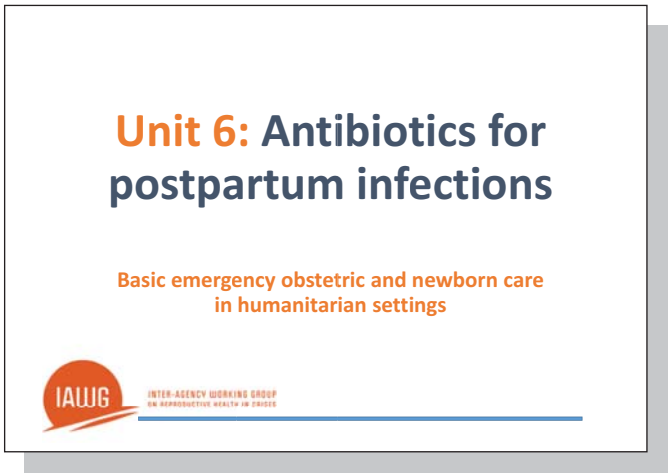
3. Based on these findings, what is Mrs. E's diagnosis (problem/need)? Why?
   - ❖ Puerperal sepsis due to elevated temperature and abdominal tenderness. The lethargy and confusion raise suspicion for sepsis.

Care provision (planning and intervention)

4. Based on your diagnosis (problem/need identification), what is your plan of care for Mrs. E? Why?
   - ❖ Draw/send blood cultures if lab facilities are available
   - ❖ Start IV fluids, first dose antibiotics, and prepare to transport/refer
   - ❖ Plan on IV antibiotics x 48 hours fever free

5. Based on these findings, what is your continuing plan of care for Mrs. E? Why?
   - ❖ Antipyretics while febrile
   - ❖ Uterine evacuation, if needed
   - ❖ Bed rest, perineal hygiene, newborn with mother

Presentation



Open the unit with a **role play**. Follow the instructions in the facilitator's guide for more information.

In humanitarian settings, there may be a lack of health supplies or infrastructure, and an increased workload. Staff working in the health sector may resort to taking shortcuts in procedures, which endanger the safety of both patients and staff. Therefore, it is essential that standard precautions are respected. **Ask the participants:** How do we reduce the risk of infection during and after childbirth? What are standard precautions? Answers include:

- Frequent hand-washing
- Wearing appropriate gloves – sterile single-use gloves for internal examinations, non-sterile single use gloves for handling contaminated materials
- Wearing protective clothing
- Safe handling of sharp objects
- Proper waste disposal
- Instrument sterilization
- Housekeeping

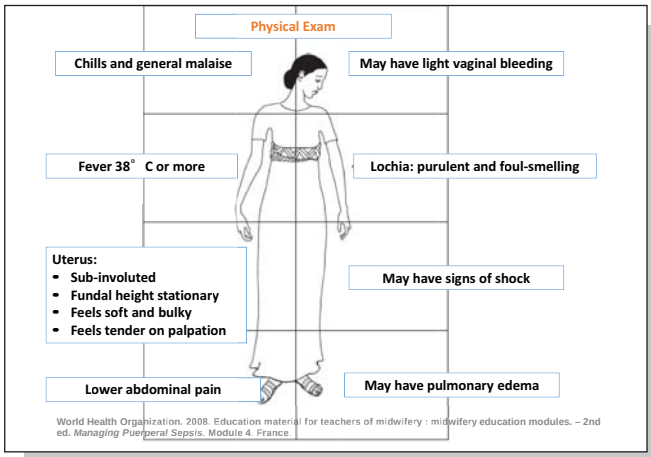
Distribution of clean delivery kits to visibly pregnant women in the population gives women who are delivering without the presence of a skilled birth attendant the tools needed to reduce the risk of infection.

History

- Always take the history of the patient first
- Long labor? Premature rupture of membranes (PROM) >18 hours? Manual removal of placenta? C-section? PPH? Traditional practices?
- Malaria? HIV? Anemia?
- Chills? Fever? Pain? Bleeding?

When a woman presents with a possible infection, it is important to always take the history of the patient first. Discuss her history to gain an initial clinical picture of the situation. Check any antenatal record or delivery record available. Some women are more vulnerable to puerperal sepsis, including those who are anemic and/or malnourished.

Protracted labor, prolonged rupture of membranes, frequent vaginal examinations, a traumatic delivery, cesarean section, and retained placental fragments all predispose to puerperal infection.



World Health Organization. 2008. Education material for teachers of midwifery : midwifery education modules. – 2nd ed. *Managing Puerperal Sepsis*. Module 4. France.

The physical exam will give you further information about the status of the patient.

Vital signs and general condition: Does the patient have signs of shock, including a rapid pulse? Is there a fever greater than 38 C? Is the patient alert and oriented? Is she shaking with chills and fatigued? Is her breathing easy or labored? Do her lungs sound clear and are her respirations normal?

Abdominal tenderness: Is her abdomen tender when you palpate for her uterus? Is the uterus palpable in her abdomen? Where do you find it? Is it larger than you would expect it to be? Is the uterus hard or soft? When did she last empty her bladder?

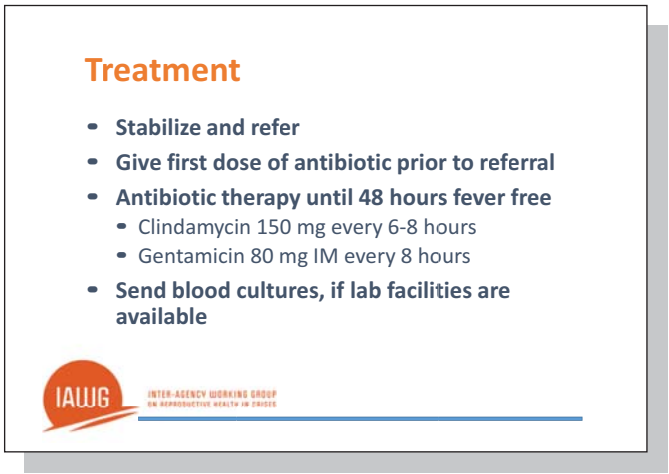
Pelvic exam: A gentle internal exam will give more information on uterine size and tenderness, the presence of tears, lochia odor, and the amount of lochia.

Breasts: Are her breasts engorged with redness or other signs of an infection?

Differential diagnoses

- **Urinary tract infection (bladder or kidneys)**
- **Wound infection**
- **Mastitis or breast abscess**
- **Thromboembolic disorder**
- **Pneumonia**
- **Malaria or typhoid**
- **HIV-related infections**

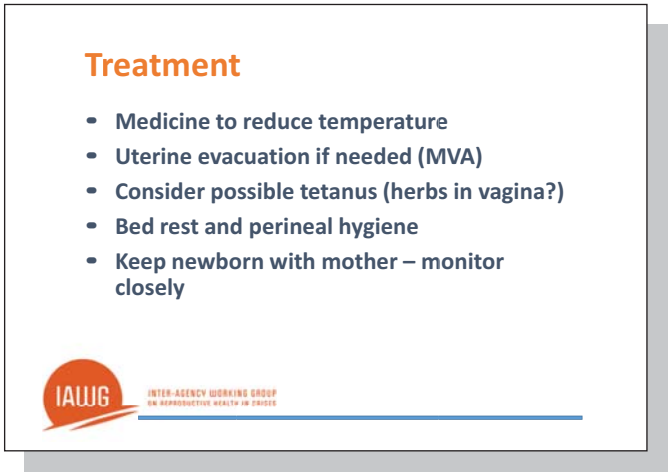
Based on the assessment of her obstetric history and targeted exam, make your diagnosis. If the patient does not fit the clinical picture described on the previous slide, then move through the other differential diagnoses.



Oral antibiotics are not effective for treating a severe postpartum infection. The mother will need IV antibiotic therapy at a facility with appropriate monitoring capacity. Outside of the hospital, a patient presenting with a severe infection will need emergency treatment with a first dose and immediate referral to a higher level of care.

The mother needs broad spectrum antibiotics until 48 hours fever-free. The Inter-Agency RH Kits for the health facility level only contain oral antibiotics. The Kits are in the process of being updated to reflect current guidelines. **Ask the participants**: which antibiotics are available at your facility?

Lab facilities will not be available most of the time.



A patient may need further treatment upon arrival at the hospital. Ongoing treatment may include the following, as listed on this slide:

- Paracetamol 500mg tablets can be given every 4 to 6 hours for pain and fever management.
- Uterine evacuation using manual vacuum aspiration (MVA) can be performed if there are retained products from the pregnancy contributing to the illness.
- Tetanus toxoid may be indicated if the patient has had herbs inserted into the vagina during labor and birth, and has not completed prior immunization.

Discuss: What are the steps in executing an effective referral? Guide learners through the following responses:

- Organize reliable transportation.
- Communicate with the referral facility:
  - Explain her diagnosis and condition.
  - Describe care provided, including medicines.
  - Estimate her time of arrival.
- Ensure that the woman is accompanied by a companion.
- If possible, send a provider to go with her to:
  - Monitor her and the fetus/newborn.
  - Keep her IV in place.
  - Complete the referral record to send with her.
- Record the referral.
- Obtain a report from the referral facility and ensure that she receives follow-up care.

Unit 7: Magnesium Sulfate for Severe Pre-eclampsia/Eclampsia

Selected components of this unit have been adapted with permission from Jhpiego. Helping Mothers Survive – Pre-eclampsia and eclampsia. 2016.

Time

2 hours and 30 minutes

Objectives

By the end of this unit, participants will be able to:

- Understand the continuum of hypertensive disorders in pregnancy.
- Demonstrate an ability to accurately measure and record blood pressure.
- Demonstrate an ability to assess for severe pre-eclampsia and eclampsia in limited resource settings.
- Demonstrate an ability to safely prepare magnesium sulfate for intramuscular (IM) and IV administration.
- Understand treatment protocols for antihypertensive medication administration.

Materials

- Normal delivery supplies (see Course Materials Checklist)
- Simulated medications – magnesium sulfate, 2% lignocaine, calcium gluconate, and hydralazine
- Needles for IM injection
- Bladder catheter
- Reflex hammer
- Urine dipsticks
- Melon or other local fruit
- Sharps container

Instructions

Open this unit with a **role play** of a one-day postpartum woman complaining of a severe headache who begins to convulse and loses consciousness. If you are facilitating alone (not recommended), ask a learner in advance to play the woman and ask for help from the participants, but do not interfere.

After the role play, guide the **discussion:**

- Has anyone seen an eclamptic convulsion or a woman die from eclampsia?
- What happened?
- Was there anything that could have been done to help?

Note to Trainers: This refresher training assumes a baseline level of familiarity with management of pre-eclampsia and eclampsia. If the need for further training on these issues is identified, then give appropriate feedback to the training coordinator.

Start the **presentation** by reviewing the slides that classify the hypertensive disorders of pregnancy. Explain that this module will review the management of severe pre-eclampsia and eclampsia using magnesium sulfate and anti-hypertensives. Pause after the slide about accurate blood pressure measurement and complete the blood pressure activity below, if appropriate for the participants in the group.

Optional: Blood Pressure Measurement Activity

Ask the participants to work in pairs to practice blood pressure measurement. Make sure you have a stethoscope and blood pressure machine for each pair. Pay attention to the learners' techniques. Provide supportive correction as needed. Once the first participant has taken a reading, ask each pair to share their measurements. Note if 120/80 or 130/80 are overrepresented. If so, ask the learners if they note anything unusual about the blood pressures. Encourage them to become "expert" blood pressure takers and then have them switch roles.

Review the slides on the classification of pre-eclampsia, severe pre-eclampsia, and eclampsia and the treatment of severe pre-eclampsia/eclampsia. On the role play slide that includes the classification of the disorders, **explain the activity** listed below to the participants.

Activity

Adapted with permission from Jhpiego. Helping Mothers Survive – Pre-eclampsia and eclampsia. 2016.

Instructions

Divide the group into pairs. Ask one learner to play the role of the woman. Ask the other learner to play the role of the provider. Have the participants come to one side of the room to receive instructions privately. Ask them to bring paper and pencil to record their measurements.

Give the participants this information privately:

- 25 year-old gravida 1 para 0 (G1P0) at 37 weeks gestation
- Blood pressure is 160/102
- Urine 2+ protein
- Danger signs: no headache, no visual changes, no right upper quadrant pain, no difficulty breathing, and no rales

Tell them to only provide this information in response to measurements taken by providers. Tell providers they must take the actual measurements during the role play, not simply talk about what they would do. Send the participants back to their stations where they will present for care.

Read the following paragraph before they begin:

Mrs. M is presenting to you in very early labor. Please interview her and proceed normally for a routine labor evaluation. If you are taking her blood pressure, listening to her lungs, or measuring her urine for protein, then do so. Your client will tell you the measurement.

Observe the role plays. Ensure that participants stay on track, but do not correct or interrupt the role play.

When all the teams are done with the assessment, debrief with the participants. Ask: What is your most likely diagnosis? Why?

The correct answer is **severe pre-eclampsia** because the blood pressure is in the severe category and she has 2+ protein.

Demonstration and Activity: Preparation and Administration of Magnesium Sulfate

Set up the supplies for the activity on preparation and administration of magnesium sulfate during the break, including the following:

- ❑ Magnesium sulfate 500 mL/10 mL vials, at least 3 vials
- ❑ Lignocaine 2%
- ❑ Sterile water
- ❑ 20 cc syringes, at least 3
- ❑ IM needles, at least 3
- ❑ IV normal saline (NS) or lactated ringers (LR)
- ❑ IV infusion set and IV start kit (IV needle, alcohol swabs, gloves, tourniquet, tape)
- ❑ Calcium gluconate 10%
- ❑ Hollowed out melon or other local fruit with skin for IM injection
- ❑ Sharps container

Bring the group back together and start the slide **presentation** with magnesium sulfate. It is important to emphasize the safety concerns around giving magnesium sulfate outside of a facility with appropriate monitoring. The slide on the formulation of magnesium sulfate available in the Inter-Agency RH Kits discusses the difference between IM and IV solution concentrations. **Magnesium sulfate must be diluted with sterile water to a 20% solution prior to administering intravenously**.

Demonstrate how to draw up the loading dose of magnesium sulfate for IM injection by appropriately drawing 5 g in 10 mL of the 50% solution and the 1 mL of lignocaine in the same syringe. Demonstrate where the injection is given in the upper outer buttock.

Ask a volunteer or have the co-facilitator set up the IV infusion set.

Demonstrate how to first dilute the magnesium sulfate with sterile water prior to IV injection.

Review the IV administration of a repeat dose of magnesium sulfate and the indications to give or hold the subsequent dose. **Discuss** with the participants how they safely monitor IV infusions in their facility. Are they able to do slow IV injections? If not, then where will they refer a patient after the IM loading dose? Briefly discuss the recommended use of diazepam as a secondary medication if magnesium sulfate is not available or convulsions recur after a second dose of IV medication.

Calcium gluconate is the antidote to magnesium sulfate. If the patient suffers respiratory arrest during the administration of magnesium sulfate, stop the infusion immediately and then give 1 gram of calcium gluconate IV over 10 minutes.

Ask the participants:

- ◆ Where are the magnesium sulfate and calcium gluconate stocked in your facility?
- ◆ How are they monitored?

Activity: Preparing and administering magnesium sulfate (MgSO4)

Invite the participants to the table and have them work in groups to practice using magnesium sulfate IM and IV, and to draw up calcium gluconate. Use the melon or other local fruit to practice deep IM injection.

Bring the group back together after the magnesium sulfate activity and **discuss** antihypertensive medications. Hydralazine 5 mg IV over 1 to 2 minutes is the first-line recommendation. It is currently available in Inter-Agency RH Kit 11. Discuss with the participants to understand which antihypertensives are available in their setting. Other medications that may be available include:

- **Nifedipine immediate-release only** – 5-10 mg by mouth or bitten then swallowed. Repeat every 30 minutes until the target blood pressure is achieved. Max dose 30 mg.
- **Labetalol oral** – 200 mg by mouth, repeat every one hour if needed to achieve the desired outcome. Max dose 1200 mg in 24 hours.
- **Labetalol IV** – 10 mg IV over, double dose every 10 minutes to 80 mg until goal is achieved. Max dose 300 mg, then switch to oral (do not use if patient experiences congestive heart failure, asthma, or hypovolemic shock).

Address any outstanding questions on the administration of magnesium sulfate or antihypertensives for severe pre-eclampsia and eclampsia.

Introduce the group to the clinical simulation outlined below. Tell learners that they will be participating in a simulation. Participants act as if they are providing care for a real woman. Observers will be ready to provide feedback. If there are more than three participants, then a second simulation will be needed so that all learners can actively participate.

Clinical Simulation

Adapted with permission from Jhpiego. Helping Mothers Survive – Pre-eclampsia and eclampsia. 2016.

Overview

As the facilitator, you will be Mrs. C. Assign up to 3 learners to act as providers and any remaining learners to observe and give feedback after the role play. Allow 15 minutes for this activity. The goal is for learners to diagnose and initiate treatment of Mrs. C, who has severe pre-eclampsia even though she has no danger signs and appears to be normal. Her blood pressure is dangerously high and the team needs to identify and begin treatment quickly. The providers are working in a health clinic in a rural area. Read the following scenario to the group:

Case 1: *I am Mrs. C, 27 years old and 39 weeks pregnant with my first baby. I have been to 4 antenatal care (ANC) visits with no problems and I think I am in labor. Please begin your assessment and tell me what you are doing. If you choose to assess something, please do so and I will give you the results. Afterwards we will debrief as a team.*

Give the following information, but only if and when assessed:

- Blood pressure is 178/112
- No danger signs
- Urine protein 2+
- Fetal heart rate 140 beats per minute (bpm), fetal movement present
- Sterile vaginal exam – cervix is 4 cm dilated
- Contractions every 4 minutes lasting 45 seconds, moderate
- All other measurements are normal

Debrief: Upon completion of the role play, begin a structured debrief. Be sure to include feedback about communication and respectful maternity care. Include the following points:

- Confirm correct diagnosis and treatments
- SPE and full MgSO4 loading dose (IV and IM) and antihypertensive

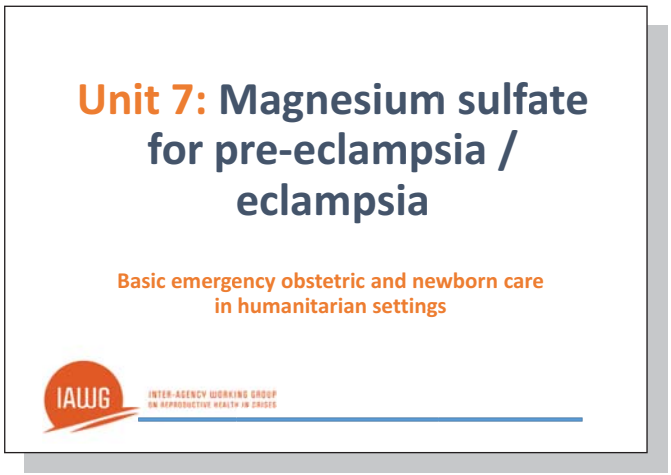
- **Ask:** Why this diagnosis? What went well? Did you miss anything? How did the team function? What did you learn that you will remember for next time?
- Help learners identify that women can have SPE without danger signs. The team must move quickly from assessment and diagnosis to management.
- Be sure to address any communication gaps. Were all team members comfortable working together and delegating? As the client, share you how you felt. Did they delegate, communicate, and provide respectful maternity care?

Repeat with Case 2, if needed, based on the following information:
Case 2: Read the same case but use the following measurements when assessed:

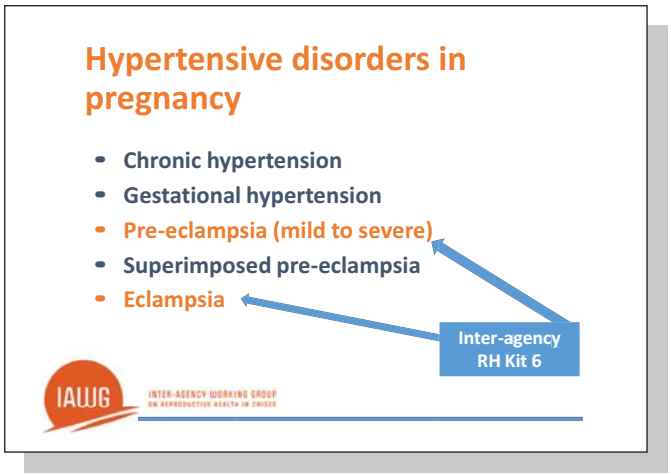
- Blood pressure is 156/106
- Blurred vision
- Urine protein 2+
- Fetal heart rate 150 bpm, fetal movement present
- Sterile vaginal exam: Cervix is 7 cm dilated
- Contractions every 3 minutes x 60 seconds, moderate
- All other measurements are normal

Bring the group together after the clinical simulation is complete and all participants have had a chance to participate. Discuss what went well and what could have been done differently.

Presentation

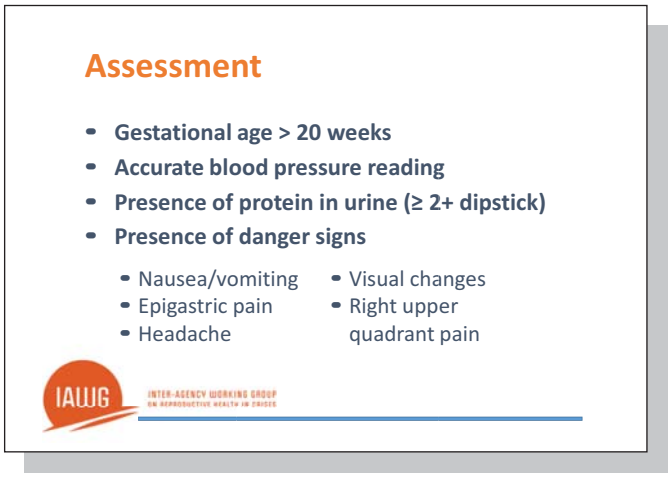


Open the unit with a **role play**. Follow the instructions in the facilitator's guide for more information.



Hypertension complicates 5 to 10% of all pregnancies and is associated with 14% of all maternal deaths. There is a spectrum of hypertensive disorders, which are often progressive and move quickly to severe disease. This session focuses on managing severe pre-eclampsia (SPE) and eclampsia. Severe pre-eclampsia and eclampsia are considered to be life-threatening emergencies and will require referral from a health center to a higher level of care for ongoing therapy and treatment.

Blood pressure is checked any time a pregnant/postpartum woman presents with a problem. Magnesium sulfate, the drug of choice for treatment of severe pre-eclampsia and eclampsia, is available in Inter-Agency RH Kit 6.



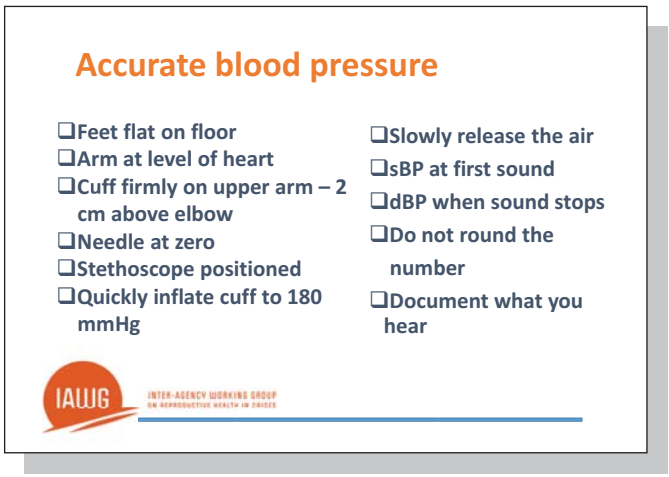
A diagnosis of pre-eclampsia is made after 20 weeks of gestation if blood pressure is elevated on two consecutive readings at least 4 hours apart with the woman at rest and no prior history of high blood pressure. One reading of ≥160 or ≥110 is an emergency. Blood pressure readings can be inaccurate due to many factors – technique, equipment, or stimulants.

Ask: How do you measure gestational age at your facility? Do you have pregnancy wheels? Note that at 20 weeks, the fundus can be felt at the umbilicus.

There are urine dipsticks available in Inter-Agency RH Kit 6. Check for urine protein in women with high blood pressure. Healthy pregnant women should not have more than 1+ protein in their urine. If you cannot check for protein, begin treatment immediately for women who otherwise meet the definition of severe pre-eclampsia. Urine dipsticks may be affected by vaginal discharge, blood, or amniotic fluid. Women must be instructed to do a clean-catch to avoid contamination. Instruct the woman to clean the vulva with water, pass a small amount of urine, then place a clean, dry cup under the stream. In settings where lab facilities are available, a urine sample can be sent for a protein to creatinine ratio analysis (greater than 0.3).

All pregnant or postpartum women should be assessed for danger signs, particularly women presenting with high blood pressure. New onset high blood pressure plus any danger sign indicates severe pre-eclampsia. Diagnose and treat severe pre-eclampsia if blood pressure is slightly elevated (≥140/ ≥ 90) and the woman has one danger sign, as outlined on the slide. With respect to headaches, they are typically severe and not relieved by pain medication. Visual changes may appear as blurred vision or seeing lights/spots.

There may also be **clinical signs** of severe disease on assessment. These signs may include pulmonary edema – difficulty breathing and/or rales (abnormal rattling) heard when listening to lungs, low urine output (less than 400 mL in 24 hours), and abnormal lab values (low platelets, elevated serum creatinine, and elevated liver enzymes). Swelling of the legs and feet is no longer considered a diagnostic sign. There may or may not be access to laboratory facilities for monitoring urine output and doing lab tests in an emergency context.



Review this checklist for accurate blood pressure measurement and request a volunteer from the participants. **Demonstrate proper technique, pointing out key steps during the demonstration.** Regardless of the actual blood pressure measured, state that the reading is 152/94. Demonstrate appropriate, respectful counseling about the need to retake the blood pressure in four hours. After the demonstration, tell the volunteer the actual blood pressure.

Perform the optional blood pressure measurement activity after this slide, if using.

Classification

Disorder	Onset	Criteria
Mild to moderate Pre-eclampsia (PE)	20 + weeks	New onset high BP at 2 readings at least 4 hours apart: sBP ≥ 140 mmHg **OR** dBP ≥ 90 mmHg **PLUS** Proteinuria >300mg in 24 hours or 2+ on dipstick
Severe pre-eclampsia	20 + weeks	New onset high BP of sBP ≥160 mmHg OR dBP ≥ 110 mmHg with proteinuria as above OR any one of **danger signs**
Eclampsia	20 + weeks	PE as defined above plus convulsions or unconsciousness

At 37+ weeks, stabilize the patient and refer for delivery. Induction of labor is recommended at term.

WHO recommendations for prevention and treatment of pre-eclampsia and eclampsia. WHO Press. 2011. Geneva.

All women past 20 weeks of pregnancy and all postpartum women should have their blood pressure measured when they present to the clinic for care. Pregnant women with pre-eclampsia or eclampsia will present with raised blood pressure, protein in urine, and may have other danger signs. In severe pre-eclampsia and eclampsia, the risks to the mother's health are sufficiently high to warrant delivery of the baby irrespective of its maturity.

- For women with mild pre-eclampsia or gestational hypertension at term, induction of labor is recommended. In women with severe pre-eclampsia at term, a policy of early delivery is recommended. Stabilize and deliver. If it is not safe to allow labor to progress for the mother and fetus in severe pre-eclampsia, then cesarean birth is recommended.
- For women with severe pre-eclampsia, a viable fetus, and between 34 and 36 (plus 6 days) weeks of gestation, a policy of expectant management may be recommended, provided that uncontrolled maternal hypertension, increasing maternal organ dysfunction, or fetal distress are absent and can be monitored.
- For women with severe pre-eclampsia, a viable fetus, and before 34 weeks of gestation, a policy of expectant management is recommended, provided that uncontrolled maternal hypertension, increasing maternal organ dysfunction, or fetal distress are absent and can be monitored.
- Induction of labor is recommended for women with severe pre-eclampsia at a gestational age when the fetus is not viable or unlikely to achieve viability within one or two weeks.

Treatment: Severe pre-eclampsia

1. **Urgent referral to hospital unless imminent delivery**
2. **If imminent delivery, then manage childbirth before referral**
3. **Magnesium sulfate to prevent convulsions –** loading dose pre-departure
4. **Antihypertensives to lower blood pressure**
5. **Teamwork and effective communication to facilitate referral**

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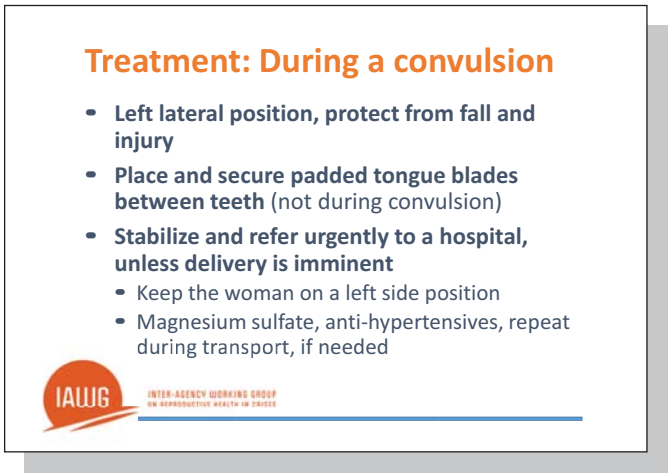
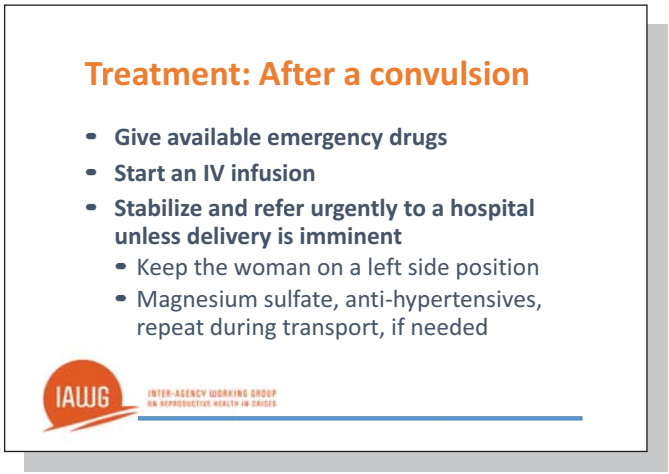
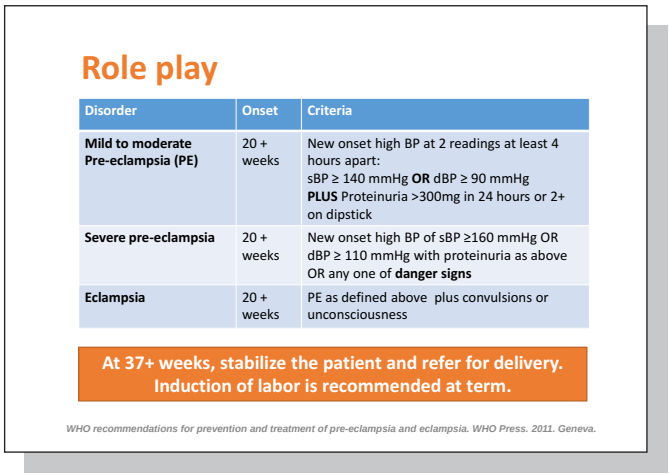
1. A woman with a diagnosis of severe pre-eclampsia will require care and monitoring at the referral level. If your facility can provide close monitoring, getting advanced care may mean moving the woman from the clinic or outpatient department to the labor ward. If a facility cannot provide close monitoring, women with severe pre-eclampsia should be transferred as soon as possible. Always stabilize and begin appropriate treatment before transfer.
2. Magnesium sulfate is the drug of choice for convulsions. We will discuss proper administration later in the module.
3. Antihypertensives are recommended based on the diastolic blood pressure. We will also discuss proper administration of these medications later in the module.
4. Explain to the woman and her family that she needs more services and closer monitoring than your facility can provide.



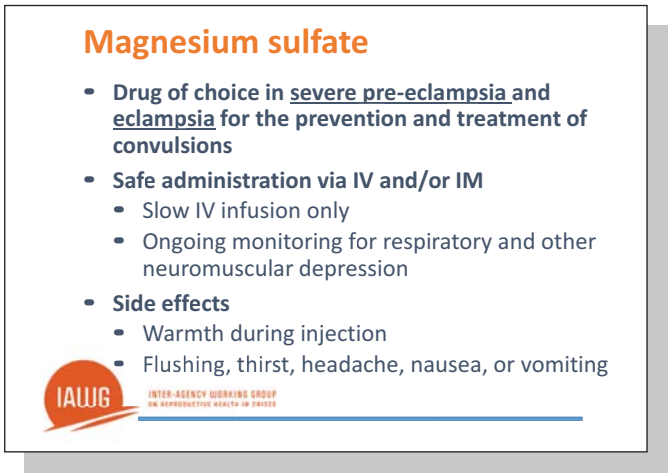
Any woman who presents with convulsions is assumed to have eclampsia. It is associated with significant maternal and perinatal morbidity and mortality, and requires immediate action. Speed is important if a woman is having convulsions. The brain is deprived of oxygen during a seizure, which can permanently damage the brain. Do not leave the woman on her own. Help her into a left lateral (side-lying) position and protect her from fall and injury. Place a padded tongue blade between her teeth to prevent a tongue bite, and secure it to prevent aspiration. Never attempt to place the tongue blade during a convulsion.





Divide the group into pairs. Ask one learner to play the role of the woman. Ask the other learner to play the role of the provider. Have the actors come to one side of the room to receive instructions privately. Ask them to bring paper and pencil to record their measurements. See the facilitator's guide for specific instructions.

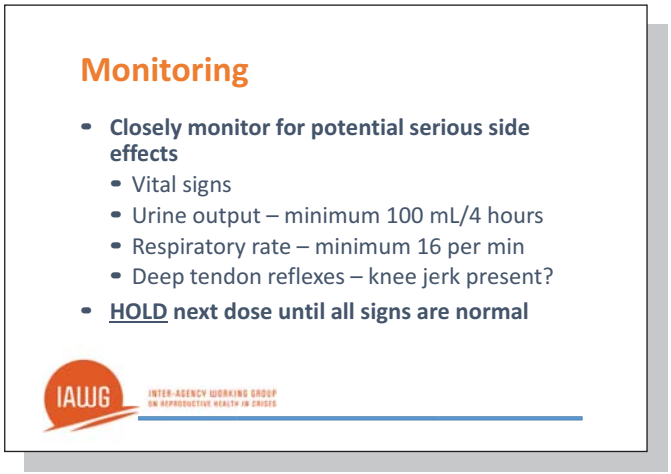
Take a break after this role play activity is completed and you have debriefed with the group.



Magnesium sulfate is the drug of choice in severe pre-eclampsia and eclampsia for the prevention and treatment of convulsions. It is preferred over phenytoin and diazepam, and is provided in Inter-Agency RH Kits 6 and 11. It is thought the medicine works by dilating the blood vessels in the brain – thus reducing the systolic blood pressure – and preventing or treating eclamptic seizures.

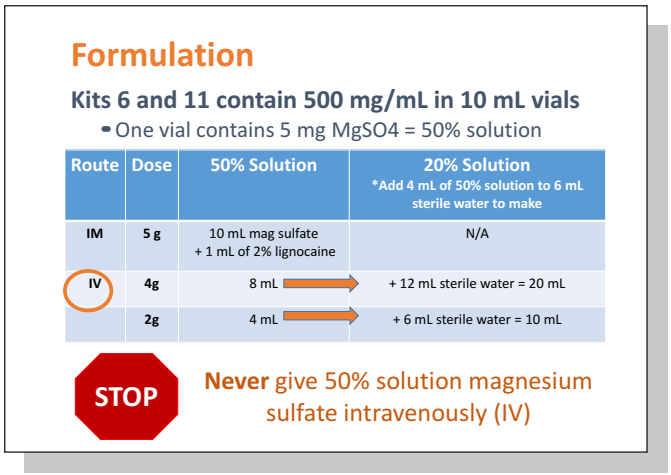
It is crucial that this medication be administered safely because of the potential for respiratory failure or death if too much is given too fast. Rapidly infusing the medicine can lead to severe consequences. Appropriate monitoring is required to ensure the safety of the patient.

It is important to counsel the patient about the side effects of the treatment.



Monitor the following to keep the patient safe:

- Vital signs.
- Urine output: Decreased output is associated with magnesium toxicity. The body filters the medicine through the kidneys.
- Respiratory rate (rate should be more than 16 breaths/minute) as magnesium (Mg) depresses neuromuscular transmission.
- Deep tendon reflexes (the knee jerk should be present before the next dose is given).
- Urine output as Mg is excreted through the kidney (decreased urine output can be associated with magnesium toxicity).



The magnesium sulfate in Inter-Agency RH Kit 11 and Kit 6 is provided in vials with a concentration of 500 mg/mL in 10 mL (or 5 g), which is a 50% solution (i.e. 1 g in 2 mL).

It is crucial to pay attention to the strength of the medication. The magnesium sulfate can be given in the muscle from the vial in the 50% solution. It is recommended that the magnesium be mixed with 1 mL of 2% lignocaine to dull the discomfort. **The Inter-Agency RH Kits currently contain 1% lidocaine and are being revised.**

Magnesium sulfate must be diluted with sterile water before giving it through an IV.

Loading dose administration

- Start IV fluids (NS or LR) 1 liter in 6-8 hours (3 mL/min)
- Loading dose is 4 g $MgSO_4$ IV *plus* 10 g $MgSO_4$ IM
- If IV not possible, give IM only
- Use correct formulation for route of administration

Route	Dose	50% Solution	20% Solution *Add 4 mL of 50% solution to 6 mL sterile water to make
IM	5g	10 mL mag sulfate + 1 mL of 2% lignocaine	N/A
			One 5 g dose in each buttock = 10 g
IV	4g	8 mL →	+ 12 mL sterile water = **20 mL**
			4 g over 20 minutes in NS or LR

Acronyms:
NS = Normal Saline
LR = Lactated Ringers

If there is no access to intravenous (IV) supplies in the facility, then the loading dose will only be given in the muscle (IM). Draw up 5 g of magnesium sulfate (MgSO4) 50% solution and 1 milliliter (mL) of 2% lignocaine **in the same syringe**. Give one 5 g dose in the upper outer quadrant of one buttock. Repeat the procedure with a new needle and syringe in the other buttock to administer a total IM loading dose of 10 g.

If there is IV access at the facility, then 4 g of magnesium sulfate will also be given through the IV. **Remember to dilute the magnesium sulfate with sterile water prior to IV administration**. Start an IV line and slowly administer normal saline or ringer's lactate at a rate of 1000 mL in 6 to 8 hours (3 mL/min).

Continued treatment

If referral delayed, if in active labor, or if convulsions during transport:

- 5g IM of $MgSO_4$ every 4 hours, alternating side of administration each time
- Continue until 24 hours after delivery or last convulsion

Route	Dose	50% Solution	20% Solution *Add 4 mL of 50% solution to 6 mL sterile water to make
IM	5 g	10 mL mag sulfate + 1 mL of 2% lignocaine	N/A

STOP

DO NOT give the next dose if :
- Knee jerk reflex is absent
- Urine output less than 100 mL in 4 hours
- Respiratory rate less than 16 breaths/minute

If there is not access to IV supplies in the facility, then the loading dose will only be given in the muscle. Draw up 5 g of magnesium sulfate 50% solution and 1 mL of 2% lignocaine **in the same syringe**. Give the 5 g dose in the upper outer quadrant of one buttock. If a next dose is given four hours later, then repeat the procedure in the other buttock. Alternate sides of treatment until 24 hours after delivery or the last convulsion.

For recurrent convulsions

After 15 minutes, more IV medication can be given if fits continue

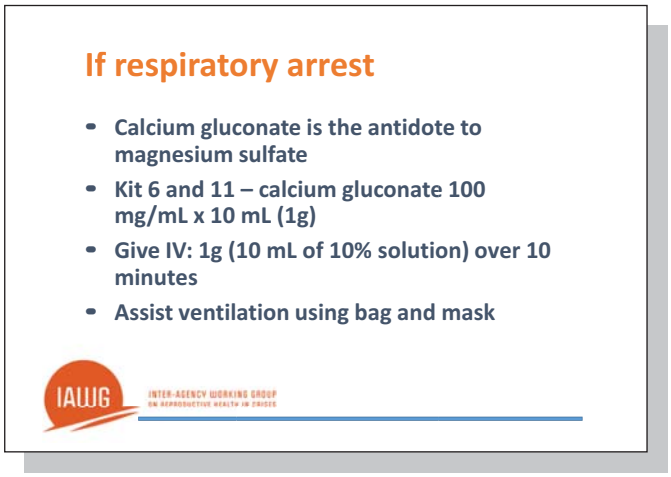
Route	Dose	50% Solution	20% Solution *Add 4 mL of 50% solution to 6 mL sterile water to make
IV	2g	4 mL →	+ 6 mL sterile water = **10 mL**
			2 g over 20 minutes in NS or LR

STOP

Never give 50% solution magnesium sulfate intravenously (IV)

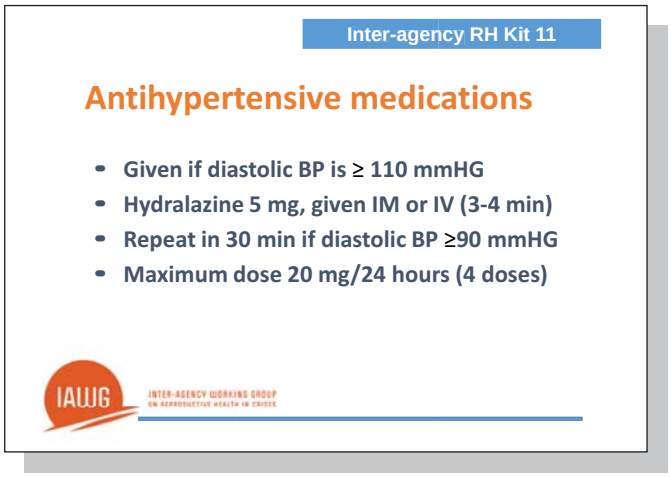
After 15 minutes, treat recurrent convulsions with a second, smaller dose of IV magnesium sulfate. Draw up 2 g/4 mL of magnesium sulfate and dilute with 6 mL of sterile water to create a 20% solution. This diluted dose can be slowly injected via IV for over 20 minutes.

Diazepam is considered to be the next step if convulsions recur after the second dose of IV magnesium. The Inter-Agency RH Kits do not have diazepam available for this purpose. Is diazepam used in your facilities?



Calcium gluconate is the antidote to magnesium sulfate. It must be available whenever magnesium sulfate will be given intravenously. If the patient stops breathing during the administration of magnesium sulfate, it is crucial to act quickly and administer the medication.

Invite the participants to the table and have them work in groups of 2 or 3 to practice using magnesium sulfate IM and IV, and to draw up calcium gluconate. Use the melon or other local fruit to practice deep IM injection.

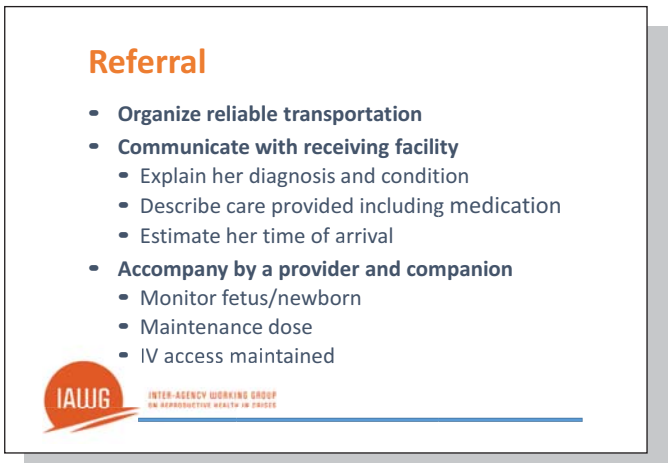


Antihypertensive drugs should be used to lower blood pressure rapidly in cases of severe pre-eclampsia and eclampsia. Use the diastolic blood pressure to determine the need for an antihypertensive.

Hydralazine is the medication of choice to lower blood pressure. It is available in Kit 11. **Ask the participants:** What types of antihypertensive drugs do you have available in your facility?

Other medications that may be available include:

- **Nifedipine immediate-release only** – 5-10 mg PO or bitten then swallowed. Repeat q 30 minutes until desired outcome achieved. Max dose 30 mg.
- **Labetalol oral** – 200 mg PO, repeat q 1 hour if needed to achieve goal Max 1200 mg in 24 hours.
- **Labetalol IV** – 10 mg IV, double dose q 10 minutes to 80 mg until the desired outcome is achieved. Max dose 300 mg, then switch to oral (do not use if congestive heart failure, asthma, or hypovolemic shock).



Discuss: What are the steps in executing an effective referral? Guide participants with the following responses:

- Organize reliable transportation.
- Communicate with the referral facility:
  - Explain her diagnosis and condition.
  - Describe care provided, including medicines.
  - Estimate her time of arrival.
- Ensure that the woman is accompanied by a companion.
- If possible, send a provider to go with her to:
  - Monitor her and the fetus/newborn.
  - Provide the first maintenance dose if she does not reach the referral facility within 4 hours.
  - Keep her IV in place.
  - Complete the referral record to send with her.
- Record the referral.
- Obtain a report from the referral facility and ensure that she receives follow-up care.

Unit 8: Rapid Assessment and Management

Time
45 minutes

Objectives
By the end of this unit, participants will be able to:
- Quickly identify and treat an obstetric emergency.
- Treat symptoms of shock.

Materials
- Presentation
- Normal vaginal delivery supplies
- IV fluids
- Simulated medications

Instructions
This unit will discuss rapid assessment and management of a patient presenting with an unknown obstetric emergency. It is important to perform a rapid assessment of the patient at the first meeting to quickly identify conditions requiring referral. Initial rapid assessment and management when a patient arrives will help you decide whether you are able to treat her at the health center level or if she needs immediate referral to a higher level of care.

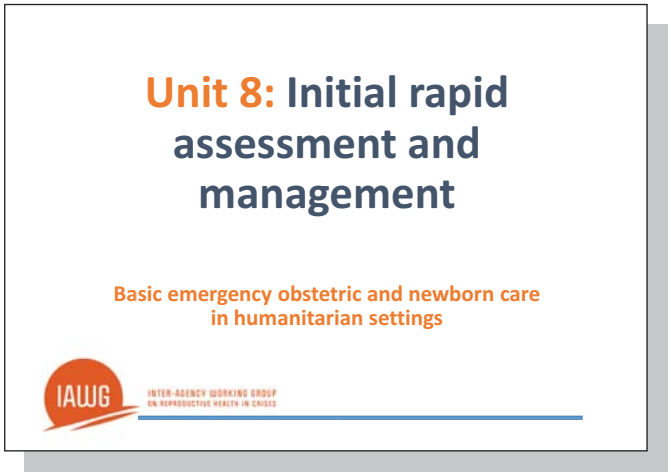
Ask the participants: What are some signs of an obstetric emergency? Possible answers may include the below:
- Unconscious
- Convulsing
- Headache
- Visual disturbances
- Bleeding
- Difficulty breathing
- Fever
- Severe vomiting
- Severe abdominal pain

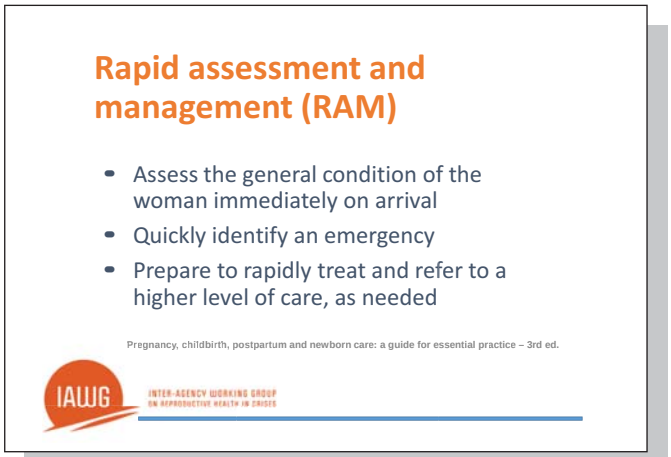
Please note that the above list is not a comprehensive list of obstetric emergencies.

Walk the participants through the identification and treatment of shock using the **slide presentation**. Explain that this type of obstetric emergency must be quickly identified, appropriate treatment rapidly initiated, and referral completed as soon as possible. Discuss the signs of shock including rapid pulse, low blood pressure, pallor, and sweating.

Ongoing practice is key for quickly identifying and treating these emergencies. Patients with shock may not present frequently in a care setting, but when they do, the acuity of their condition is high enough to warrant preparedness.

Presentation

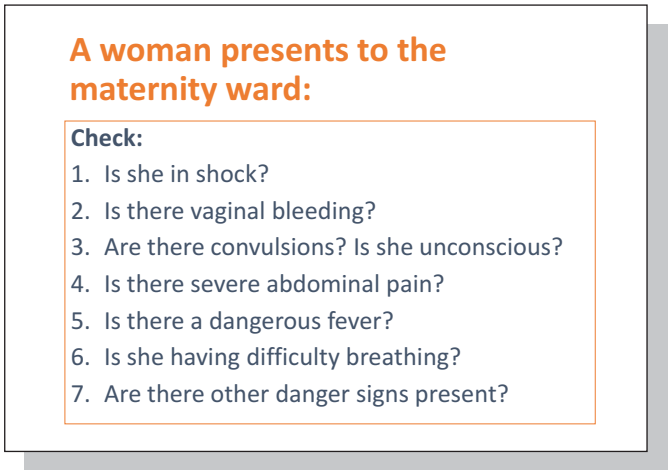




Your ability to provide appropriate care for a woman with an obstetric emergency will depend on the resources available at the facility where you are working. Rapid referral to a higher level of care may be needed. It is important to perform a rapid assessment of the patient at the first meeting to quickly identify conditions requiring referral. An initial rapid assessment when a patient arrives will help you decide whether you are able to treat her at the health center level or if she needs immediate referral to a higher level of care.

Ask: What are some signs of an obstetric emergency? Possible answers are listed below.

- Unconscious
- Convulsing
- Headache
- Visual disturbances
- Bleeding
- Difficulty breathing
- Fever
- Severe vomiting
- Severe abdominal pain



Systematically assess a woman of childbearing age for any of the emergencies that we discussed thus far in the training. Read through the questions. **Ask the participants:** What are the symptoms of shock?

Signs of Shock

Early shock	Late shock
Awake, aware, anxious	Confused or unconscious
Fast pulse	Very fast and weak pulse, rate of 110 per minute or more
Slightly fast breathing	Fast and shallow breathing (rate of 30 per minute or more)
Pale	Marked pallor, especially of inner eyelid, palms or around mouth
Sweatiness	Cold, clammy skin
Low blood pressure	Very low blood pressure
Urine output of 30 ml per hour or more	Urine output of less than 30 ml per hour

Ref Midwifery Education Modules, WHO

Review the signs of shock. Explain that low blood pressure is defined as a systolic blood pressure less than 90 mmHg.

Treat shock

- Put the patient on her left side with her legs elevated
- Insert IV line and start fluids – rapid rate
- Cover with a blanket for warmth
- If no IV access – oral rehydration solution
- Initiate hospital transfer

IAWG INTER-AGENCY WORKING GROUP ON REPRODUCTIVE HEALTH IN CRISES

Shock requires immediate treatment followed by further assessment to identify the rest of the clinical picture of the patient. Call for help immediately.

Insert an IV line and start an IV infusion at a rapid rate. This patient will need to go to the hospital.

Stay or go?

- Speed is crucial when handling emergencies
- Work together to start emergency care and initiate the transfer process
- Know the resources at your facility
- Know the referral process and to where the patient can go for a higher level of care

IAWG INTER-AGENCY WORKING GROUP ON REPRODUCTIVE HEALTH IN CRISES

Unit 9: Newborn Resuscitation (Optional)

This unit was extracted from Unit 4, Practical Session C in the Assisted Vaginal Delivery via Vacuum Extraction clinical refresher training module by the IAWG Training Partnership Initiative.

Time

45 minutes

Objectives

By the end of this unit, participants will be able to:

- Practice newborn resuscitation using a bag and a mask.

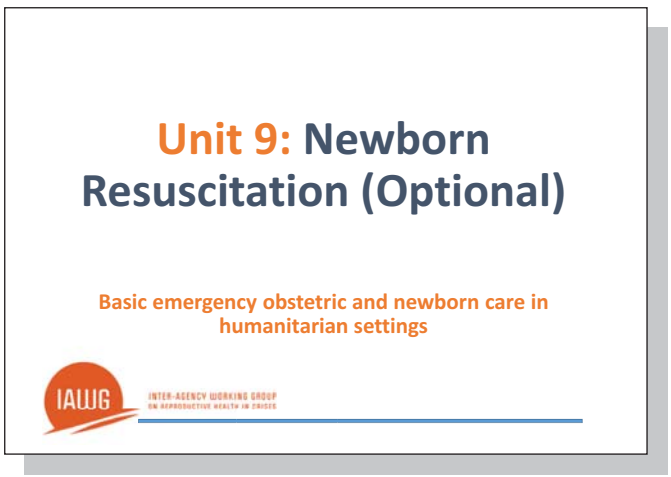
Materials

- Newborn simulator(s) x 2
- Neonatal bag and mask
- Mucus extractor or other type of neonatal suction apparatus
- Fabric or towel to dry and wrap the baby
- Clean delivery supplies
- *Checklist for Newborn Resuscitation* handout, one per participant

Instructions

- Prepare two identical work stations in one room with the newborn simulators and all necessary equipment as listed above. Place ample space between the two demonstration sites.
- Each participant should perform the entire process of newborn resuscitation with a baby simulator at least once during the practical session.
- Participants should take turns using a checklist to check the skills of a peer performing the simulation.
- The trainer supervises the session and provides feedback to the group.
- Give a demonstration prior to letting the participants practice.

Presentation



CHECKLIST FOR NEWBORN RESUSCITATION (Many of the following steps/tasks should be performed simultaneously)				
STEP/TASK			**REMARKS**	
Getting Ready (Prepare for a birth)				
1. Ensure that the area for newborn resuscitation is prepared and that a mucus extractor, self-inflating bag, correct-sized masks for ventilation, and pediatric stethoscope are clean and ready to use for every delivery. Provider should have washed hands and put on sterile gloves.				
2. Tell the woman (and her support person) what is going to be done and encourage them to ask questions.				
3. Provide continual emotional support and reassurance as feasible.				
Skill/Activity Performed Satisfactorily?	**Initials**		**Date**	
Immediate Newborn Care				
1. When a baby is born, place immediately on mother's abdomen and dry the baby quickly and thoroughly with a warm, dry cloth.				
2. Assess baby's crying and breath effort during the first 60 seconds after birth. If crying/breathing normally continue with the next step. If not crying of breathing normally by 60 seconds after delivery, go to "Initial Resuscitation Step #1."				
3. Remove wet cloth and place baby skin-to-skin on mother's chest, covering with a warm, dry cloth. Cover head with cap or cloth.				
4. Clamp and cut cord within 2-3 minutes or after pulsations have ceased.				
5. Continue to observe baby's breathing/crying as you proceed with other steps of the delivery.				
Skill/Activity Performed Satisfactorily?	**Initials**		**Date**	
Initial Resuscitation Steps (if the baby does not cry or not breathing normally)				
1. Dry the baby quickly and thoroughly. Remove the wet cloth.				
2. Clear the airway; position head and suction mouth and nose only if secretions are seen. Do not suction mouth and nose routinely.				
3. Stimulate breathing by rubbing back 2-3 times.				
4. If the baby cries or breathes normally, place baby skin-to-skin on mother's chest, covering with a warm, dry cloth. Cover head with cap or cloth.				
5. If the baby does not breathe after rubbing the back, clamp and cut the cord, place the baby on a clean, dry surface in the resuscitation area, and cover with a hat and dry cloth, leaving the chest exposed.				
6. Proceed with ventilation using bag and mask within one minute after birth.				
Skill/Activity Performed Satisfactorily?	**Initials**		**Date**	

CHECKLIST FOR NEWBORN RESUSCITATION (Many of the following steps/tasks should be performed simultaneously)				
STEP/TASK			**REMARKS**	
Resuscitation using bag and mask				
1. Position the baby's head in a slightly extended position to open the airway.				
2. Place the mask on the baby's face so that it covers the chin, mouth and nose. Form a seal between mask and face and begin ventilation.				
3. Ensure that the chest is rising with each ventilation. Ventilate at a rate of 40 breaths/minute for 1 minute.				
4. If the baby is still not breathing, call for help and improve ventilation. ▼ Head – reposition, reapply mask ▼ Mouth – clear secretions, open mouth slightly ▼ Bag – squeeze harder and continue ventilation				
5. If not breathing well, palpate umbilical cord or listen to hear rate with stethoscope. ▼ If heart rate is more than 100, continue ventilation. If the baby is breathing spontaneously and there is no in-drawing of the chest and no grunting, put the baby in skin-to-skin contact with the mother. ▼ Monitor with mother.				
6. If breathing is less than 30 per minute, heart rate is less than 100 per minute or severe chest in-drawing is present continue ventilating (with oxygen is available) and arrange for immediate referral for advanced care.				
7. If the baby does not breath spontaneously and has no detectable heart rate after 10 minutes of ventilation, resuscitation should be stopped.				
8. If the baby has a heart rate below 60 beats per minute and no spontaneous breathing after 20 minutes of ventilation, resuscitation should be stopped.				
Skill/Activity Performed Satisfactorily?	**Initials**		**Date**	
Post-procedure tasks				
1. Place disposable suction catheters and mucus extractors in a leak-proof container or plastic bag. Place reusable catheters and mucus extractors in 0.5% chlorine solution for decontamination. Then clean and process.				
2. Clean and decontaminate the valve and mask and check for damage.				
3. Wash hands thoroughly.				
4. Ensure that the mother is aware of the outcome of the resuscitation and provide support as necessary.				
5. Record pertinent information on the mother's/newborn's record.				
Skill/Activity Performed Satisfactorily?	**Initials**		**Date**	

Prepared by Jhpiego for Ministry of health in the Republic of the Union of Myanmar. (2012). *Improved Midwifery for Maternal, Newborn and Child Health Services: Best Practices in Maternal and Newborn Care Facilitator's Manual.* Used with permission.

Unit 10: Partogram (Optional)

This unit was extracted from Unit 4, Practical Session E in the Assisted Vaginal Delivery via Vacuum Extraction clinical refresher training module by the IAWG Training Partnership Initiative.

Time
45 minutes

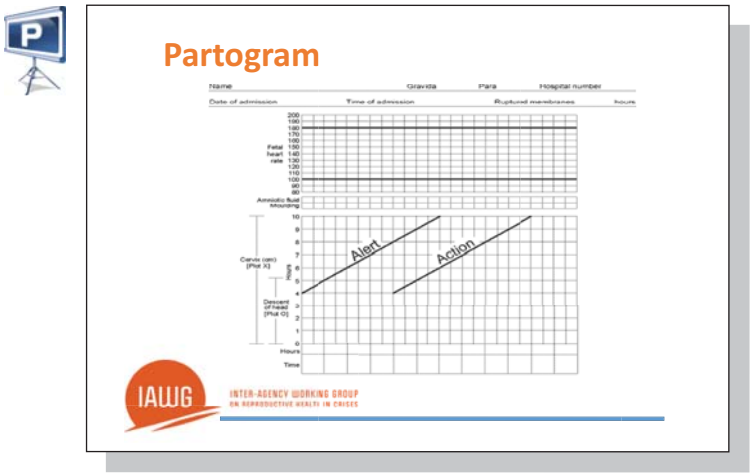
Objectives
By the end of this unit, participants will be able to:
- Use the partogram to chart labor progress.

Materials
- *Partogram*, three copies of a blank handout per participant
- *Partogram - answers*, one copy of handout per participant
- Video (on the USB key and IAWG website)

Instructions
This session is optional. It is recommended that the cases are given to the participants during Unit 9 (also optional) so they can work on them when they are not participating in the newborn resuscitation activity. Make time to debrief on this activity, if it is included. Instruct the participants to complete the partogram in groups of 2 or 3. Each case study provides instructions for charting information on the partogram and making clinical decisions based on the information provided. The answer key contains pictures of completed partograms and corresponding case study notes for discussion. Participants should receive the answer key after the activity is complete.

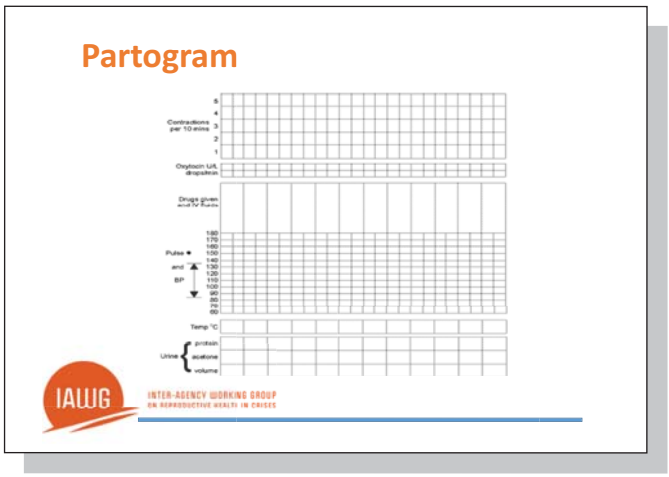
Note to Trainers: If you opt to do this session, review the partogram form with the group before beginning the exercise. You can do so using the slides in this unit and the 16-minute partogram video, based on participants' familiarity with the partogram.

Presentation



Give a brief overview of the partogram using this and the following slide.

Note: There is a link to a video about the partogram (16 minutes) included in the training package. Watching the video and doing the associated exercises (see the IAWG website or USB key) is at the discretion of the trainer, and based on the needs of the participants and time.



The partogram (or partograph) is a structured, graphical representation of the progress of labor. It shows cervical dilatation in relation to time as well as the descent of the fetal head. Space can be provided to write notes on the partogram including: the frequency of contractions, fetal heart rate, maternal observations, and medication administration. By using it, the progress of labor can be seen at a glance on one sheet of paper. The partogram is a tool to identify when intervention is necessary, as failure to progress can be easily recognized.

Unsatisfactory progress in labor and the possibility of intervention is assessed when cervical dilatation is too far to the right of the alert line on the partogram.

Practical Session Answer Key

Adapted from Jhpiego. *Managing Complications in Pregnancy and Childbirth Learning Resource Package.*

Instructions

There are three case studies about labor management. Follow each step of the assigned case and fill out the partogram as you go along, plotting the data as it is provided. Answer the associated questions. Discuss the questions with your team as you go along. Review the answer key for any discrepancies with your exercise. These will be discussed as a group at the end of the session.

CASE 1

Instructions: The group members should systematically go through each step below and plot the information on their individual partograms. Answer the questions associated with each step for Mrs. A.

STEP 1: Mrs. A was admitted at 05.00 on 19 September 2015. Membranes ruptured at 04.00. She is a gravida 3, para 2+0. The hospital number is 7886. On admission, the fetal head was 4/5 palpable above the symphysis pubis and the cervix was 2 cm dilated. Contractions are 2 in 10, lasting 25 seconds.

Q: What should be recorded on the partogram?

Note: Mrs. A is not in the active phase of labor. Record the details of her history, contractions, and your examination findings. If you are using a partogram that allows for observations of the latent phase of labor, record your findings on the partogram. If not, record your findings in the mother's case notes. She is due for another vaginal examination in 8 hours or earlier if spontaneous rupture of the membrane occurs.

SEE PARTOGRAM

STEP 2: It is 13.00 (8 hours later). The fetal head is 3/5 palpable above the symphysis pubis. The cervix is 5 cm dilated.

Q: What should you now record on the partogram?

SEE PARTOGRAM

STEP 3: Mrs. A is now in the active phase of labor. Note the phase of labor and plot the following information on the partogram:

- 3 contractions in 10 minutes, each lasting 40 seconds
- Fetal heart rate (FHR) 120
- Membranes ruptured, amniotic fluid clear on pad check
- Sutures of the skull bones are apposed (molding +), no caput
- Blood pressure 120/70 mmHg
- Temperature 36.8°C
- Pulse 80/minute
- Urine output 200 mL; negative protein and acetone

Answer the following questions:

Q: What steps should be taken?

- Inform Mrs. A and her family of the findings and what to expect.
- Encourage Mrs. A to ask questions.
- Provide comfort measures and hydration.

Q: What advice should be given?

- Assume the position of her choice.
- Drink plenty of fluids.
- Eat as desired.

Q: What do you expect to find at 17:00?

- Progress to at least 9 cm dilatation.

STEP 4: Labor monitoring is ongoing over the next four hours. Plot the following information on the partogram:

09.30 FHR 120, Contractions 2/10 each 30 seconds, Pulse 80/minute
10.00 FHR 136, Contractions 2/10 each 30 seconds, Pulse 80/minute
10.30 FHR 140, Contractions 2/10 each 35 seconds, Pulse 88/minute
11.00 FHR 130, Contractions 2/10 each 40 seconds, Pulse 88/minute, Temperature 37°C
11.30 FHR 136, Contractions 3/10 each 40 seconds, Pulse 84/minute, Head is 2/5 palpable
12.00 FHR 140, Contractions 3/10 each 40 seconds, Pulse 88/minute
12.30 FHR 130, Contractions 3/10 each 45 seconds, Pulse 88/minute
13.00 FHR 140, Contractions 3/10 each 45 seconds, Pulse 90/minute, Temperature 37°C

- 13.00:
  - The fetal head is 2/5 palpable above the symphysis pubis
  - The cervix is fully 5 cm dilated
  - Amniotic fluid is clear
  - Sutures apposed
  - Blood pressure 100/70 mmHg
  - Urine output 150 mL; negative protein and acetone

Answer the following questions:

Q: What steps should be taken?

- Assume the position of her choice.
- Frequent sips of fluids.

Vaginal assessment at 17.00 shows that the cervix is now fully dilated and the head has descended to 0/5; Mrs. A now feels expulsive. Record the following information on the partogram.

Q: What advice should be given? Push only with the urge to push.

Q: What do you expect to happen next? Spontaneous vaginal birth.

STEP 5: Record the following information on the partogram:

- 7.20: Spontaneous birth of a live female infant weighing 2,850 g

Answer the following questions:

Q: How long was the active phase of the first stage of labor?

5 hours (4 hours from 13.00 - 17.00).

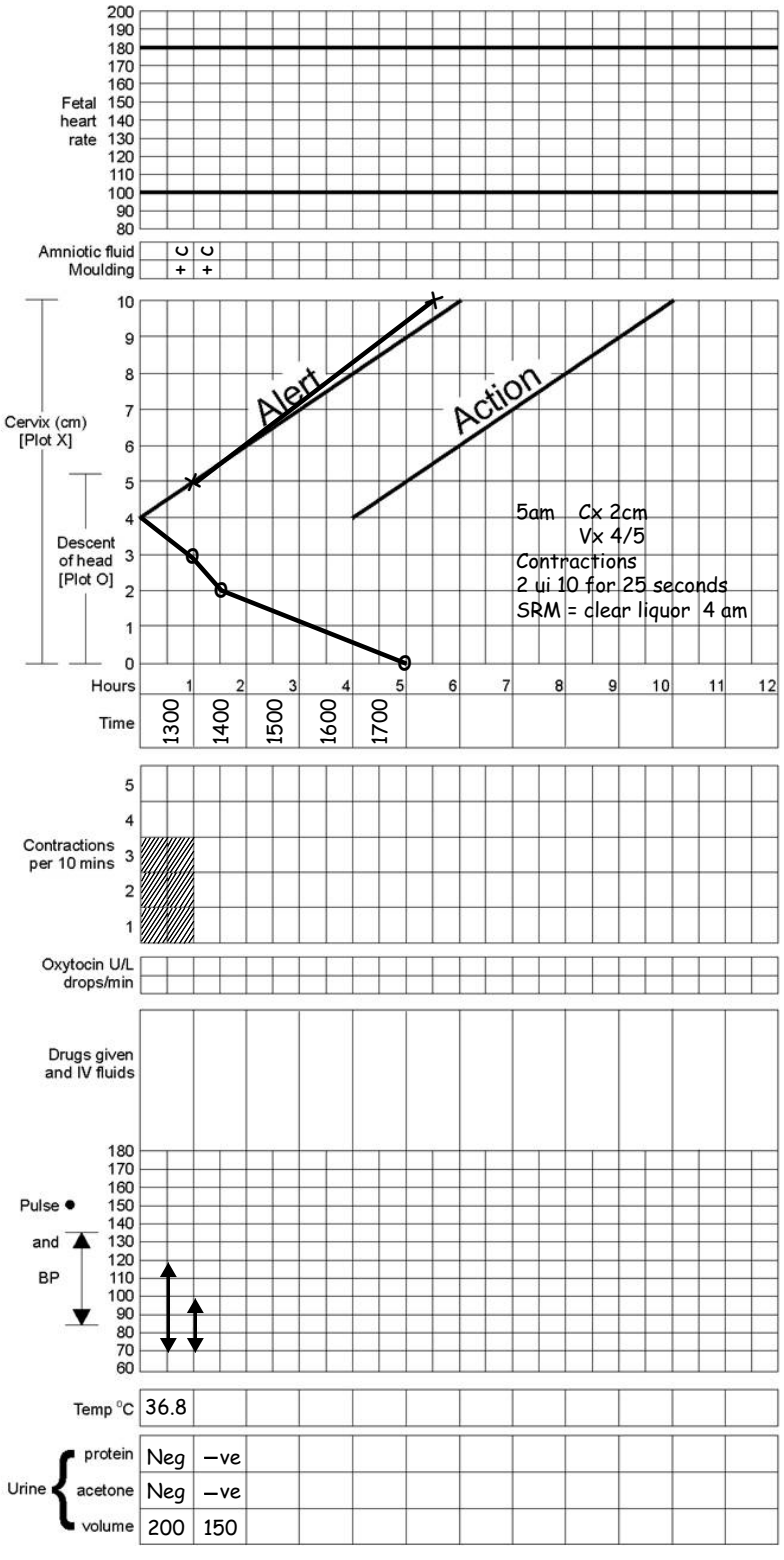
Q: How long was the second stage of labor?

20 minutes.

CASE 1

Name Mrs. A Gravida 3 Para 2 +0 Hospital number 7886 (464521)

Date of admission 19.9.15 Time of admission 5 am Ruptured membranes 1 hours



CASE 2

Instructions: The group should systematically go through each step below and plot the information on each participant's individual partogram. Answer the questions associated with each step for Mrs. B.

STEP 1: Mrs. B was admitted at 10.00 on 19 September 2013. She is gravida 1, para 0+0. Her membranes are intact. The hospital number is 1443.

Record the personal history details above on the partogram, together with the following details:

- The fetal head is 3/5 palpable above the symphysis pubis
- The cervix is 4 cm dilated
- 2 contractions in 10 minutes, each lasting for 30 seconds
- FHR 140
- Membranes intact
- Blood pressure 100/70 mmHg
- Temperature 36.2°C
- Pulse 80/minute

Answer the following questions:

Q: What is your diagnosis? Active labor

Q: What action will you take?

- Inform Mrs. B and her family of the findings and what to expect.
- Always provide the opportunity for Mrs. B to ask questions.
- Encourage Mrs. B to walk around, eat, and drink as desired.

STEP 2: Plot the following information on the partogram for Mrs. B:

10.30 FHR 140, Contractions 2/10 each 25 seconds, Pulse 90/minute
11.00 FHR 136, Contractions 2/10 each 15 seconds, Pulse 88/minute
11.30 FHR 140, Contractions 2/10 each 30 seconds, Pulse 84/minute
12.00 FHR 136, Contractions 2/10 each 30 seconds, Pulse 88/minute, Temperature 36.2°C, Membranes intact. The fetal head is 5/5 palpable above the symphysis pubis. The cervix is 4 cm dilated.

Answer the following questions:

Q: What is your diagnosis?

- Prolonged active phase of labor.
- Less than 3 contractions in 10 minutes, each lasting less than 40 seconds.
- Good fetal and maternal condition.

Q: What action will you take?

Note: Plan to facilitate a discussion about using oxytocin to augment labor based on the clinical setting. For instance, is the woman being cared for at a health post that is 4 hours away from a district hospital where an oxytocin drip can be started? Or if she is in a district hospital, can other measures be used before oxytocin is started, such as hydration and ambulation?

STEP 3: Plot the following information on the partogram:

12.30 FHR 136, Contractions 2/10 each 30 seconds, Pulse 90/minute
13.00 FHR 140, Contractions 2/10 each 30 seconds, Pulse 88/minute

13.30 FHR 130, Contractions 2/10 each 30 seconds, Pulse 88/minute

14.00 FHR 140, Contractions 2/10 each 30 seconds, Pulse 90/minute, Temperature 36.8°C, Blood pressure 100/70 mmHg. The fetal head is 3/5 palpable above the symphysis pubis. Urine output 300 mL; negative protein and acetone.

Answer the following questions:

Q: What is your diagnosis?

- Prolonged active phase.
- Less than 3 contractions per 10 minutes, each lasting less than 30 seconds.
- Good fetal and maternal condition.

Q: What will you do?

- Augment labor with oxytocin and artificial rupture of membranes.
- Inform Mrs. B and her family of the findings and what to expect.
- Reassure.
- Answer questions.
- Encourage drinks.
- Encourage Mrs. B to assume the position of her choice.

STEP 4: Plot the following information on the partogram:

- 14:00:
  - The cervix is 4 cm dilated, sutures apposed
  - Labor augmented with oxytocin 2.5 units in 500 mL IV fluid at 10 drops per minute (dpm)
  - Membranes artificially ruptured, clear fluid
- 14.30:
  - 2 contractions in 10 minutes, each lasting 35 seconds
  - Infusion rate increased to 20 dpm
  - FHR 140, Pulse 90/minute
- 15.00:
  - 3 contractions in 10 minutes, each lasting 40 seconds
  - Infusion rate increased to 30 dpm
  - FHR 140, Pulse 90/minute
- 15:30:
  - 3 contractions in 10 minutes, each lasting 45 seconds
  - Infusion rate increased to 40 dpm
  - FHR 140, Pulse 88/minute
- 16.00:
  - Fetal head now 2/5 palpable above the symphysis pubis
  - Cervix 6 cm dilated; sutures apposed
  - 3 contractions in 10 minutes, each lasting 45 seconds
  - Infusion rate maintained at 40 dpm
  - FHR 144, Pulse 92/minute
  - Amniotic fluid clear

- 16.30:
  - 3 contractions in 10 minutes, each lasting 45 seconds
  - FHR 140, Pulse 90/minute
  - Infusion increase to 50 dpm

Q: What steps would you take?

- Continue to augment labor (maintain oxytocin infusion rate at 50 dpm).
- Provide comfort (psychological and physical).
- Encourage drinks and nutrition.

STEP 5: Plot the following information on the partogram:

- 17.00 FHR 138, Pulse 92/minute, Contractions 3/10 each 45 seconds, Maintain at 50 dpm
- 17.30 FHR 140, Pulse 94/minute, Contractions 3/10 each 45 seconds, Maintain at 50 dpm
- 18.00 FHR 140, Pulse 96/minute, Contractions 4/10 each 50 seconds, Maintain at 50 dpm
- 18.30 FHR 144, Pulse 94/minute, Contractions 4/10 each 50 seconds, Maintain at 50 dpm

STEP 6: Plot the following information on the partogram:

- 19.00:
  - Fetal head 0/5 palpable above the symphysis pubis
  - 4 contractions in 10 minutes, each lasting 50 seconds
  - FHR 144, Pulse 90/minute
  - Cervix fully dilated. Mother feels expulsive.

STEP 7: Record the following information on the partogram:

- 19.30:
  - 4 contractions in 10 minutes, each lasting 50 seconds
  - FHR 142, Pulse 100/minute

- 20.00:
  - 4 contractions in 10 minutes, each lasting 50 seconds
  - FHR 146, Pulse 110/minute
  - Spontaneous birth of a live male infant weighing 2,654 g

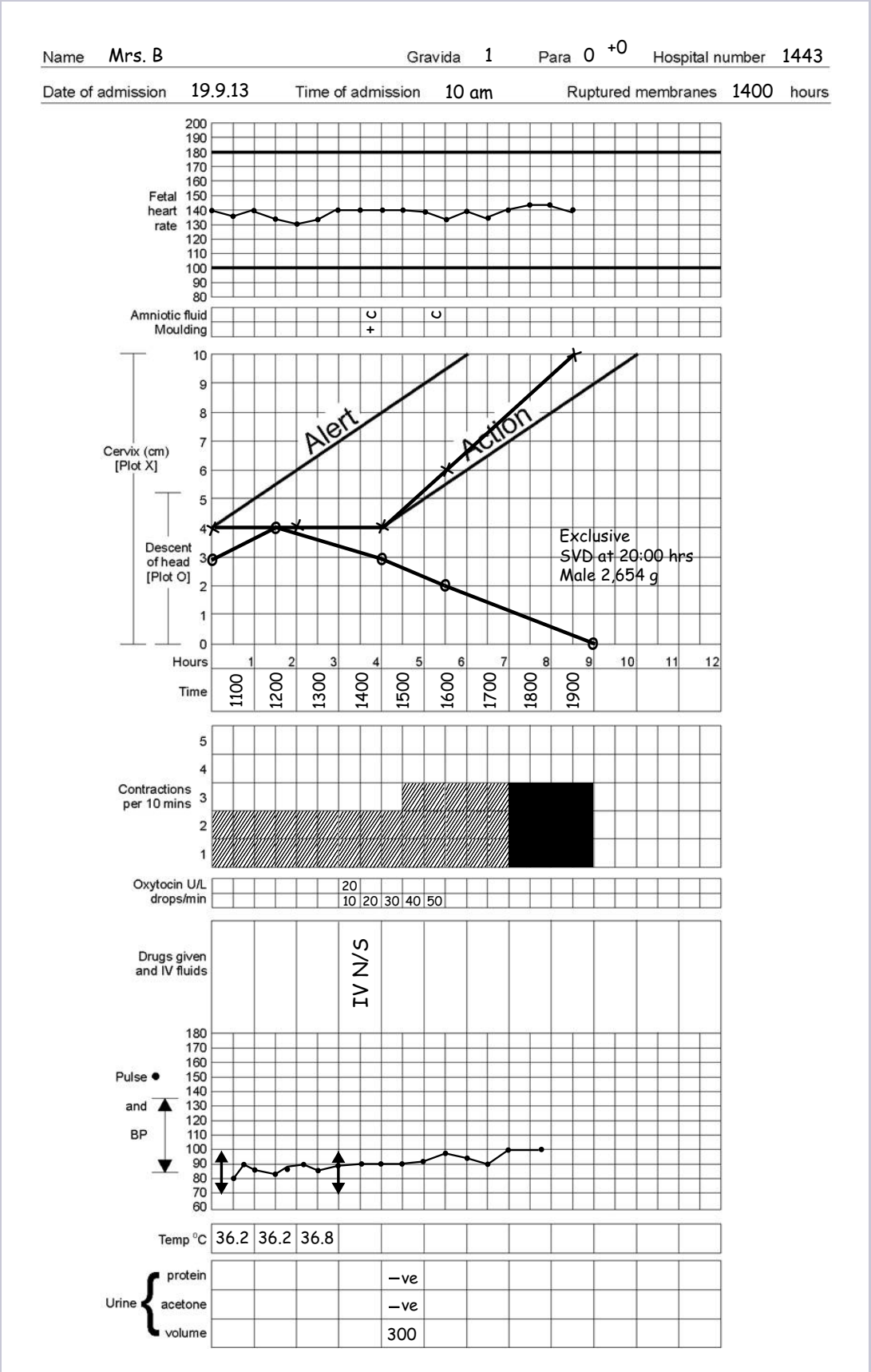
Answer the following questions:

Q: How long was the active phase of the first stage of labor? Nine hours.

Q: How long was the second stage of labor? One hour (60 minutes).

Q: Why was labor augmented? Less than 3 contractions in 10 minutes, each lasting less than 40 seconds (lack of progress).

CASE 2


Name Mrs. B
Gravida 1
Para 0 +0
Hospital number 1443
Date of admission 19.9.13
Time of admission 10 am
Ruptured membranes 1400 hours
Fetal heart rate
Amniotic fluid
Moulding
+ C
C
Cervix (cm) [Plot X]
Descent of head [Plot O]
Alert
Action
Exclusive
SVD at 20:00 hrs
Male 2,654 g
Hours
Time
1100
1200
1300
1400
1500
1600
1700
1800
1900
Contractions per 10 mins
Oxytocin U/L drops/min
Drugs given and IV fluids
IV N/S
Pulse
and
BP
Temp °C
36.2
36.2
36.8
Urine
protein
acetone
volume
−ve
−ve
300

CASE 3

STEP 1: Mrs. C was admitted at 10.00 on 19 September 2013. Membranes ruptured spontaneously at 04.00. She is a gravida 4, para 3+0. Her hospital number is 6639.

Record the information above on the partogram, together with the following details:

- Fetal head 3/5 palpable above the symphysis pubis
- Cervix 4 cm dilated
- 3 contractions in 10 minutes, each lasting 30 seconds
- FHR 140
- Amniotic fluid clear
- Sutures apposed (Molding +)
- Blood pressure 120/70 mmHg
- Temperature 36.8°C
- Pulse 80/minute

STEP 2: Plot the following information in the partogram:

- 10.30 FHR 130, Contractions 3/10 each 45 seconds, Pulse 80/minute
- 11.00 FHR 136, Contractions 3/10 each 45 seconds, Pulse 90/minute
- 11.30 FHR 140, Contractions 3/10 each 45 seconds, Pulse 88/minute
- 12.00 FHR 140, Contractions 3/10 each 45 seconds, Pulse 90/minute, Temperature 37°C, Head 3/5 palpable
- 12.30 FHR 130, Contractions 3/10 each 45 seconds, Pulse 90/minute
- 13.00 FHR 130, Contractions 3/10 each 50 seconds, Pulse 88/minute
- 13.30 FHR 120, Contractions 3/10 each 50 seconds, Pulse 88/minute
- 14.00 FHR 130, Contractions 3/10 each 50, Pulse 90/minute, Temperature 37°C, Blood Pressure 100/70 mmHg. Fetal head 3/5 palpable above the symphysis pubis. Cervix 6 cm dilated, amniotic fluid clear. Sutures overlapped but reducible (Molding ++).

STEP 3: Plot the following information in the partogram:

- 14.30 FHR 120, Contractions 3/10 each 45 seconds, Pulse 90/minute, Clear fluid
- 15.00 FHR 120, Contractions 3/10 each 45 seconds, Pulse 88/minute, Blood-stained fluid
- 15.30 FHR 100, Contractions 3/10 each 45 seconds, Pulse 100/minute
- 16.00 FHR 90, Contractions 3/10 each 50 seconds, Pulse 100/minute, Temperature 37°C
- 16.30 FHR 96, Contractions 4/10 each 50 seconds, Pulse 110/minute. Fetal head 3/5 palpable above the symphysis pubis. Cervix 6 cm dilated. Amniotic fluid meconium stained. Sutures overlapped and not reducible. Urine output 100 mL; protein negative, acetone 1+.

STEP 4: Record the following information on the partogram:

- Cesarean section at 17.30, live female infant with poor respiratory effort and weighing 4,850 g.

Answer the following questions:

Q: What is the final diagnosis?

Obstructed labor with fetal head 3/5 palpable above the symphysis pubis.

Q: What action was indicated at 14.00, and why?

Cesarean section (CS) because Mrs. C was already in secondary arrest of dilatation and descent despite at least 3 contractions in 10 minutes, each lasting more than 40 seconds.

Q: What action was indicated at 15.00, and why?

- Continue emotional and physical support, including hydration.
- Continue attentive monitoring of maternal and fetal condition.
- Have crossed the alert line.
- Blood-stained amniotic fluid.

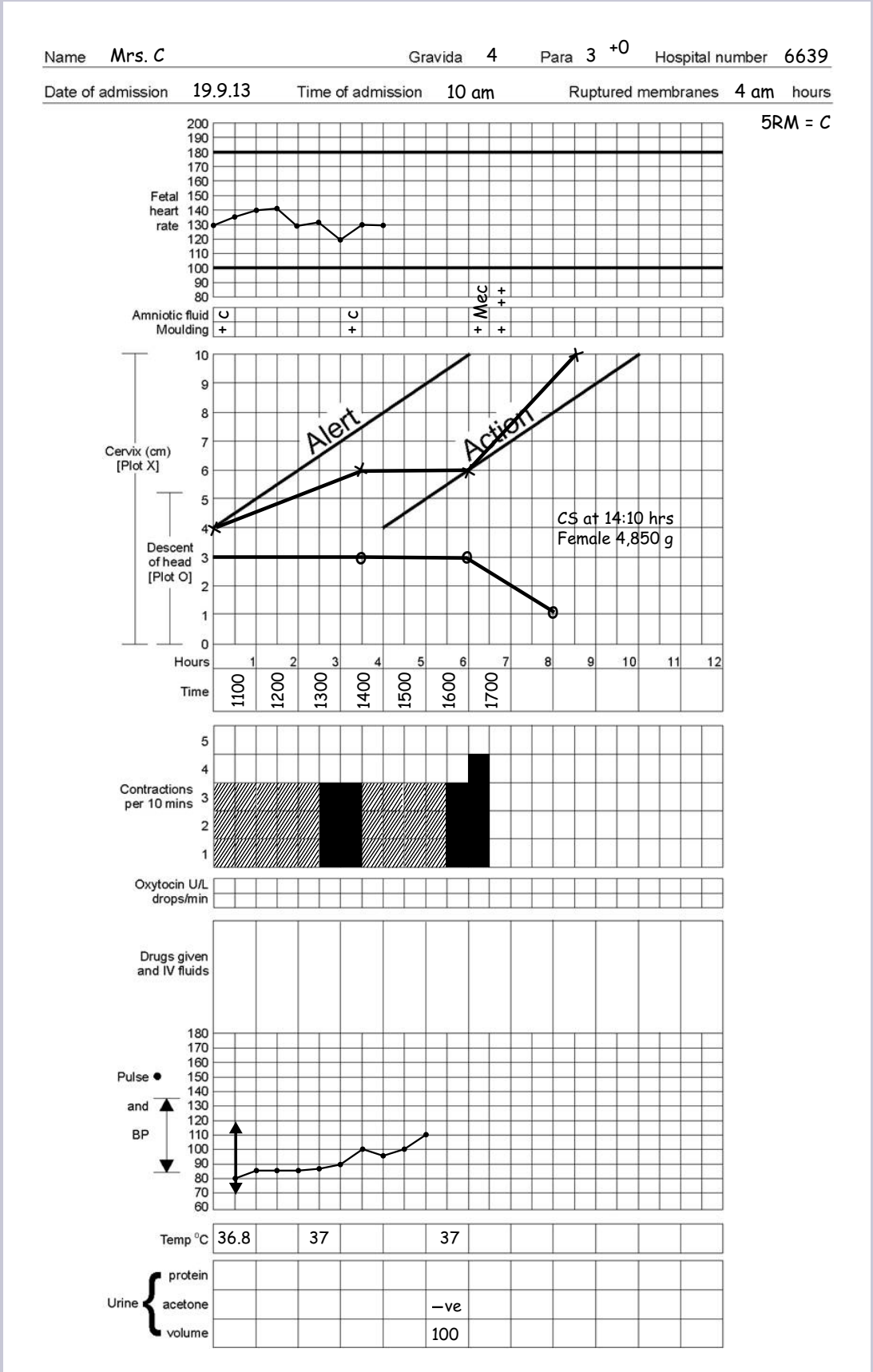
Q: At 17.00, a decision was taken to do a cesarean section, and this was rapidly done. Was this a correct action?

Yes, it was correct because of the following: the fetal condition was deteriorating, failure to progress, and a rising maternal pulse.

Q: What problems may be expected in the newborn?

Asphyxia, meconium aspiration.

CASE 3


Name Mrs. C
Gravida 4
Para 3 +0
Hospital number 6639
Date of admission 19.9.13
Time of admission 10 am
Ruptured membranes 4 am hours
5RM = C
Fetal heart rate
Amniotic fluid
Moulding
C
Mec
Cervix (cm) [Plot X]
Descent of head [Plot O]
Alert
Action
CS at 14:10 hrs
Female 4,850 g
Hours
Time
1100
1200
1300
1400
1500
1600
1700
Contractions per 10 mins
Oxytocin U/L drops/min
Drugs given and IV fluids
Pulse
and
BP
Temp °C
36.8
37
37
Urine
protein
acetone
volume
–ve
100

Unit 11: Closing

Time

30 minutes

Objectives

By the end of this unit, participants should be able to:

- Explain how the training met their expectations and course objectives.

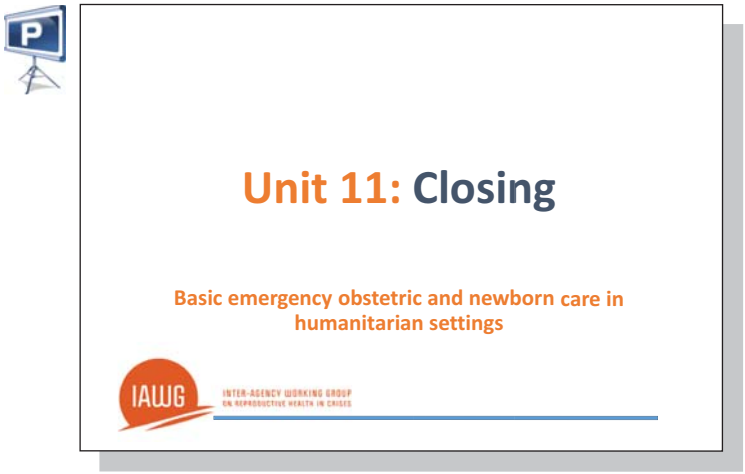
Materials

- Flip chart paper
- *Course Evaluation*, one per participant
- *Post-test*, one per participant
- *Certificate of Completion*, one per participant

Instructions

End the training by first reviewing the course objectives and revisiting the participants' expectations. Ensure that all expectations have been addressed. Hand out the *Post-test* and ask the participants to take 15 minutes to complete it. After finishing the test, participants can take 10 minutes to fill out the *Course Evaluation*. Thank the participants for their attention and participation in the short refresher training course. Present each participant with a prepared *Certificate of Completion* to wrap up the training.

Presentation



Sample Certificate of Attendance

Certificate of Completion

[Recipient Name]

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is hereby recognized as completing a two-day clinical refresher course on

Basic Emergency Obstetric and Newborn Care in Humanitarian Settings, Select Signal Functions

IAWG INTER-AGENCY WORKING GROUP ON REPRODUCTIVE HEALTH IN CRISES

PRESENTED BY:

ON THIS DAY:

References

- Jhpiego. *Helping Mothers Survive – Bleeding after birth.* 2015.
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- Médecins Sans Frontières. *Essential Obstetric and Newborn Care.* 2015 edition.
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