



Prevention of Postpartum Hemorrhage: Implementing Active Management of the Third Stage of Labor (AMTSL)

Participant's Notebook



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Suggested citation: POPPHI. Prevention of Postpartum Hemorrhage: Implementing Active Management of the Third Stage of Labor (AMTSL): Participant's Notebook. Seattle: PATH; 2007.

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2007

Prevention of Postpartum Hemorrhage Initiative (POPPHI)

This manual is made possible through support provided to the POPPHI project by the Office of Health, Infectious Diseases and Nutrition, Bureau for Global Health, US Agency for International Development, under the terms of Subcontract No. 4-31-U-8954, under Contract No. GHS-I-00-03-00028. POPPHI is implemented by a collaborative effort between PATH, RTI International, and EngenderHealth.

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Acknowledgements

This manual was funded by the Office of Health, Infectious Diseases and Nutrition, Bureau for Global Health, US Agency for International Development, under the terms of Subcontract No. 4-31-U-8954, under Contract No. GHS-I-00-03-00028.

The writing team of Frances Ganges, Diana Beck, and Susheela M. Engelbrecht is grateful to the following people who provided invaluable assistance with this effort:

- Gloria Metcalfe, author of the first iteration of this and accompanying training materials.
- Contributing editors Deborah Armbruster, Sandy Buffington, Patricia Gomez, Meghan Greeley, Phyllis Long, Gloria Metcalfe, Setara Rahman, Carla Spaccarotelli, and Sara Stratton.
- Reviewers Sadiya Ahsan, Rani Bang, Rachel Bishop, Martha Carlough, Annie Clark, Blami Dao, Annie Davenport, Barbara Deller, Abdelhadi Eltahir, Christina Kramer, Debra Lewis, Jim Litch, Bridget Lynch, Tekle-Ab Mekbib, Zahida Qureshi, Graciela Salvador-Davila, Marc Sklar, Claudia Vera, and Susana Veraguas.
- Proofreader Mary Lou Austin.

About POPPHI

The Prevention of Postpartum Hemorrhage Initiative (POPPHI) is a USAID-funded, five-year project focusing on the reduction of postpartum hemorrhage, the single most important cause of maternal deaths worldwide. The POPPHI project is led by PATH and includes four partners: RTI International, EngenderHealth, the International Federation of Gynaecology and Obstetrics (FIGO), and the International Confederation of Midwives (ICM).

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Acronyms

AMTSL	active management of the third stage of labor
CCT	controlled cord traction
DIC	disseminated intravascular coagulopathy
FIGO	International Federation of Gynaecology and Obstetrics
HLD	high-level disinfected
ICM	International Confederation of Midwives
IM	intramuscular
IU	international units
MTCT	mother to child transmission of HIV/AIDS
PMTCT	prevention of mother to child transmission of HIV/AIDS
PMTSL	physiologic management of the third stage of labor
POPPHI	Prevention of Postpartum Hemorrhage Initiative
PPH	postpartum hemorrhage
PPPH	prevention of postpartum hemorrhage
TTI	time-temperature indicator
USAID	United States Agency for International Development
VVM	vaccine vial monitor
WHO	World Health Organization



Introduction

Efforts such as the Safe Motherhood Initiative and the World Health Organization (WHO) Making Pregnancy Safer Division and strategies to meet the United Nations Millennium Development Goals are supporting worldwide activities to reduce maternal and newborn mortality. Despite these efforts, hundreds of thousands of women and babies die or become disabled due to complications of pregnancy and childbirth every year; half of these maternal deaths occur within 24 hours of childbirth.¹

Postpartum hemorrhage (PPH) is the leading direct cause of maternal death in developing countries and results from problems during and immediately after the third stage of labor.² PPH is an **unpredictable** and **rapid** cause of maternal death worldwide, with two-thirds of women with PPH having no identifiable risk factors. Seventy to ninety percent of immediate PPH is attributed to uterine atony (failure of the uterus to properly contract after birth).^{3,4}

Fortunately, research shows that using simple, low-cost interventions can help avoid most of these tragic outcomes. Current evidence indicates active management of the third stage of labor (administration of uterotonic drugs, controlled cord traction, and fundal massage after delivery of the placenta) can reduce the incidence of postpartum hemorrhage by up to 60 percent in situations where:

- National guidelines support the use of active management of the third stage of labor (AMTSL).
- Health workers receive training in using AMTSL and administering uterotonic drugs.
- Injection safety is ensured.
- Necessary resources (uterotonic drugs and cold chain for storage of uterotonic drugs; equipment, supplies, and consumables for infection prevention and injection safety) are available.⁵

Ongoing research in various settings continues to identify the best approaches for preventing and managing postpartum bleeding and its complications. By developing national guidelines, training skilled birth attendants, improving work environments of skilled providers, and supporting the development of improved access to care, more women will have access to this life-saving intervention.

About the learning materials

POPPHI developed a learning package on the prevention of postpartum hemorrhage consisting of a reference manual, participant's notebook, and facilitator's guide. This learning package was developed for use by nurses, midwives, and doctors providing childbirth and immediate postpartum care.

Information about implementing AMTSL is featured in this reference manual as well as the corresponding participant's notebook and facilitator's guide. These documents comprise a set and should be used together. These resources are distinguished within the series by a corresponding icon located at the top of the right hand page:

Reference manual



Facilitator's guide



Participant's notebook



This course is designed to be utilized for in-service training, with the overall objective of providing updates about AMTSL use to equip nurses, midwives, and clinical and health workers to carry out the following:

- Provide safe, respectful, and friendly care to women, newborns, and their families. Women and families will then be more likely to utilize the health care system with confidence because they know they will receive competent, compassionate care.
- Follow an evidence-based protocol for safe care during active management of the third stage of labor and during the immediate postpartum period, including clear guidelines on when to refer mothers with complications, ensuring timely action is taken.
- Provide greater protection from infection for their clients and themselves.
- Store uterotonic drugs correctly to maintain their potency.

This course offers participants knowledge and skills to provide the crucial care needed to prevent PPH, improve clinical services, and train other providers.

Training objectives

This three-day clinical training provides the information needed to perform AMTSL and help prevent PPH and focuses on the following core topics:

- Review of the third stage of labor and evidence for use of AMTSL.
- Causes and prevention of postpartum hemorrhage.
- Uterotonic drugs.
- AMTSL.

Additional topics that some countries may include during the training include:

- Infection prevention.
- Birth preparedness and complication readiness.
- Managing complications during the third stage of labor.

Participants are encouraged to apply their knowledge and skills to improve clinical services and train other providers. Ultimately, this training will help improve the quality of care for women—mothers, wives, and vital members of the community—and help them stay healthy.



Training assessments

Throughout the three days, facilitators use questionnaires to assess participants' knowledge of various aspects of AMTSL and checklists to assess participants' clinical skills and other observable behaviors.

Sample agenda

A sample schedule for three days of training is shown in Table 1. Local facilitators may revise this schedule if additional topics are included.

Table 1. Sample training schedule

Day 0	Day 1	Day 2	Day 3
	Opening <ul style="list-style-type: none"> • Welcome. • Participant introductions. • Participant expectations. • Workshop norms. Course overview <ul style="list-style-type: none"> • Goals, objectives, schedule. • Approach to training. • Review of course materials. <i>Pre-course questionnaire</i>	Mid-course questionnaire Pre-clinical meeting (assessing competency on models before beginning clinical practice)	AMTSL in the clinical area When clients are not present, participants may work on learning activities in the clinical area.
	Break		
	Session 1: Review of the third stage of labor and evidence for use of AMTSL. Session 2: PPH causes and prevention.	Continued	
Lunch			
Participants arrive Pre-course skill assessment (Facilitators will assess skill level of participants with AMTSL experience.)	Session 3: Uterotonic drugs Session 4: AMTSL	AMTSL in the clinical area When clients are not present, participants may work on learning activities in the clinical area.	Final meeting Retake mid-course questionnaire (if needed)
	Break		Session 4: AMTSL (continued) Review frequently asked questions (FAQs)
	Read core topics and work on learning activities for core topics 1-4. Prepare for mid-course questionnaire.	Work on learning activities for core topics.	Workshop evaluation Closing session

Learning activities



Core topic 1: Third stage of labor and evidence for using AMTSL

When reviewing the third stage of labor and evidence for using AMTSL, training participants will:

- Review the structure and function of the uterus during the third stage of labor.
- Compare physiologic and active management of the third stage of labor (AMTSL).
- Review evidence supporting the practice of AMTSL.
- Learn why it is important to include AMTSL in your practice.

Topic learning objectives

By the end of this topic, participants will have the knowledge to:

- Describe the anatomy of the uterus.
- Explain how the structure of the uterus helps stop bleeding.
- Define AMTSL.
- Define physiologic management of the third stage of labor (PMTSL).
- Compare AMTSL and PMTSL.
- Discuss evidence to support AMTSL.
- Explain why AMTSL can save lives.



Notes

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Learning activities

Read each sentence below describing an element of active or physiologic management of the third stage of labor. Note the type of management described and write AMTSL, PMTSL, or both in the corresponding column.

Actions used to manage the third stage of labor	Type of management (AMTSL, PMTSL, or both)
Example: The provider administers uterotonic drugs only after delivery of the placenta.	PMTSL
1. The provider delivers the placenta using controlled cord traction with countertraction to support the uterus.	
2. The provider massages the uterus immediately after delivery of the placenta.	
3. The provider waits for signs of placental separation.	
4. A uterotonic is administered within one minute of the baby's birth.	
5. The placenta is delivered with the assistance of gravity and maternal effort.	

AMTSL and PMTSL provide different advantages. Read each sentence below describing a result of managing the third stage of labor, and place an "X" in the column of the management type that best describes the advantage.

Advantage	AMTSL	PMTSL
Example: Decreases length of the third stage.	X	
1. Does not interfere with normal labor process.		
2. Decreases the number of cases of PPH.		
3. Decreases average blood loss.		
4. Decreases need for blood transfusion.		
5. Does not require special drugs or supplies.		

Learning activities

1. Explain why it may be useful to define PPH as “any amount of bleeding that causes deterioration of the woman’s condition.”
2. Explain why a strategy to prevent PPH should not be based on identifying risk factors.
3. List the three most common causes of immediate PPH.
4. What is the most common cause of severe PPH in the first 24 hours after birth?
5. Describe a prevention strategy for each of the factors listed in the first column that may contribute to the loss of uterine muscle tone in the postpartum period.

Factors contributing to the loss of uterine muscle tone	Prevention strategy
Full bladder	
Prolonged/obstructed labor	
Oxytocin induction or augmentation of labor	



True or False

In the space provided, write "T" for true or "F" for false for each statement.

- _____ 1. Nearly half of women who deliver vaginally only lose about 150 mL of blood.
- _____ 2. Women who give birth by cesarean operation normally lose 1,000 mL or more.
- _____ 3. For severely anemic women, blood loss of even 200 to 250 mL can be fatal.
- _____ 4. Using a partograph to monitor and guide management of labor and detect unsatisfactory progress of labor in a timely fashion may be useful in preventing PPH.
- _____ 5. Women are unable to monitor the firmness of their own uterus.

Classroom learning activities

Review the information comparing the three main uterotonic drugs: oxytocin, ergometrine, and misoprostol. Read the characteristics listed below and place an "X" in the column corresponding to the uterotonic drug that best fits each characteristic.

Uterotonic drug characteristic	Oxytocin	Ergometrine	Misoprostol
Example: Works the fastest.	X		
Longest acting.			
Causes tonic contractions.			
Common side effects include shivering and elevated temperature.			
Common side effects include headache.			
Is contraindicated in women with or having history of hypertension, heart disease, retained placenta, pre-eclampsia, or eclampsia.			
Has no contraindications when administered in the postpartum period.			

Review the information comparing the three most commonly used uterotonic drugs: oxytocin, ergometrine, and misoprostol. Rate these drugs on a scale of 1 to 3 for their stability (1 being most stable, 3 being least stable) when exposed to heat and light.

Factor affecting drug stability	Oxytocin	Misoprostol	Ergometrine
Stability when exposed to heat			
Stability when exposed to light			

Most stable=1; Least stable=3



Case studies

Carefully read each of the case studies below and provide instructions for (1) storing uterotonic drugs in the delivery room and (2) storing in the pharmacy depot.

Case study 1: Your pharmacy manager regularly orders oxytocin and ergometrine. The health center has reasonably reliable electricity, and the electric refrigerator in the pharmacy is in good condition. The maternity ward delivery room does not have a refrigerator. The regional and national pharmacies have refrigerators, and there is an effective cold chain system for transporting vaccines. The average temperature at the health center during the hot season is 45°C in the shade.

Case study 2: The pharmacy manager prefers to order medication once per quarter and will only order ergometrine for the health center. The health center has only one gas refrigerator located in the consultation room for children under six years of age. This refrigerator is not in very good condition, and there are frequent gas stock-outs. The regional and national pharmacies have refrigerators, and there is an effective cold chain system for transporting vaccines. The average temperature at the health center during the hot season is 23°C in the shade.

Case study 3: When you picked up an order of uterotonic drugs at the regional pharmacy, you discovered the drugs were not stored in the refrigerator. There is an effective cold chain system for transporting vaccine. Your health center does not have electricity but there is one UNICEF gas refrigerator for vaccinations. The EPI does not allow anything but vaccinations to be stored in the refrigerator. The average temperature at the health center during the hot season is 31°C in the shade.

Case study 4: You are unsure if the national or regional pharmacies store uterotonic drugs in a refrigerator. You know that uterotonic drugs are transported in cold boxes when delivered to the health center. The maternity ward uses an electric refrigerator that is in good condition, and only medications and products used in the maternity ward are kept inside. Only the Matron has a key to open the refrigerator. The average temperature at the health center during the hot season is 42°C in the shade.



3. List the recommendations for storing oxytocin.

4. What are the recommendations for transporting ergometrine?

5. Describe the storage recommendations for oxytocin when refrigeration is not available.

6. Compare oxytocin and ergometrine. Use the chart below to document various characteristics and qualities of these drugs.

Quality or characteristic	Oxytocin	Ergometrine
Side effects		
Contraindications during the postpartum period		
Risks for retained placenta		
Stability when exposed to heat		
Stability when exposed to light		

True or False

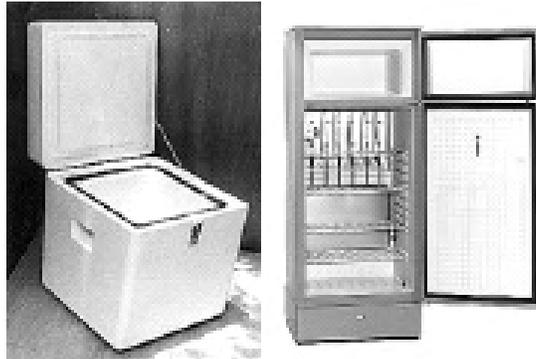
In the space provided, write "T" for true or "F" for false for each statement.

- _____ 1. Oxytocin is less stable than ergometrine when exposed to light.
- _____ 2. Oxytocin is less stable than ergometrine when exposed to heat.
- _____ 3. Ampoules of ergometrine and oxytocin should be stored in a refrigerator in the delivery room.



Job Aid: Storing uterotonic drugs in the pharmacy

Storage of uterotonic drugs in the Pharmacy



- Make sure that there are adequate stocks of uterotonic drugs, syringes, and injection safety materials
- Check the manufacturer's label for storage recommendations
- Make sure that there is a system in place to monitor the temperature of the refrigerator / cold box - record the temperature in the refrigerator on a regular basis, preferably at the hottest times of the day (put thermometers in different parts of the refrigerator)
- Make sure that there is a back-up system in place in case of frequent electricity cuts - for example, gas or solar refrigerators, placing ice packs in the refrigerator to keep it cool, etc.
- Follow the rule of first expired – first out (or first in – first out) and maintain a log to keep track of expiration dates to reduce wastage of uterotonic drugs
- Store **misoprostol** at room temperature and away from excess heat and moisture
- To ensure the longest life possible of **injectable uterotonics**, keep them refrigerated at 2–8 °C
- **Protect** ergometrine **and** syntometrine **from freezing and light**

Storage of uterotonic drugs in Delivery Rooms



- Check the manufacturer's label for recommendations on how to store injectable uterotonic drugs outside the refrigerator. In general:
 - Oxytocin may be kept outside the refrigerator at a maximum of 30 °C (warm, ambient climate) for up to three months and then discarded
 - Ergometrine and syntometrine vials may be kept outside the refrigerator in closed boxes and protected from the light for up to one month at 30 °C and then discarded
 - Misoprostol should be stored at room temperature away from excess heat and moisture
- Record the temperature in the delivery room on a regular basis, preferably at the hottest times of the day
- Periodically remove ampoules from the refrigerator for use in the delivery room – carefully calculate the number removed from the refrigerator based anticipated need
- Only remove ampoules or vials from their box just before using them
- Make sure that there are adequate stocks of syringes and injection safety materials
- Avoid keeping injectable uterotonics in open kidney dishes, trays, or coat pockets

Individual learning activities

1. Explain the purpose of AMTSL.
2. List the three main steps of AMTSL.
3. How do you help prevent the thin membranes from tearing off as the placenta delivers spontaneously?
4. What must the provider rule out before giving oxytocin for AMTSL?
5. To safely perform controlled cord traction for delivery of the placenta, the provider holds the clamped cord with one hand. With the other hand placed on the woman's abdomen above the pubic bone, the provider pushes the uterus upwards toward the woman's head. Why does the provider push the uterus upward?
6. Ms. C has just given birth to a healthy baby and you have safely completed AMTSL. The perineum is intact. How often should you monitor the amount of vaginal bleeding and firmness of the uterus? (Circle the correct answer).
 - a. Every 10 minutes.
 - b. Every 15 minutes.
 - c. Continuously.
7. Ms. B had a spontaneous vaginal birth and delivery of the placenta with AMTSL. When estimating Ms. B's blood loss, what is the expected normal blood loss?
8. What should you do if the placenta does not descend during 30 to 40 seconds of controlled cord traction?



True or False

In the space provided, write "T" for true or "F" for false for each statement.

- _____ 1. Fifty women will have to receive active rather than physiological management to prevent one PPH (blood loss >500 mL).
- _____ 2. Studies have shown that there are more complications (for example, ruptured cord, inverted uterus, and retained placenta) with AMTSL.
- _____ 3. If oxytocin is supplied in ampoules of 5 IU, only one ampoule is necessary for AMTSL when giving oxytocin intramuscularly (IM).
- _____ 4. Routine manual exploration of the uterus after AMTSL is not recommended and may be harmful.
- _____ 5. Delaying cord clamping by 2–3 minutes is beneficial for the baby.
- _____ 6. If there is an undiagnosed twin and the provider administers oxytocin, there is a theoretical risk that the twin could be trapped in the uterus.
- _____ 7. When uterotonic drugs are not available, controlled cord traction alone can reduce the incidence of PPH or severe PPH.
- _____ 8. Nipple stimulation can replace use of uterotonic drugs to prevent PPH.

Active Management of the Third Stage of Labor (AMTSL)

Offer to every woman...at every birth

1: Place the baby in skin-to-skin contact on the abdomen of the mother, dry the baby, assess the baby's breathing and perform resuscitation if needed. Cover the woman and baby.



2: Administer a uterotonic (the uterotonic of choice is oxytocin 10 IU IM) immediately after birth of the baby, and after ruling out the presence of another baby.



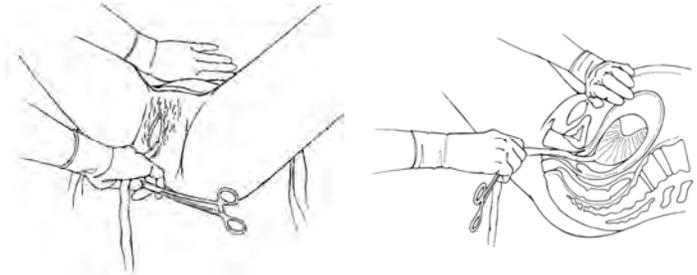
3: Clamp and cut the cord after cord pulsations have ceased or approximately 2-3 minutes after birth of the baby, whichever comes first. Cover the cord with a piece of gauze when cutting the cord to avoid splashing of blood.



4: Place the infant directly on the mother's chest, prone, with the newborn's skin touching the mother's skin. Cover the baby's head with a cap or cloth. Cover the woman and baby.



5: Perform controlled cord traction while, at the same time, supporting the uterus by applying external pressure on the uterus in an upward direction towards the woman's head.



6. Massage the uterus immediately after deliver the placenta and membranes until it is firm.



During recovery, assist the woman to breastfeed if this is her choice, monitor the newborn and woman closely, palpate the uterus through the abdomen every 15 minutes for two hours to make sure it is firm, and monitor the amount of vaginal bleeding. Provide PMTCT care as needed.





AMTSL practice checklist

Training facilitators or participants can use the following checklist to gauge progress while learning to perform AMTSL.

Checklist directions

Rate the performance of each step or task using the following rating scale:

1 = Performs the step or task completely and correctly.

0 = Unable to perform the step or task completely or correctly or the step/task was not observed.

N/A (not applicable) = Step was not needed.

Practice checklist: AMTSL steps	Date				
	Rating				
Emotional support					
1. Explain to the woman and her support person what will be done, and encourage their questions.					
2. Listen to what the woman and her support person have to say.					
3. Provide emotional support and reassurance, and keep the woman and her family informed throughout birth and during the immediate postpartum period.					
Preparation					
1. Wear a clean plastic or rubber apron, rubber boots, and eye goggles.					
2. Wash hands thoroughly with soap and water, and dry them with a clean, dry cloth (or air dry).					
3. Use sterile or high-level disinfected (HLD) surgical gloves on both hands.					
4. Place a sterile drape from the delivery pack under the woman's buttocks, another over her abdomen, and use a third drape to receive the baby.					
5. Prepare uterotonic drug (oxytocin is the uterotonic of choice).					
6. Prepare other essential equipment for the birth before onset of the second stage of labor.					
7. Ask the woman to empty her bladder when second stage is near (catheterize only if the woman cannot urinate and bladder is full).					
8. Assist the woman to assume the position of her choice (squatting, semi-sitting) and allow her to change position according to what's most comfortable for her.					

Practice checklist: AMTSL steps	Date				
	Rating				
Immediate care of the newborn					
1. Place the baby on the mother's abdomen. Thoroughly dry the baby while assessing the baby's breathing.					
2. If the baby is not crying or breathing at least 30 times per minute within 30 seconds of birth, call for help and begin resuscitation. Otherwise, the baby should remain with the mother.					
3. Place the baby in skin-to-skin contact with the mother to maintain warmth, and cover the baby—including the head—with a clean, dry cloth while keeping the face unobstructed.					
4. If the mother is not able to hold the baby , ask her companion or an assistant to care for the baby.					
AMTSL step 1: Administration of a uterotonic drug					
1. Palpate the uterus to make sure no other baby is present.					
2. If no other baby is present, administer a uterotonic drug (oxytocin 10 IU IM is the uterotonic of choice) within one minute of delivery.*					
AMTSL step 2: Controlled cord traction					
1. Wait approximately 2–3 minutes after the birth, then place one clamp 4 cm from the baby's abdomen.†					
2. Gently milk the cord towards the woman's perineum and place a second clamp on the cord approximately 1 cm from the first clamp.					
3. Cut the cord using sterile scissors, covering the scissors with gauze to prevent blood spurts. Tie the cord after the provider performs AMTSL and completes initial care of the mother and baby.					
4. Place the palm of the other hand on the lower abdomen just above the woman's pubic bone to assess for uterine contractions (do not massage the uterus before the placenta is delivered).					
5. Keep slight tension on the cord and await a strong uterine contraction (2–3 minutes).					
6. When there is a uterine contraction, apply countertraction to the uterus with the hand above the pubic bone (apply pressure on the uterus in an upward direction—towards the woman's head).					
7. While applying countertraction to the uterus, apply firm, steady traction to the cord, pulling downward on the cord following the direction of the birth canal.					
8. If the placenta does not descend during 30 to 40 seconds of controlled cord traction and there are no signs of placental separation), stop controlled cord traction.					

* If a woman has an IV, an option may be to give her 5 IU of oxytocin by slow IV push.

† This action allows red blood cells to transfer from the placenta to the baby, decreasing the incidence of infant anemia.

IM = intramuscular; IV = intravenous



Practice checklist: AMTSL steps	Date				
	Rating				
9. Gently hold the cord and wait until the uterus is well contracted again. If necessary, clamp the cord closer to the perineum as it lengthens.					
10. When there is another contraction, repeat steps 6 through 9.					
Delivery of the placenta					
1. As the placenta delivers, hold it in both hands and gently turn it until the membranes are twisted.					
2. Slowly pull to complete the delivery. Move membranes up and down until they deliver.					
3. If the membranes tear , gently examine the upper vagina and cervix wearing sterile or HLD gloves and use a sponge forceps to remove any remaining pieces of membrane.					
4. Place the placenta in the receptacle provided (for later examination).					
AMTSL step 3: Uterine massage					
1. Immediately massage the fundus of the uterus through the woman's abdomen until the uterus is contracted (firm).					
2. Check that the uterus is firm after uterine massage is stopped. If the uterus is soft, repeat massage.					
3. Instruct the woman on how the uterus should feel and how to perform uterine massage.					
Examining the birth canal					
1. Direct a strong light onto the perineum.					
2. Gently separate the labia and inspect the lower vagina for lacerations.					
3. Inspect the perineum for lacerations.					
4. Repair lacerations if necessary.					
Examining the placenta					
1. Hold the placenta in the palms of the hands, with maternal side facing upwards.					
2. Check whether all of the lobules are present and fit together.					
3. Hold the cord with one hand and allow the placenta and membranes to hang down.					
4. Insert the other hand inside the membranes, with fingers spread out.					
5. Inspect the membranes for completeness.					

Practice checklist: AMTSL steps	Date				
	Rating				
6. If membranes or placenta are not complete, take immediate action.					
7. Consult the woman about her cultural practices, and then dispose of the placenta according to national protocols.					
Making the woman comfortable					
1. Rinse gloves with soap and water, if needed.					
2. Wash the woman's perineum, buttocks, and back gently and dry her with a clean, soft cloth.					
3. Place a clean cloth or pad on the woman's perineum.					
4. Remove soiled bedding and make the woman comfortable.					
5. Estimate and record blood loss.					
Infection prevention and decontamination					
1. While still wearing gloves, rinse outside surface of gloves with decontamination solution, then:					
• Dispose of gauze swabs and other waste materials in a leak-proof container or plastic bag.					
• Dispose of needles and sharps in a sharps-disposal container.					
• Clean apron with decontamination solution.					
• Place instruments in 0.5 percent chlorine solution for 10 minutes for decontamination.					
2. Immerse both gloved hands in 0.5 percent chlorine solution:					
• Remove gloves by turning them inside out.					
• If disposing of gloves, place in leak-proof container or plastic bag.					
• If reusing surgical gloves, submerge in 0.5% chlorine solution for 10 minutes to decontaminate.					
3. Wash hands thoroughly with soap and water and dry them.					
Documentation					
1. Record relevant details on the woman's record:					
• Time the baby is born.					
• Duration of third stage.					
• AMTSL details (including name of the provider, route and dosage of uterotonic drug used).					
Care after placenta is delivered					
1. If breastfeeding is the woman's choice for infant feeding, help the woman and baby to begin breastfeeding within one hour of birth.					



Practice checklist: AMTSL steps	Date				
	Rating				
2. Monitor the woman at least every 15 minutes (more often if needed) during the first two hours after birth:					
• Palpate the uterus to check for firmness.					
• Massage the uterus until firm.					
• Check for excessive vaginal bleeding.					
• Ask the woman to call for help if bleeding increases or her uterus becomes soft.					
• If excessive bleeding is detected, take action to evaluate and treat PPH immediately.					
3. Check the baby at the same time you check the mother—every 15 minutes for the first two hours after childbirth—to monitor:					
• Baby's breathing.					
• Baby's color.					
• Warmth, by feeling the baby's feet.					
• Bleeding at the cord site.					
• If a problem is detected, take action immediately.					
4. Continue with normal care for the woman and newborn, including exclusive breastfeeding within the first 30 to 60 minutes, if this is the woman's choice for infant feeding, and interventions for PMTCT of HIV/AIDS.					
5. Review possible danger signs with the woman and her family.					
6. Document all findings.					
7. Document all care provided.					

Classroom learning activities

Infection prevention interactive game

Infection prevention knowledge interactive game	
Purpose	<ul style="list-style-type: none"> ▪ Present basic information on infection prevention in an easy and enjoyable way. ▪ Allow participants the opportunity to demonstrate their knowledge.
Duration	30 minutes
Instructions	<p>The facilitator divides participants in teams. The objective is to be the first team to complete their circle. A team can fill in one-sixth of the circle each time they get a correct answer in one of each of the following six categories:</p> <ul style="list-style-type: none"> ▪ Hand-washing. ▪ Protective gear. ▪ Handling sharps. ▪ Preventing splashes. ▪ Waste disposal. ▪ Instrument processing.
Activities	<ul style="list-style-type: none"> ▪ Each team has 15–20 minutes to answer the questions. ▪ Record your answers on the question sheet. ▪ Keep the answers simple and do not take a long time with any one question. ▪ Once each team has finished their questions, the game begins. The first team chooses a topic and a question, reads the question aloud, and has 10 seconds to provide their answer. ▪ If correct, the team colors in one-sixth of its circle and writes next to the circle the name of the topic from which the question came. ▪ A team may only answer one question per topic. ▪ If incorrect, the next team gets to answer that question or another question they choose. ▪ Once answered correctly, no other team may use that question. ▪ The facilitator will clarify answers during the discussion after the question is correctly answered. ▪ The next team takes a turn.
Goal	The first team to complete its circle by coloring in all six pieces (representing six correct answers on six different topics) is the winner and receives the prize.



Category 1: Hand-washing

For each practice or situation described below, select whether it is an acceptable or unacceptable handwashing practice.

Practice	Answer (circle one)
1. A doctor washes his hands by dipping them in a basin of water before examining a patient.	Acceptable / Unacceptable
2. If there is no running water at a clinic, one staff member pours water over the other's hands for handwashing.	Acceptable / Unacceptable
3. A large bar of soap is kept in a saucer for use by all personnel in the examination room.	Acceptable / Unacceptable
4. Staff members wash their hands for approximately 5 seconds.	Acceptable / Unacceptable
5. A staff member arrives at the clinic to find many people waiting for her, so she immediately begins seeing clients without washing her hands.	Acceptable / Unacceptable

Category 2: Protective gear

For each practice or situation described below, select whether it is an acceptable or unacceptable infection prevention practice.

Practice	Answer (circle one)
1. Put gloves in the labor room sink after use.	Acceptable / Unacceptable
2. Rub the fundus after delivery of the placenta without using gloves.	Acceptable / Unacceptable

In the space provided, circle *True* or *False* for each statement.

3. Protective gear should be worn when handling a baby after delivery, before the infant is bathed.	True / False
4. Gloves provide a barrier against possible infectious microorganisms that can be found in blood, other body fluids, and waste.	True / False
5. Even when gloves are decontaminated, cleaned, and high level disinfected, they should not be used if there are holes in them.	True / False



Category 3: Handling sharps

In the space provided, circle *True* or *False* for each statement.

Practice	Answer (circle one)
1. Injuries with sharp objects occur when sharps are left on surgical drapes or bed linens.	True / False
2. To reduce the risk of a needlestick, recap a needle by holding the syringe in one hand and holding the needle in the other hand.	True / False
3. Housekeeping staff are rarely at risk of injury or infections caused by sharps—such as hypodermic needles or scalpel blades—because they are not directly involved in client-care activities.	True / False

For each of the practices described below, select whether it is an acceptable or unacceptable infection prevention practice:

4. Break a hypodermic needle before disposal.	Acceptable / Unacceptable
5. Wash a needlestick or cut with soap and water.	Acceptable / Unacceptable

Category 4: Preventing splashes

For each practice or situation described below, select whether it is an acceptable or unacceptable infection prevention practice.

Practice	Answer (circle one)
1. The provider drops instruments into a bucket with decontamination solution to avoid contact with the solution.	Acceptable / Unacceptable
2. The provider artificially ruptures membranes during a contraction to prevent splashes.	Acceptable / Unacceptable
3. Irrigate eyes well with water when blood or body fluids splash in them.	Acceptable / Unacceptable
4. If you accidentally get blood or body fluids on your hands, wash with a 0.5 percent chlorine solution.	Acceptable / Unacceptable
5. Hold contaminated instruments under the water while scrubbing.	Acceptable / Unacceptable



Category 5: Waste disposal

In the space provided, circle *True* or *False* for each statement.

Practice	Answer
1. Everyone who handles medical waste—from the point generated until final disposal—is at risk of infections and injury.	True / False
2. If medical waste is stored at the health facility before being burned, it can be placed in a pile behind the clinic.	True / False
3. Liquid medical waste can be poured down a sink, drain, toilet, or latrine.	True / False
4. Burial sites for medical waste should not be located near water sources because of the potential to contaminate the water.	True / False
5. Scavenging of medical waste is rarely a problem in low-resource settings.	True / False

Category 6: Instrument processing

In the space provided, circle *True* or *False* for each statement.

Practice	Answer (circle one)
1. Decontamination kills all microorganisms on soiled instruments and other items.	True / False
2. When preparing a chlorine solution for decontamination, it is important to know the amount of active chlorine in the product used.	True / False
3. Cleaning instruments before sterilizing them is not necessary if they were soaked in a 0.5 percent chlorine solution for 10 minutes	True / False
4. Sterilizing may not be effective if blood and other organic material are not cleaned from instruments before sterilizing.	True / False
5. High-level disinfection kills all microorganisms.	True / False



Individual learning activities

Based on the safety practices discussed previously, **what changes should you or your facility make to improve infection prevention practices?** Review the precautions, think about your current practices and situation, and then write your specific answers below. Discuss these changes with your supervisor.

Hand-washing:

Wearing protective clothing:

Wearing appropriate gloves:

Preventing splashes:

Preventing needlesticks:

Handling the placenta:

Individual learning activities

Read the following **case study** carefully and answer the questions that follow. Justify your responses.

Case study: Ms. K's (age 32) first antenatal visit is at 32 weeks. Her village is 15 km away, and she arrived in the back of an open truck—the only transportation available. Her traditional birth attendant suggested she come to the health center for antenatal care.

She has given birth 8 times, and only two of her children are alive today. Her last baby was stillborn, the result of a long, difficult labor; she says the baby was moving well until the end of labor. After 24 hours of labor, the traditional birth attendant decided to send her to the health center. Because her husband was away at the time and no one wanted to take responsibility for her, they waited another day for her husband to return home. Although the husband decided to send her to the health center, it took several hours for him to gather enough money for the trip. The doctor delivered the baby with a vacuum, and after the birth, Ms. K bled significantly.

Discussion questions

1. What about Ms. K's case indicates why it is important she have a birth plan and plan in case of complications?
2. Where do you recommend Ms. K give birth?
3. List the important topics to address in birth-preparedness and complication-readiness plans.



Additional topic 3: Managing complications during the third stage of labor

When correctly performed, AMTSL can minimize problems and complications. However, problems may occur regardless of how the third stage of labor is managed. When emergencies arise, providers must recognize and manage them promptly. This section provides guidance on how to manage some of the most common problems associated with the third stage of labor.

Objectives

By the end of this topic, participants will be able to describe the immediate medical management of the following complications that may occur during the third stage of labor:

- Excessive bleeding after childbirth
- Shock
- Uterine atony (uterus does not adequately contract)
- Genital lacerations
- Cervical tears
- Retained placenta
- Ruptured cord tears (cord tears during controlled cord traction)
- Inverted uterus



Notes

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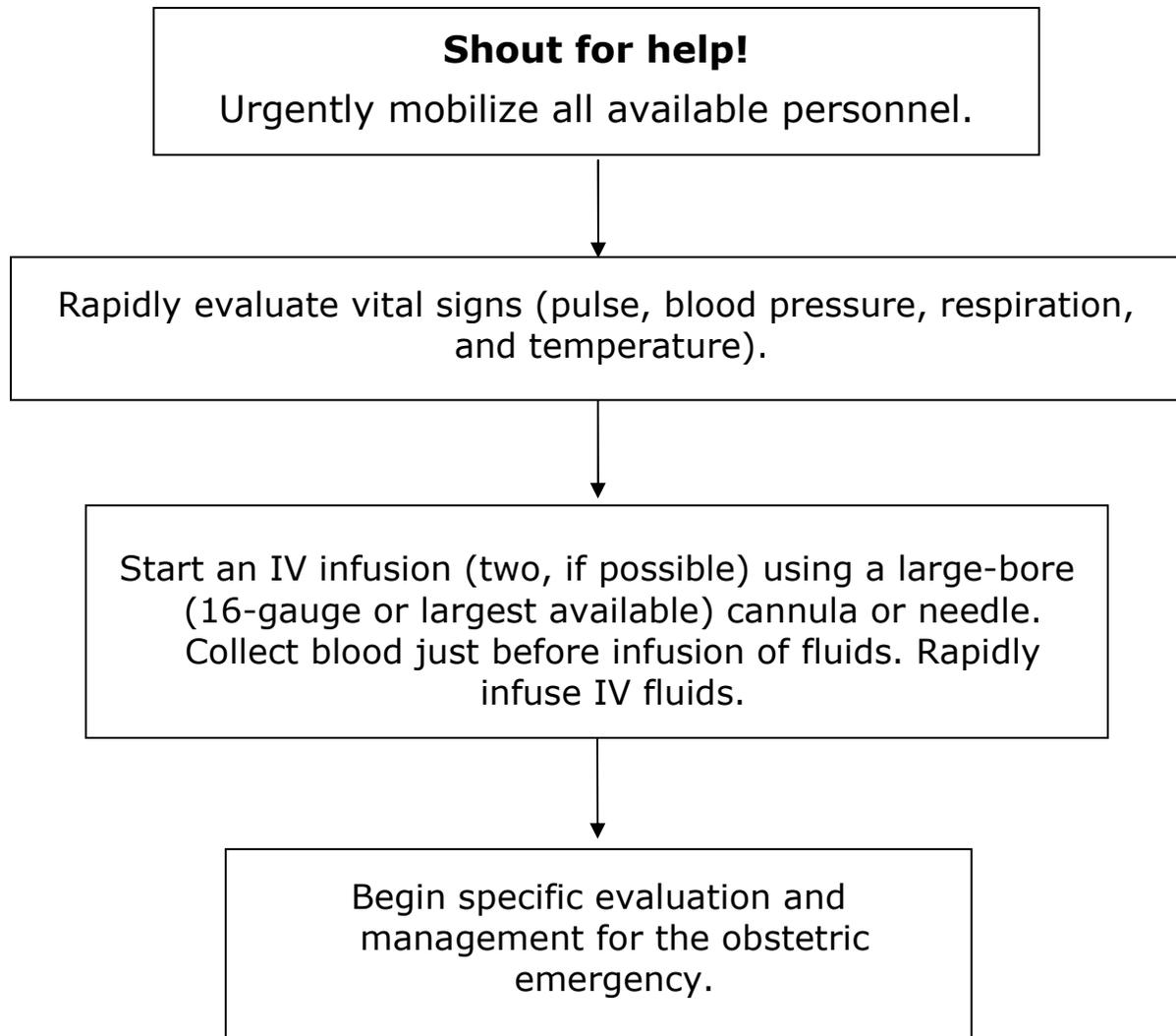
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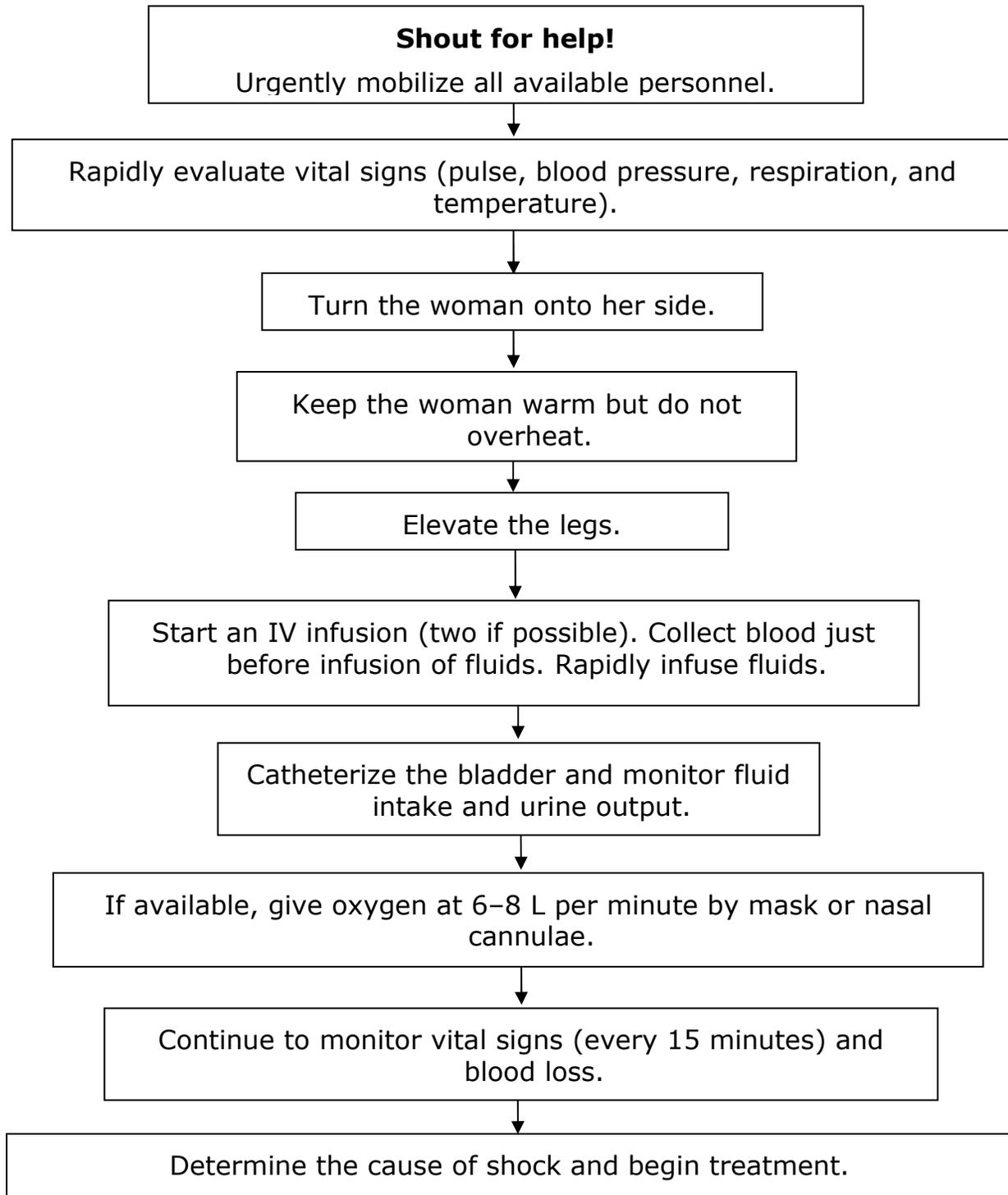
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Job Aid: Managing obstetric emergencies

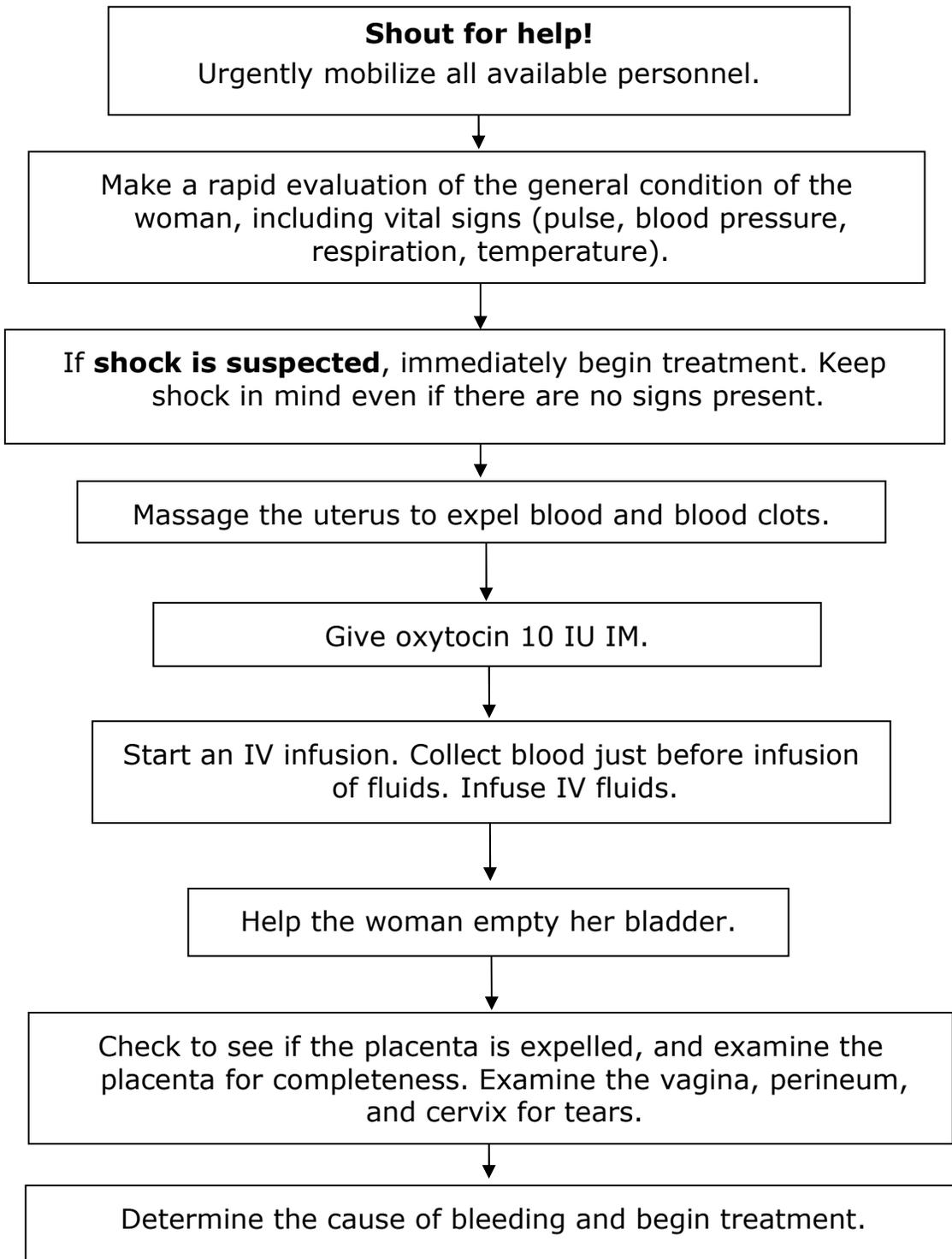




Job Aid: Managing shock



Job Aid: Managing vaginal bleeding after childbirth





Classroom learning activities

Read each of the following case studies and determine if the woman is in shock. Write your answer in the right-hand column.

Learning Activity #1: Assessing shock

Case studies	Shock? Yes / No
<p>1. Ms. A gave birth at home about 4 hours ago. She has come to the health center because of heavy vaginal bleeding. Vital signs: pulse: 96 beats/minute; blood pressure: 110/70; respirations: 21/minute; temperature: 37°C; conjunctivae are pale; extremities are warm; she is conscious; she recently passed a large amount of urine.</p>	
<p>2. You assisted Ms. B during childbirth. Labor was prolonged and she received an IV drip of oxytocin to augment uterine contractions. Ms. B gave birth soon after the IV was started and you performed AMTSL. Thirty minutes after delivery of the placenta, Ms. B is still bleeding heavily. Vital signs: pulse: 112 beats/minute; blood pressure: 80/40; respirations: 36/minute; temperature: 36°C; conjunctivae are pale; extremities are cold; Ms. B is very anxious; you don't recall the last time she urinated.</p>	
<p>3. Mme. C is 38 weeks pregnant. She has come to the health center because of vaginal bleeding and severe abdominal pain. She thinks she is in labor. Vital signs: pulse: 82 beats/minute; blood pressure: 130/90; respirations: 24/minute; temperature: 37.5°C; fetal heart tones: absent; conjunctivae are pale; extremities are cold; Ms. C is very anxious; she can't remember the last time she urinated.</p>	
<p>4. Mme. D gave birth in the health center last night. During rounds, you monitor her progress. Vital signs: pulse: 132 beats/minute; blood pressure: 70/-; respirations: 32/minute; temperature: 36°C; conjunctivae are pale; Ms. D appears confused and has cold, clammy skin; she last urinated before giving birth.</p>	

Learning Activity #2: Assessing excessive vaginal bleeding after childbirth

Read each of the following case studies and write the probable diagnosis in the right-hand column.

Case studies	Probable diagnosis
1. Ms. A gave birth 35 minutes ago. Her baby needed resuscitation, and because you were alone, you did not use AMSTL. The baby is fine, but Ms. A is now bleeding heavily and the placenta has not been expelled.	
2. Ms. B gave birth 20 minutes ago. You actively managed the third stage of labor and the placenta was complete. Ms. B is bleeding heavily now, and her uterus is well contracted.	
3. Ms. C gave birth 40 minutes ago. You actively managed the third stage and think the placenta was complete. Her uterus is well contracted and she has no vaginal or perineal tears.	
4. Ms. D gave birth 30 minutes ago. You actively managed the third stage, but she is now bleeding heavily and her uterus is soft. She has no vaginal or perineal lacerations. When you recheck the placenta, you see that one or more lobes is missing.	
5. Ms. E just gave birth and you have just completed controlled cord traction to deliver the placenta and want to massage the uterus. When you try to massage the uterus, you do not feel the uterine fundus.	
6. Ms. F gave birth 15 minutes ago. You actively managed the third stage, the placenta was complete, and she has no vaginal or perineal lacerations. You find Ms. F in a pool of blood and her uterus is soft.	



Learning activity #3: Case study: Vaginal bleeding after childbirth

Read and carefully analyze this case study.* Consider the steps in clinical decision-making as you answer the questions.

Case study: Mrs. B is a 30-year-old, para four who just gave birth at the health center to a full-term healthy newborn weighing 4.2 kg. She was given ergometrine 0.2 mg IM after birth of the newborn. The placenta was delivered 5 minutes later, without complications. However, half an hour after childbirth, Mrs. B reports heavy vaginal bleeding.

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

1. What will you do in your initial assessment of Mrs. B, and why?

2. Which aspects of Mrs. B's physical examination will help make an immediate diagnosis or identify her problems/needs, and why?

Diagnosis (identifying problems and/or needs)

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

Mrs. B's **vital signs:** pulse: 88 beats/minute; blood pressure: 110/80 mm Hg; respiration 18 breaths/minute; temperature: 37°C. Her uterus is firm and well-contracted. The placenta is complete, and she doesn't have perineal trauma. Examination of the vagina and cervix is difficult because she continues to have heavy vaginal bleeding; therefore, tears of the cervix and vagina are possible.

* Case study adapted from *Managing Complications in Pregnancy and Childbirth. Learning Resource Package: Guide for Teachers*; JHPIEGO/Maternal & Neonatal Health.

3. Based on these findings, what is Mrs. B's diagnosis, and why?

Plan of care (planning and intervention)

4. Based on your diagnosis, what is your plan of care for Mrs. B, and why?

Evaluation

One hour after childbirth, Mrs. B has a cervical tear repaired.

5. Based on this finding, what is the continuing plan of care for Mrs. B, and why?

Clinical simulation

Managing vaginal bleeding after childbirth

The purpose of this clinical simulation* is to help training participants practice problem-solving and decision-making skills in the management of vaginal bleeding after childbirth, emphasizing quick recognition and appropriate management.⁶

Time: 60 minutes

Instructions: Complete this activity outside the classroom in the labor and delivery area of a hospital, clinic, or maternity center. Before you begin, make sure that the necessary equipment and supplies are available.

- One participant plays the role of patient and another plays the role of a skilled provider. Other participants may be called to help the provider.
- The training facilitator will tell the participants what the provider has done, give information on the patient's condition, and then ask questions. The questions are in the left-hand column of the chart below.
- The participant must quickly assess the situation and respond as the facilitator provides new information and asks questions.
- The participant should role-play procedures (such as starting an IV and bimanual examination using the appropriate equipment).

Scenario 1	
Information provided and questions asked by the facilitator	Key reactions and responses from participants
<p>1. Mrs. B is 24 years old and has just given birth to a healthy baby girl after seven hours of labor. The provider performed AMTSL, and the placenta and membranes were complete. The midwife who attended the birth left the hospital at the end of her shift, shortly after the birth. About 30 minutes later, a nurse rushes to tell you that Mrs. B is bleeding profusely.</p> <p>What will you do?</p>	

* Adapted from *Managing Complications in Pregnancy and Childbirth. Learning Resource Package: Guide for Teachers*; JHPIEGO/Maternal & Neonatal Health.

Scenario 1	
Information provided and questions asked by the facilitator	Key reactions and responses from participants
<p>2. During the examination, Mrs. B's blood pressure is 102/72 mm Hg and pulse 102 beats/minute and weak. Her skin is not cold and clammy.</p> <p>What is Mrs. B's likely diagnosis? What will you do now?</p>	
<p>3. You find that Mrs. B's uterus is soft and not contracted.</p> <p>What will you do now?</p>	
<p>4. After five minutes, Mrs. B's uterus is well contracted, but she continues to bleed heavily.</p> <p>What will you do now?</p>	
<p>5. On further examination of the placenta, you find that it is complete. On examination of Mrs. B's cervix, vagina, and perineum, you find a cervical tear. She continues to bleed heavily.</p> <p>What will you do now?</p>	
<p>6. Forty-five minutes have passed since treatment for Mrs. B was started. You have just finished repairing Mrs. B's cervical tear. Her blood pressure is now 110/78 mm Hg, pulse 98 beats/minute, and respiration rate 24 breaths/minute. She is resting quietly.</p> <p>What will you do now?</p>	



Individual learning activities

Read each question below and circle the letter corresponding to the **best answer**.*

1. Tears of the cervix, vagina, or perineum should be suspected when there is immediate PPH,
 - a) a complete placenta, and a contracted uterus.
 - b) an incomplete placenta, and a contracted uterus.
 - c) a complete placenta, and an atonic uterus.
 - d) an incomplete placenta, and an atonic uterus.
2. If the uterus is inverted following childbirth,
 - a) the uterine fundus is not felt on abdominal palpation.
 - b) there may be slight or intense pain.
 - c) the inverted uterus may be apparent at the vulva.
 - d) all of the above
3. AMTSL should be practiced
 - a) only on women who have a history of PPH.
 - b) only on the primipara.
 - c) only on the multipara.
 - d) on all women giving birth vaginally.
4. If an atonic uterus does not contract after fundal massage, the next step is to
 - a) give additional uterotonic drugs.
 - b) perform bimanual compression of the uterus.
 - c) start an IV infusion.
 - d) explore the uterus for remaining placental fragments.
5. If a retained placenta is undelivered 30 minutes after oxytocin administration and controlled cord traction, and the uterus is contracted,
 - a) more aggressive controlled cord traction should be attempted.
 - b) controlled cord traction and fundal pressure should be attempted.
 - c) manual removal should be attempted.
 - d) ergometrine should be given.

* Adapted from *Managing Complications in Pregnancy and Childbirth. Learning Resource Package: Guide for Teachers*; JHPIEGO/Maternal & Neonatal Health.⁶

6. Bimanual compression of the uterus involves
 - a) placing a gloved fist into the anterior fornix and applying pressure against the anterior wall of the uterus, while the other hand presses against the posterior wall of the uterus through the abdomen.
 - b) placing a gloved fist into the anterior fornix and applying pressure against the posterior wall of the uterus, while the other hand presses against the anterior wall of the uterus through the abdomen.
 - c) placing both hands on the abdomen and applying pressure downward toward the spine.
 - d) placing both hands on the abdomen and applying pressure upward toward the diaphragm.

7. When performing abdominal aortic compression to control PPH, the place to compress is
 - a) just below and slightly to the right of the umbilicus.
 - b) just below and slightly to the left of the umbilicus.
 - c) just above and slightly to the right of the umbilicus.
 - d) just above and slightly to the left of the umbilicus.

8. When performing cervical inspection after childbirth,
 - a) a tenaculum should be used to grasp the cervix.
 - b) all the edges of the cervix should be seen.
 - c) the woman should be sedated.
 - d) the cervix should be inspected visually and then the lower uterine segment should be explored manually.

9. PPH is traditionally defined as
 - a) vaginal bleeding of any amount after childbirth.
 - b) sudden bleeding after childbirth.
 - c) vaginal bleeding in excess of 300 mL after childbirth.
 - d) vaginal bleeding in excess of 500 mL after childbirth.



Evaluation forms



Knowledge and skills evaluation form

Knowledge Assessment

Pre-course questionnaire score	
Mid-course questionnaire score	
Mid-course questionnaire (repeat)	

Skills Assessment

Clinical skill	Date completed		Facilitator signature
Active management of third stage of labor (AMTSL)	Model		
	Clinical		
Examination of the placenta	Clinical		
Immediate postpartum care	Clinical		

Comments and recommendations at the end of the program

Facilitator	Participant
Signature _____ Date _____	Signature _____ Date _____



AMTSL evaluation checklist

The facilitator or **clinical preceptor** will use the following checklist to evaluate participants' performance (competency) of **AMTSL** on obstetric models and in the clinical area.

Checklist directions

Checklist directions

Rate the performance of each step or task using the following rating scale:

1 = Performs the step or task completely and correctly.

0 = Unable to perform the step or task completely or correctly or the step/task was not observed.

N/A (not applicable) = Step was not needed.

Evaluation Checklist: AMTSL					
Date					
Evaluation type: model (M) or clinical practice (C)					
Steps	Rating				
Emotional support (2 points)					
1. Explains to the woman and her family what will happen.					
2. Provides emotional support and reassurance, and keeps the woman and her family informed throughout birth and during the immediate postpartum.					
Points for skill/activity					
Preparation (6 points)					
1. Prepares uterotonic drug (oxytocin is the uterotonic of choice) and other essential equipment for the birth before onset of second stage of labor.					
2. Wears a clean plastic or rubber apron, rubber boots, and eye goggles.					
3. Washes hands thoroughly with soap and water and dries them with a clean, dry cloth (or air dries hands).					
4. Wears sterile surgical or HLD gloves on both hands.					
5. Asks the woman to empty her bladder when second stage is near (catheterizes only if the woman cannot urinate and bladder is full).					
6. Assists the woman to assume the position of her choice (squatting, semi-sitting).					

Evaluation Checklist: AMTSL					
	Date				
Evaluation type: model (M) or clinical practice (C)					
Steps		Rating			
Points for skill/activity					
Immediate newborn care (3 points)					
1. Thoroughly dries the baby while assessing the baby's breathing.					
2. If the baby is not crying or breathing at least 30 times per minute within 30 seconds of birth calls for help and begins resuscitation.					
3. Places the baby in skin-to-skin contact with the mother and covers with a clean, dry cloth; covers head.					
Points for skill/activity					
AMTSL step 1: Administration of a uterotonic drug (2 points)					
1. Palpates the uterus to make sure no other baby is present.					
2. If no other baby is present, administers uterotonic drug (oxytocin 10 IU IM is the uterotonic of choice) within one minute of delivery (if a woman has an IV infusion, an option is giving oxytocin 5 IU IV bolus slowly).					
Points for skill/activity					
AMTSL step 2: Controlled cord traction (9 points)					
1. Clamps and cuts the cord approximately 2–3 minutes after the birth.					
2. Places the palm of the other hand on the lower abdomen just above the woman's pubic bone.					
3. Keeps slight tension on the cord and awaits a strong uterine contraction.					
4. Applies gentle but firm traction to the cord during a contraction, while at the same time applying countertraction abdominally.					
5. Waits for the next contraction and repeats the action if the maneuver is not successful after 30-40 seconds of controlled cord traction.					
6. As the placenta delivers, holds it in both hands.					
7. Uses a gentle upward and downward movement or twisting action to deliver the membranes.					
8. If the membranes tear , gently examines the upper vagina and cervix.					
9. Places the placenta in the receptacle (e.g., kidney basin) provided.					
Points for skill/activity					



Evaluation Checklist: AMTSL					
Date					
Evaluation type: model (M) or clinical practice (C)					
Steps	Rating				
AMTSL step 3: Uterine massage (4 points)					
1. Immediately massages the fundus of the uterus through the woman's abdomen until the uterus is contracted (firm).					
2. Ensures the uterus does not become relaxed (soft) after stopping uterine massage.					
3. If the uterus becomes soft after massage, repeats uterine massage.					
4. Teaches the woman how to massage her uterus.					
Points for skill/activity					
Immediate postpartum care (7 points)					
1. Inspects and repairs lacerations or tears (if necessary) of the lower vagina and perineum.					
2. Repairs episiotomy (if performed).					
3. Examines the maternal surface of the placenta and membranes for completeness and abnormalities.					
4. Disposes of the placenta.					
5. Removes soiled bedding and makes the woman comfortable.					
6. Estimates blood loss.					
7. If breastfeeding is the woman's choice for infant feeding, assists the woman and baby to begin breastfeeding within the first hour after birth.					
Points for skill/activity					
Infection prevention (6 points)					
1. Before removing gloves, disposes of gauze swabs and other waste materials in a leak-proof container or plastic bag.					
2. Disposes needles and sharps in a sharps disposal container.					
3. Cleans apron with decontamination solution.					
4. Places instruments in 0.5 percent chlorine solution.					
5. Decontaminates and disposes of gloves.					
6. Washes hands thoroughly with soap and water and dries them.					
Points for skill/activity					

Evaluation Checklist: AMTSL					
Date					
Evaluation type: model (M) or clinical practice (C)					
Steps	Rating				
Care after placenta is delivered (5 points)					
1. Monitors the woman at least every 15 minutes (more often if needed) during the first 2 hours after birth.					
2. Monitors the baby every 15 minutes for the first 2 hours after birth.					
3. Continues with normal care for the mother and newborn, including interventions for PMTCT of HIV/AIDS.					
4. Documents all findings.					
5. Documents all care provided.					
Points for skill/activity					
A: Total points for case observed					
B: Total points that were N/A					
C: Total possible points for the case observed = 44 minus B					
Score = (A divided by C) multiplied by 100					



References

¹ World Health Organization (WHO) *Mother-Baby Package: Implementing Safe Motherhood in Countries*. WHO/FHE/MSM/94.11. Geneva: WHO; 1994.

² AbouZahr C. Antepartum and postpartum haemorrhage. In: Murray CJL, Lopez AD, eds. *Health Dimensions of Sex and Reproduction*. Boston, MA: Harvard University Press; 1998:165–190.

³ Stephenson P. Active Management of the Third Stage of Labor: A Simple Practice to Prevent Postpartum Hemorrhage. USAID Global Health Technical Brief. June 2005. MAQ website. Available at: <http://www.maqweb.org/techbriefs/tb13activemgmt.shtml>. Accessed April 2, 2007.

⁴ World Health Organization (WHO). *Biennial Report 2000–2001: Research on Reproductive Health at WHO*. Geneva: WHO; 2002. Available at: http://www.who.int/reproductive-health/publications/biennial_reports/2000-01/Chapter_2.PDF. Accessed April 2, 2007.

⁵ Prendiville WJ, Harding JE, Elbourne DR, Stirrat GM. The Bristol third stage trial: active versus physiological management of the third stage of labour. *British Medical Journal*. 1988;297: 1295–1300.

⁶ JHPIEGO/MNH. Managing complications in pregnancy and childbirth Learning Resource Package: A guide for teachers. Accessed April 4, 2007. http://www.reproline.jhu.edu/english/2mnh/2mcpc/learningpkg_toc.htm

Answers to learning activities



Answers to learning activities: Core Topic 1

Review of third stage of labor and evidence for active management of the third stage of labor

Read each sentence below describing an element of active or physiologic management of the third stage of labor. Note the type of management described and write AMTSL, PMTSL, or both in the corresponding column.

Actions used to manage the third stage of labor	Type of management (AMTSL, PMTSL, or both)
Example: The provider administers uterotonic drugs only after delivery of the placenta.	PMTSL
1. The provider delivers the placenta using controlled cord traction with countertraction to support the uterus.	AMTSL
2. The provider massages the uterus immediately after delivery of the placenta.	AMTSL / PMTSL
3. The provider waits for signs of placental separation.	PMTSL
4. A uterotonic is administered within one minute of the baby's birth.	AMTSL
5. The placenta is delivered with the assistance of gravity and maternal effort.	PMTSL

AMTSL and PMTSL provide different advantages. Read each sentence below describing a result of managing the third stage of labor, and place an "X" in the column of the management type that best describes the advantage.

Advantage	AMTSL	PMTSL
Example: Decreases length of the third stage.	X	
6. Does not interfere with normal labor process.		X
7. Decreases the number of cases of PPH.	X	
8. Decreases average blood loss.	X	
9. Decreases need for blood transfusion.	X	
10. Does not require special drugs or supplies.		X

Answers to learning activities: Core Topic 2

Causes and prevention of PPH

1. Explain why it may be useful to define postpartum hemorrhage as “any amount of bleeding that causes deterioration in the woman’s condition.”
 - ***It is difficult to measure blood loss accurately***
 - ***Research has shown that blood loss is frequently underestimated***
 - ***Nearly half of women who deliver vaginally often lose at least 500 ml of blood***
 - ***For severely anemic women, blood loss of even 200 to 250 ml can be fatal***
2. Explain why a strategy to prevent postpartum hemorrhage should not be based on identification of risk factors.
 - ***Up to two-thirds of women who have PPH have no risk factors***
3. What are the three most common causes of immediate postpartum hemorrhage?
 - ***Uterine atony***
 - ***Lacerations in the birth canal***
 - ***Retained placenta or placental fragments***
4. What is the most common cause of severe PPH in the first 24 hours after birth?
 - ***Uterine atony***
5. Describe a prevention strategy for each of the factors listed in the first column that may contribute to the loss of uterine muscle tone in the postpartum period.

Factors contributing to the loss of uterine muscle tone	Prevention Strategy
Full bladder	<ul style="list-style-type: none"> • <i>Encourage / assist women to empty their bladder during labor and before second stage</i> • <i>Encourage / assist women to empty their bladder regularly in the immediate postpartum period</i>
Prolonged / obstructed labor	<ul style="list-style-type: none"> • <i>Give birth with a skilled provider</i> • <i>Monitor labor using the partograph</i> • <i>Transfer women to a facility with cesarean facilities once unsatisfactory progress in labor has been identified</i>
Oxytocin induction or augmentation of labor	<ul style="list-style-type: none"> • <i>Give birth with a skilled provider</i> • <i>Monitor labor using the partograph</i> • <i>Only augment or induce labor when there are clear emergency or obstetric indications</i> • <i>Only augment or induce labor in a health facility where personnel are trained to monitor the woman and fetus and where cesarean operation can be performed if necessary</i> • <i>Never give oxytocin intramuscularly in the antepartum</i>



TRUE or FALSE

Write the letter "T" for True or "F" for False in the space provided after each statement

6. Nearly half of women who deliver vaginally only lose about 150 ml of blood.
False – Nearly half of women who deliver vaginally often lose at least 500 ml of blood
7. Women who give birth by cesarean operation normally lose 1,000 mL or more.
True
8. For severely anemic women, blood loss of even 200 to 250 ml can be fatal.
True
9. Using a partograph to monitor and guide management of labor and detect unsatisfactory progress of labor in a timely fashion may be useful in preventing PPH.
True
10. Women are unable to monitor the firmness of their own uterus.
False –All women should be taught to monitor their own uterus in the postpartum period.

Answers to learning activities: Core Topic 3

Uterotonic Drugs

Classroom learning activities

Review the information comparing the three main uterotonic drugs: oxytocin, ergometrine, and misoprostol. Read the characteristic listed below and place an "X" in the column corresponding to the uterotonic drug that best fits the characteristic.

Uterotonic drug characteristic	Oxytocin	Ergometrine	Misoprostol
Example: Works the fastest.	X		
Longest acting.		X	
Causes tonic contractions.		X	
Common side effects include shivering and elevated temperature.			X
Common side effect includes headache.		X	
Is contraindicated in women with or having history of hypertension, heart disease, retained placenta, pre-eclampsia, or eclampsia.		X	
Has no contraindications when administered in the postpartum period.	X		

Review the information comparing the three most commonly used uterotonic drugs: oxytocin, ergometrine, and misoprostol. Rate these drugs on a scale of 1 to 3 for their stability (1 being most stable; 3 being least stable) when exposed to heat and light.

Factor affecting drug stability	Oxytocin	Misoprostol	Ergometrine
Stability when exposed to heat	2	1	3
Stability when exposed to light	2	1	3

Most stable=1; Least stable=3



Individual learning activities

Case studies

Carefully read each of the case studies below and provide instructions for 1) storing uterotonic drugs in delivery room and 2) storage in the pharmacy depot.

Case study 1: Your pharmacy manager regularly orders oxytocin and ergometrine. The health center has reasonably reliable electricity, and the electric refrigerator in the pharmacy is in good condition. The delivery room does not have a refrigerator. The regional and national pharmacies have refrigerators, and there is an effective cold chain system for transporting vaccines. The average temperature at the health center during the hot season is 45°C in the shade.

Pharmacy:

- ***Make sure that quantification of drugs is being calculated based on recommendations***
- ***Check manufacturer's label for storage recommendations***
- ***Follow the rule of first expired – first out (or first in – first out) to reduce wastage of uterotonic drugs***
- ***If possible, keep injectable uterotonic drugs refrigerated at 2–8°C***
- ***Make sure that there is a system in place to monitor the temperature of the refrigerator / cold box***
- ***Protect ergometrine and syntometrine from freezing and light.***
- ***Store misoprostol at room temperature and away from excess heat and moisture***

Delivery room:

- ***Periodically remove ample amount of injectable uterotonic drugs needed for expected client load from refrigerator***
- ***Avoid storage of injectable uterotonic drugs in open kidney dishes, trays, or coat pockets***
- ***Store ergometrine and syntometrine vials outside the refrigerator in closed boxes and protected from the light for up to one month at 30°C***
- ***Store oxytocin outside the refrigerator at a maximum of 30°C (warm, ambient climate) for up to three months***
- ***Store misoprostol at room temperature away from excess heat and moisture***

Case study 2: The pharmacy manager prefers to order medication once per quarter and will only order ergometrine for the health center. The health center has only one gas refrigerator located in the consultation room for children under six-years of age. This refrigerator is not in very good condition, and there are frequent gas stock-outs. The regional and national pharmacies have refrigerators, and there is an effective cold chain system for transporting vaccines. The average temperature at the health center during the hot season is 23°C in the shade.

- ***Explain the reasons why oxytocin is the preferred uterotonic for prevention and treatment of PPH and encourage your pharmacy manager to begin ordering oxytocin in addition to ergometrine***
- ***Discuss misoprostol as an alternate uterotonic drug***
- ***Store ergometrine and oxytocin in the gas refrigerator***
- ***See answer for Case study 1***

Case study 3: When you picked up an order of uterotonic drugs at the regional pharmacy, you discovered the drugs were not stored in the refrigerator. There is an effective cold chain system for transporting vaccine. Your health center does not have electricity but there is one UNICEF gas refrigerator for vaccinations. The EPI does not allow anything but vaccinations to be stored in the refrigerator. The average temperature at the health center during the hot season is 31°C in the shade.

- ***The effectiveness of the uterotonic drugs you are picking up is questionable. Talk with people responsible for the regional pharmacy about the effects of heat on oxytocin and ergometrine, and the effects of light on ergometrine.***
- ***Talk with the person responsible for storing vaccinations and get her/his approval for storing uterotonic drugs in the refrigerator by explaining recommendations for storage of uterotonic drugs***
- ***Discuss misoprostol as an alternate uterotonic drug***
- ***Store ergometrine and oxytocin in the gas refrigerator***
- ***See answer for Case study 1***

Case study 4: You are unsure if the national or regional pharmacies store uterotonic drugs in a refrigerator. You know that uterotonic drugs are transported in cold boxes when delivered to the health center. The maternity uses an electric refrigerator that is in good condition, and only medications and products used in the maternity are kept inside. Only the Matron has a key to open the refrigerator. The average temperature at the health center during the hot season is 42°C in the shade.

- ***The effectiveness of the uterotonic drugs you are picking up is questionable. Talk with people responsible for the national and regional pharmacy to see if uterotonic drugs are stored in a refrigerator at their pharmacies. If uterotonic drugs are not stored in refrigerators at the regional and national level, explain the effects of heat on oxytocin and ergometrine, and the effects of light on ergometrine.***
- ***Discuss misoprostol as an alternate uterotonic drug***
- ***Store ergometrine and oxytocin in the gas refrigerator***
- ***Talk with the Matron to find a solution for making sure that uterotonic drugs are available when she is not on duty***
- ***See answer for Case study 1***



Individual learning activities

1. Based on your knowledge of onset of action, duration of action, side effects, and contraindications, which of the uterotonic drugs is preferred for AMTSL?

Oxytocin is fast acting, inexpensive and in most cases has no side effects or contraindications for use during the third stage of labor. It is also more stable than ergometrine in hot climates and light if cold/dark storage is not possible.
2. List potential dangers of using oxytocin for induction and / or augmentation of labor.
 - ***the increased pressure of the contractions can, and often does, compress the umbilical cord and cut down the baby's oxygen supply***
 - ***uterine rupture and abruption placentae***
 - ***increased pain for the mother of the uterotonic-induced contractions is likely to increase her stress and anxiety levels***
 - ***oxytocin is a strong antidiuretic, even at low doses; its combination with the IV fluids can result in water intoxication***
 - ***uterine fatigue after childbirth which is associated with uterine atony and postpartum hemorrhage***

Read the following short case studies carefully and decide if the uterotonic drugs described are still active or may have lost some of their effectiveness. Justify each of your responses.

Case study 1: The health center does not have a refrigerator. The average temperature is 40°C. The health center received their last consignment of oxytocin and ergometrine four months ago. Because the health center has many births, both the oxytocin and ergometrine are stored in a delivery room desk drawer, out of the box.

The effectiveness of both oxytocin and ergometrine is questionable. Oxytocin can be temporarily stored outside the refrigerator at a maximum of 30° C for no more than three months; ergometrine needs to be stored at 2 – 8° C and should be kept in the dark.

Case study 2: The national pharmacy stores oxytocin in a refrigerator between 2° and 8°C, and the health center has a reliable refrigerator in good working condition. Unfortunately, there is no cold chain for uterotonic drugs and it takes three days for an order of ergometrine and oxytocin to be transported from the national pharmacy to the health center. At this time of year, the average temperature is 43°C in the shade.

Both oxytocin and ergometrine should still be effective. Oxytocin can be transported unrefrigerated if the transport takes no more than one month at 30° C; ergometrine can be transported unrefrigerated in the dark is possible if the transport takes no more than one month at 30° C.

Case study 3: On average, there are 25 births per month at the health center, and the team keeps oxytocin in the delivery room. In consultation with the head midwife, you remove 30 ampoules at a time from the refrigerator and store them in the delivery room in their package, in the shade, and away from sunlight. You develop a system to mark each package with the date the oxytocin was removed from the refrigerator and discard the drug if it has been out of the refrigerator for more than two weeks. The average daily temperature is 38°C.

Oxytocin should still be effective. Oxytocin can be temporarily stored outside the refrigerator at a maximum of 30° C for no more than three months.

3. List the recommendations for storing oxytocin.
 - **Check the manufacturer's recommendations for storage, as stability**
 - **Temporary storage outside the refrigerator at a maximum of 30° C is acceptable for no more than three months**
 - **If possible, keep refrigerated at 2 – 8° C**
4. What are the recommendations for transporting ergometrine?
 - **Store in the dark**
 - **Keep refrigerated at 2 – 8° C**
 - **Store in closed container**
 - **Protect from freezing**
5. Describe the storage recommendations for oxytocin when refrigeration is not available.
 - **Temporary storage outside the refrigerator at a maximum of 30° C is acceptable for no more than three months**
6. Compare oxytocin and ergometrine. Use the chart below to document various characteristics and qualities of these drugs.

Quality or characteristic	Oxytocin	Ergometrine
Side effects	No or minimal side effects	Nausea, vomiting, headaches and hypertension
Contraindications during the postpartum	No known contraindications for postpartum use	Contraindicated in women with or having history of hypertension, heart disease, retained placenta, pre-eclampsia, eclampsia
Risks for retained placenta	No increased risk of retained placenta	Causes tonic contractions - may increase risk of retained placenta
Stability when exposed to heat	More stable than ergometrine	Affected by heat
Stability when exposed to light	More stable than ergometrine	Not stable at higher temperatures

TRUE or FALSE

In the space provided, write "T" for true or "F" for False for each statement

7. Oxytocin is less stable than ergometrine when exposed to the light.
False
8. Oxytocin is less stable than ergometrine when exposed to the heat.
False
9. Ampoules of ergometrine and oxytocin should be stored in a refrigerator in the delivery room.
False



Answers to learning activities: Core Topic 4

Steps in AMTSL

1. Explain the purpose of AMTSL.
 - **Stimulate uterine contractions that will speed separation of the placenta from the uterine wall.**
 - **Speed the delivery of the placenta after it has separated from the uterine wall by using controlled cord traction.**
 - **Prevent uterine atony by stimulating uterine contractions and performing uterine massage.**
2. List the three main steps of AMTSL.
 - **Administration of a uterotonic within 1 minute after birth of the baby**
 - **Controlled cord traction with countertraction to the uterus**
 - **Uterine massage after delivery of the placenta**
3. What should you do to help prevent the thin membranes from tearing off as the placenta delivers spontaneously?
 - **As the placenta delivers, hold it in both hands and gently turn it until the membranes are twisted**
 - **Slowly pull to complete the delivery. Move membranes up and down until they deliver**
4. What must the provider rule out before giving oxytocin for AMTSL?
 - **An additional baby or babies**
5. To safely perform controlled cord traction for delivery of the placenta, the provider holds the clamped cord with one hand. With the other hand placed on the woman's abdomen above the pubic bone, the provider pushes the uterus upwards toward the woman's head. Why does the provider push the uterus upward?
 - **To stabilize the uterus and prevent uterine inversion**
6. Ms C has just given birth to a healthy baby and you have safely completed AMTSL. The perineum is intact. How often should you monitor the amount of vaginal bleeding and firmness of the uterus? (Circle the correct answer.)
 - a. every 10 minutes
 - b. every 15 minutes**
 - c. continuously
7. Ms B had a spontaneous vaginal birth and delivery of the placenta with AMTSL. When estimating Ms B's blood loss, what is the expected normal blood loss?
 - **Less than 500 mL**

8. What will you do if the placenta does not descend during 30-40 seconds of controlled cord traction?
- **Release tension on the cord while still holding the cord and then release pressure on the uterus. Wait for the next contraction.**
 - **Repeat controlled cord traction with counter-traction on the uterus with the next contraction.**

TRUE or FALSE

In the space provided, write "T" for true or "F" for False for each statement

1. Fifty women will have to receive active rather than physiological management to prevent one PPH (blood loss >500 mL).

False - For every 12 women receiving active, not physiological management, one PPH is prevented

2. Studies have shown that there are more complications (for example, ruptured cord, inverted uterus, and retained placenta) with AMTSL.

False - Trials have shown that there is not an increase in the number of cases of ruptured cord, inverted uterus, and retained placenta with AMTSL.

3. If oxytocin is supplied in ampoules of 5 IU, only one (1) ampoule is necessary for AMTSL when giving oxytocin intramuscularly (IM).

False - WHO now recommends administering 10 IU of oxytocin IM for the practice of AMTSL

4. Routine manual exploration of the uterus after AMTSL is not recommended and may be harmful.

True

5. Delaying cord clamping by 2-3 minutes is beneficial for the baby.

True

6. If there is an undiagnosed twin and the provider administers oxytocin, there is a theoretical risk that the twin could be trapped in the uterus.

True

7. When uterotonic drugs are not available, controlled cord traction (CCT) alone can reduce the incidence of PPH or severe PPH

False - controlled cord traction is not recommended if uterotonic drugs are not used

8. Nipple stimulation can replace use of uterotonic drugs to prevent PPH.

False - Research has not shown that nipple stimulation significantly helps to reduce the risk of PPH so this should not replace use of AMTSL to prevent PPH



Answers to learning activities: Additional Topic 1

Infection Prevention Review

Answers to the learning game are found below.

Other questions in the learning activities do not have "correct" answers – learners are asked to evaluate their working conditions and should write down the problems they encounter with infection prevention in their work places.

Category 1: Handwashing

For each practice or situation described below, select whether it is an acceptable or unacceptable hand washing practice.

Practice	Answer (circle one)
1. A doctor washes his hands by dipping them in a basin of water before examining a patient.	Unacceptable: Hands can be contaminated by dipping them in a basin of water. Standing water can easily become contaminated even if antiseptic is added.
2. If there is no running water at a clinic, one staff member pours water over the other's hands for hand washing.	Acceptable: If there is no running water, this practice is an acceptable substitute, as long as the water being poured is clean.
3. A large bar of soap is kept in a saucer for use by all personnel in the examination room.	Unacceptable: Small pieces of soap kept in a dish that allows drainage are best. A large bar of soap in a dish with no drainage can become contaminated easily.
4. Staff members wash their hands for approximately five seconds.	Unacceptable: Staff must wash their hands for 10-15 seconds.
5. A staff member arrives at the clinic to find many people waiting for her, so she immediately begins seeing clients without washing her hands.	Unacceptable: Staff should wash their hands when they arrive and before they leave a health facility.

Category 2: Protective gear

For each practice or situation described below, select whether it is an acceptable or unacceptable infection prevention practice.

Practice	Answer (circle one)
1. Put gloves in the labor room sink after use.	Unacceptable: Gloves should be decontaminated immediately after use and then cleaned and high level disinfected or sterilized.
2. Rub the fundus after delivery of the placenta without using gloves.	Unacceptable: The woman's abdomen can be contaminated by body fluids and blood during countertraction and skin-to-skin contact with the newborn and exam gloves should be worn to protect the provider.

In the space provided, circle true or false for each statement.

3. Protective gear should be worn when handling a baby after delivery, before the infant is bathed.	True
4. Gloves provide a barrier against possible infectious microorganisms that can be found in blood, other body fluids, and waste.	True: Gloves act as a barrier.
5. Even when gloves are decontaminated, cleaned, and high level disinfected, they should not be used if there are holes in them.	True



Category 3: Handling sharps

In the space provided, circle true or false for each statement.

Practice	Answer (circle one)
1. Injuries with sharp objects occur when sharps are left on surgical drapes or bed linens.	True: Sharp objects left on drapes or bed linen can cause injuries.
2. To reduce the risk of a needle stick, recap a needle by holding the syringe in one hand and holding the needle in the other hand.	False: You should avoid recapping needles.
3. Housekeeping staff are rarely at risk of injury or infections caused by sharps—such as hypodermic needles or scalpel blades—because they are not directly involved in client-care activities.	False: Housekeeping staff are often at risk of injury or infection by sharps

For each of the practices described below, select whether it is an acceptable or unacceptable infection prevention practice:

4. Break a hypodermic needle before disposal.	Unacceptable: Providers are at risk when breaking a needle after using it and before disposal. Sharps can cause injury and transmission of serious infections, including HIV and hepatitis B.
5. Wash a needle stick or cut with soap and water.	Acceptable: A needle stick or cut may be washed with soap and water

Category 4: Preventing splashes

For each practice or situation described below, select whether it is an acceptable or unacceptable infection prevention practice.

Practice	Answer (circle one)
1. The provider drops instruments into a bucket with decontamination solution to avoid contact with the solution.	Unacceptable: Place items in the decontamination bucket without splashing the solution.
2. The provider artificially ruptures membranes during a contraction to prevent splashes.	Unacceptable: Avoid rupturing membranes during a contraction to prevent splashes
3. Irrigate eyes well with water when blood or body fluids splash in them.	Acceptable
4. If you accidentally get blood or body fluids on your hands, wash with a 0.5 percent chlorine solution.	Unacceptable: If blood or body fluids get in your mouth or on your skin, wash with plenty of water and soap as soon as it is possible and safe for the woman and baby.
5. Hold contaminated instruments under the water while scrubbing.	Acceptable: Holding instruments and other items under the surface of the water while scrubbing and cleaning will help prevent splashing.



Category 5: Waste disposal

In the space provided, circle true or false for each statement.

Practice	Answer
1. Everyone who handles medical waste—from the point generated until final disposal—is at risk of infections and injury.	True: A large percentage of staff report having experienced waste-related injuries and infection.
2. If medical waste is stored at the health facility before being burned, it can be placed in a pile behind the clinic.	False: Place waste in a container in a closed area that is minimally accessible, and make sure all containers have lids.
3. Liquid medical waste can be disposed down a sink, drain, toilet, or latrine.	True: If this is not possible, bury it along with solid medical waste.
4. Burial sites for medical waste should not be located near water sources because of the potential to contaminate the water.	True
5. Scavenging of medical waste is rarely a problem in low-resource settings.	False

Category 6: Instrument processing

In the space provided, circle true or false for each statement.

Practice	Answer (circle one)
1. Decontamination kills all microorganisms on soiled instruments and other items.	<i>False: Decontamination kills viruses such as HIV and many--but not all--other microorganisms.</i>
2. When preparing a chlorine solution for decontamination, it is important to know the amount of active chlorine in the product used.	<i>True: It is important to know the amount of active chlorine in order to make a solution of the correct strength for decontamination.</i>
3. Cleaning instruments before sterilizing them is not necessary if they were soaked in a 0.5 percent chlorine solution for 10 minutes	<i>False: Although decontamination makes items safer to handle, cleaning is still necessary to remove organic material, dirt, and other matter that can interfere with further processing.</i>
4. Sterilizing may not be effective if blood and other organic material are not cleaned from instruments before sterilizing.	<i>True: It is important to clean items before sterilization; microorganisms trapped in blood and other matter can survive the sterilization process.</i>
5. High-level disinfection kills all microorganisms.	<i>False: HLD does not reliably kill all bacterial endospores.</i>



Answers to learning activities: Additional Topic 2

BPP and CRP

Read the following **case study** carefully and answer the questions that follow. Justify your responses.

Case study: Ms. K's (age 32) first antenatal visit is at 32 weeks. Her village is 15km away, and she arrived in the back of an open truck—the only transportation available. Her traditional birth attendant suggested she come to the health center for antenatal care.

She has given birth 8 times, and only two of her children are alive today. Her last baby was stillborn, the result of a long, difficult labor; she says the baby was moving well until the end of labor. After 24 hours of labor, the traditional birth attendant decided to send her to the health center. Because her husband was away at the time and no one wanted to take the responsibility for her, they waited another day for her husband to return home. Although the husband decided to send her to the health center, it took several hours for him to gather enough money for the trip. The doctor delivered the baby with a vacuum, and after the birth, Ms. K bled significantly.

Discussion questions

1. What about Ms. K's case indicates why it is important she have a birth plan and plan in case of complications?
 - **Geographic and transportation issues:**
 - **Her village is 15 km away;**
 - **An open truck because is the only form of transport available;**
 - **Financial and decision-making issues:**
 - **After labor had gone on for 24 hours, the traditional birth attendant decided to send her to the health centre, but her husband had been away and no one wanted to take the responsibility of sending her, so they had to wait another day until the husband came home.**
 - **Even though the husband decided to send her to the health centre, it took him several hours to get enough money to send her.**
 - **Previous obstetric complications:**
 - **She has given birth 11 times, only 2 of her children are alive; Her last baby was stillborn, and apparently died during a long, hard labor (she says the baby was moving well until the end of labor);**
 - **The doctor delivered the last baby with a vacuum;**
 - **After the birth, she says she bled a lot.**

2. Where would you recommend Ms. K gives birth?
 - **Ms. K should give birth with a skilled provider, most likely in a health centre where vacuum birth/cesarean operation are possible or at the hospital.**

3. List the important topics to address in birth preparedness and complication readiness plans.

Developing a Birth Preparedness Plan

- ***Make plans for the birth***
 - ***Place of birth***
 - ***Chosen skilled provider***
 - ***How to contact the provider***
 - ***How to get to the place of birth***
 - ***Who will be the birth companion***
 - ***Who will take care of the family while the woman is absent***
- ***Prepare the necessary items for birth***
- ***Establish a financing plan/scheme***
 - ***How much money will be required and how to get access to this money***

Developing a complication readiness plan

- ***Know danger signs***
- ***Establish a savings plan/scheme***
- ***Make a plan for decision-making in the case of an emergency that occurs in the absence of the chief decision-maker***
- ***Arrange a system of transport in case of emergency***
- ***Arrange for a blood donor***



Answers to learning activities: Additional Topic 3

Managing complications during the third stage of labor

Classroom learning activities

Read each of the following case studies and determine if the woman is in shock. Write your answer in the right-hand column.

Assessing shock

Case studies	Shock? Yes / No
1. Ms. A gave birth at home about four hours ago. She has come to the health center because of heavy vaginal bleeding. Vital signs: pulse: 96 beats/minute; blood pressure: 110/70; respirations: 21/minute; temperature: 37°C; conjunctivae are pale; extremities are warm; she is conscious; she recently passed a large amount of urine.	No
2. You assisted Ms. B during childbirth. Labor was prolonged and she received an IV drip of oxytocin to augment uterine contractions. Ms. B gave birth soon after the IV was started and you performed AMTSL. Thirty minutes after delivery of the placenta, Ms. B is still bleeding heavily. Vital signs: pulse: 112 beats/minute; blood pressure: 80/40; respirations: 36/minute; temperature: 36°C; conjunctivae are pale; extremities are cold; Ms. B is very anxious; you don't recall the last time she urinated.	Yes
3. Mme. C is 38 weeks pregnant. She has come to the health center because of vaginal bleeding and severe abdominal pain. She thinks she is in labor. Vital signs: pulse: 82 beats/minute; blood pressure: 130/90; respirations: 24/minute; temperature: 37.5°C; fetal heart tones: absent; conjunctivae are pale; extremities are cold; Ms. C is very anxious; she can't remember the last time she urinated.	No
4. Mme. D gave birth in the health center last night. During rounds, you monitor her progress. Vital signs: pulse: 132 beats/minute; blood pressure: 70/-; respirations: 32/minute; temperature: 36°C; conjunctivae are pale; Ms. D appears confused and has cold clammy skin; she last urinated before giving birth.	Yes

Assessing excessive vaginal bleeding after childbirth

Read each of the following case studies and write the probable diagnosis in the right-hand column.

Case studies	Probable diagnosis
1. Ms. A gave birth 35 minutes ago. Her baby needed resuscitation, and because you were alone, you did not use AMSTL. The baby is fine, but Ms. A is now bleeding heavily and the placenta has not been expelled.	<i>Retained placenta</i>
2. Ms. B gave birth 20 minutes ago. You actively managed the third stage of labor and the placenta was complete. Ms B is bleeding heavily now, and her uterus is well-contracted.	<i>Genital lacerations</i>
3. Ms. C gave birth 40 minutes ago. You actively managed the third stage and think the placenta was complete. Her uterus is well-contracted and she has no vaginal or perineal tears.	<i>Cervical tear</i>
4. Ms. D gave birth 30 minutes ago. You actively managed the third stage, but she is now bleeding heavily and her uterus is soft. She has no vaginal or perineal lacerations. When you recheck the placenta, you see that one or more lobes is missing.	<i>Retained placental fragments + uterine atony</i>
5. Ms. E just gave birth and you have just completed controlled cord traction to deliver the placenta and want to massage the uterus. When you try to massage the uterus, you do not feel the uterine fundus.	<i>Inverted uterus</i>
6. Ms, F gave birth 15 minutes ago. You actively managed the third stage, the placenta was complete, and she has no vaginal or perineal lacerations. You find Ms. F in a pool of blood and her uterus is soft.	<i>Uterine atony</i>



Case study: Vaginal bleeding after childbirth—Answer Key

Read and carefully analyze this case study.* Consider the steps in clinical decision-making as you answer the questions.

Case study: Mrs. B is a 30-year-old, para four, who just gave birth at the health center to a full-term, healthy newborn weighing 4.2 kg. She was given ergometrine 0.2 mg IM after birth of the newborn. The placenta was delivered 5 minutes later, without complications. However, half an hour after childbirth, Mrs. B reports heavy vaginal bleeding.

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

- What will you do in your initial assessment of Mrs. B, and why?
 - Mrs. B. should be told what is going to be done and listened to carefully. In addition, her questions should be answered in a calm and reassuring manner.**
 - At the same time, a rapid assessment should be done to check for signs of shock (rapid, weak pulse, systolic blood pressure less than 90 mm Hg, pallor and sweatiness, rapid breathing, confusion).**
 - The placenta should be checked thoroughly for completeness.**
- What aspects of Mrs. B's physical examination will help you make an immediate diagnosis or identify her problems/needs, and why?
 - Mrs. B's uterus should be checked immediately to see whether it is contracted. If the uterus is contracted and firm, the most likely cause of bleeding is genital trauma. If the uterus is not contracted and the placenta is complete, the most likely cause of bleeding is an atonic uterus. The most important causes of bleeding can be suspected by palpating the uterus.**
 - Her perineum, vagina, and cervix should be examined carefully for tears.**

Diagnosis (identifying problems and/or needs)

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

Mrs. B's **vital signs**: pulse: 88 beats/minute; blood pressure: 110/80 mm Hg; respiration: 18 breaths/minute; temperature: 37°C. Her uterus is firm and well-contracted. The placenta is complete, and she doesn't have perineal trauma. Examination of the vagina and cervix is difficult because she continues to have heavy vaginal bleeding; therefore, tears of the cervix and vagina are possible.

- Based on these findings, what is Mrs. B's diagnosis, and why?
 - Mrs. B's symptoms and signs (e.g., immediate postpartum hemorrhage, placenta complete, uterus well contracted) are consistent with genital trauma.**

* Case study adapted from JHPIEGO/Maternal & Neonatal Health. *Managing Complications in Pregnancy and Childbirth Learning Resource Package: A Guide for Teachers.*

Care provision (Planning and Intervention)

4. Based on your diagnosis, what is your plan of care for Mrs. B, and why?
- ***An IV should be started using a large-bore needle to replace fluid loss, using Ringer's lactate or normal saline.***
 - ***A careful speculum examination of the vagina and cervix should be conducted without delay, as tears of either the cervix and/or the vagina are the most likely cause of Mrs. B's bleeding.***
 - ***Any tears should be repaired immediately.***
 - ***Mrs. B's vital signs and fluid intake and output should be monitored.***
 - ***Her uterus should also be checked to make sure that it remains firm and well contracted.***
 - ***Blood should be drawn for hemoglobin and cross-matching, and blood for transfusion should be made available as soon as possible, in the event that it is needed.***
 - ***The steps taken to manage the complication should be explained to Mrs. B. She should be encouraged to express her concerns, listened to carefully, and provided emotional support and reassurance.***

Evaluation

One hour after childbirth, Mrs. B has a cervical tear repaired.

5. Based on these findings, what is your continuing plan of care for Mrs. B, and why?
- ***Mrs. B's vital signs and blood loss should continue to be monitored—every 15 minutes for 1 hour, then every 30 minutes for 1 hour, then every 4 hours for 24 hours. Her uterus should be checked to make sure that it remains firm and well contracted. In addition, she should be encouraged to breastfeed her newborn.***
 - ***Twenty-four hours after the bleeding has stopped, check her hemoglobin and hematocrit to assess for anemia.***
 - ***If Mrs. B's hemoglobin is below 7 g/dL, or her hematocrit is below 20% (indicating severe anemia), she should be given ferrous sulfate or ferrous fumarate 120 mg by mouth plus folic acid 400 µg by mouth once daily for 3 months. A blood transfusion is not needed if her vital signs are stable and no further bleeding occurs.***
 - ***If Mrs. B's hemoglobin is between 7 to 11 g/dL, she should be given ferrous sulfate or ferrous fumarate 60 mg by mouth plus folic acid 400 µg by mouth once daily for 6 months.***
 - ***The steps taken for continuing management of the complication should be explained to Mrs. B. She should be encouraged to express her concerns, listened to carefully, and provided continuing emotional support and reassurance.***
 - ***Mrs. B. should remain at the health center for an additional 24 hours, and before discharge, counseling should be provided about danger signs in the postpartum period (bleeding, fever, headache, blurred vision) and about compliance with iron/folic acid treatment and the inclusion in her diet of locally available foods rich in iron. In addition, counseling about breastfeeding and newborn care should be provided.***

REFERENCES

WHO. *Managing complications in pregnancy and childbirth: A guide for midwives and doctors*. Geneva: WHO, 2000. (pages S-25 to S-31)



Clinical Simulation: Management of Vaginal Bleeding After Childbirth

Purpose: The purpose of this clinical simulation* is to help training participants practice problem-solving and decision-making skills in the management of vaginal bleeding after childbirth, emphasizing quick recognition and appropriate management.⁶

Time: 60 minutes

Instructions: The activity should be carried out in the classroom, the labor and delivery area of a hospital, or clinic or maternity center. Make sure that the necessary equipment and supplies are available during the simulation activity.

- One participant should play the role of patient and a second participant the role of skilled provider. Other participants may be called on to assist the provider.
- The facilitator will give the participant playing the role of provider information about the patient's condition and ask pertinent questions, as indicated in the left-hand column of the chart below.
- The participant will be expected to assess the situation and react (intervene) rapidly when the facilitator provides information and asks questions. Key reactions/responses expected from the participant are provided in the right-hand column of the chart below.
- Procedures such as starting an IV and bimanual examination should be role- played, using the appropriate equipment.
- Initially, the facilitator and participant will discuss what is happening during the simulation in order to develop problem-solving and decision-making skills. The italicized questions in the simulation are for this purpose. Further discussion may take place after the simulation is completed.
- As the participant's skills become stronger, the focus of the simulation should shift to providing appropriate care for the life-threatening emergency in a quick, efficient, and effective manner. All discussion and questioning should take place after the simulation is over.

Resources: *Reference Manual, blood pressure machine, stethoscope, equipment for starting an IV infusion, oxygen cylinder, mask and tubing, syringes and vials, speculum, sponge forceps, high-level disinfected or sterile surgical gloves.*

* Adapted from *Managing Complications in Pregnancy and Childbirth. Learning Resource Package: Guide for Teachers*; JHPIEGO/Maternal & Neonatal Health.⁶

Scenario 1	
Information provided and questions asked by the facilitator	Key reactions and responses from participants
<p>1. Mrs. B is 24 years old and has just given birth to a healthy baby girl after seven hours of labor. The provider performed AMTSL, and the placenta and membranes were complete. The midwife who attended the birth left the hospital at the end of her shift, shortly after the birth. About 30 minutes later, a nurse rushes to tell you that Mrs. B is bleeding profusely.</p> <p>What will you do?</p>	<ul style="list-style-type: none"> • Shouts for help to urgently mobilize all available personnel. • Makes a rapid evaluation of Mrs. B's general condition, including vital signs (pulse, blood pressure and respiration rate), level of consciousness, color and temperature of skin. • Explains to Mrs. B what is going to be done, listens to her, and responds attentively to her questions and concerns.
<p>2. During the examination, Mrs. B's blood pressure is 102/72 mm Hg and pulse 102 beats/minute and weak. Her skin is not cold and clammy.</p> <p>What is Mrs. B's likely diagnosis?</p> <p>What will you do now?</p>	<ul style="list-style-type: none"> • States that Mrs. B is not in shock from postpartum bleeding. • Palpates the uterus for firmness. • Asks one of the staff that responded to her shout for help to start an IV infusion, using a large-bore cannula and normal saline or Ringer's lactate at a rate of 1 L in 15–20 minutes with 10 units oxytocin. • While starting the IV, collects blood for appropriate tests (hemoglobin, blood typing, and cross-matching, and bedside clotting test for clotting disorder).
<p>Discussion Question 1: How would you know when a woman is in shock?</p>	<p><i>Expected Responses: Pulse is greater than 110 beats/minute; systolic blood pressure less than 90 mm Hg; cold, clammy skin; pallor; respiration rate greater than 30 breaths/minute; anxious and confused or unconscious.</i></p>
<p>3. You find that Mrs. B's uterus is soft and not contracted.</p> <p>What will you do now?</p>	<ul style="list-style-type: none"> • Massages the uterus to expel blood and blood clots and stimulate a contraction. • Starts oxygen at 6–8 L/minute. • Catheterizes bladder. • Covers Mrs. B to keep her warm. • Continues to monitor (or has assistant monitor) blood pressure, pulse, and blood loss.



Scenario 1	
Information provided and questions asked by the facilitator	Key reactions and responses from participants
<p>4. After five minutes, Mrs. B's uterus is well contracted, but she continues to bleed heavily.</p> <p>What will you do now?</p>	<ul style="list-style-type: none"> • Examines the cervix, vagina, and perineum for tears. • Asks one of staff assisting to locate placenta and examines for missing pieces.
<p>5. On further examination of the placenta, you find that it is complete. On examination of Mrs. B's cervix, vagina, and perineum, you find a cervical tear. She continues to bleed heavily.</p> <p>What will you do now?</p>	<ul style="list-style-type: none"> • <i>Prepares to repair the cervical tear.</i> • Tells Mrs. B what is happening, listens to what she has to say, and provides reassurance. • Has a staff member assisting check Mrs. B's vital signs.
<p>Discussion Question 2: <i>What would you have done if examination of the placenta had shown a missing piece (placenta incomplete)?</i></p>	<p><i>Expected Responses:</i></p> <ul style="list-style-type: none"> • <i>Explain the problem to Mrs. B and provide reassurance.</i> • <i>Give pain medications and prophylactic antibiotics.</i> • <i>Use sterile or high-level disinfected gloves to explore the uterus for placental fragments and remove with hand, ovum forceps, or large curette.</i>
<p>6. Forty-five minutes have passed since treatment for Mrs. B was started. You have just finished repairing Mrs. B's cervical tear. Her blood pressure is now 110/78 mm Hg, pulse 98 beats/minute, and respiration rate 24 breaths/minute. She is resting quietly.</p> <p>What will you do now?</p>	<ul style="list-style-type: none"> • Adjusts rate of IV infusion to 1 L in 6 hours. • Continues to check for vaginal blood loss. • Continues to monitor blood pressure and pulse. • Checks that urine output is 30 mL/hour or more. • Continues with routine postpartum care, including breastfeeding of newborn.

Individual learning activities⁶

Read each question below and circle the letter corresponding to the **best answer**.

1. Tears of the cervix, vagina or perineum should be suspected when there is immediate PPH,
 - a) **a complete placenta and a contracted uterus**
 - b) an incomplete placenta and a contracted uterus
 - c) a complete placenta and an atonic uterus
 - d) an incomplete placenta and an atonic uterus
2. If the uterus is inverted following childbirth,
 - a) the uterine fundus is not felt on abdominal palpation
 - b) there may be slight or intense pain
 - c) the inverted uterus may be apparent at the vulva
 - d) **all of the above**
3. AMTSL should be practiced
 - a) only on women who have a history of PPH
 - b) only on the primipara
 - c) only on the multipara
 - d) **on all women giving birth vaginally**
4. If an atonic uterus does not contract after fundal massage, the next step is to
 - a) **give additional uterotonic drugs**
 - b) perform bimanual compression of the uterus
 - c) start an IV infusion
 - d) explore the uterus for remaining placental fragments
5. If a retained placenta is undelivered 30 minutes after oxytocin administration and controlled cord traction, and the uterus is contracted,
 - a) more aggressive controlled cord traction should be attempted
 - b) controlled cord traction and fundal pressure should be attempted
 - c) **manual removal should be attempted**
 - d) ergometrine should be given
6. Bimanual compression of the uterus involves
 - a) **placing a gloved fist into the anterior fornix and applying pressure against the anterior wall of the uterus, while the other hand presses against the posterior wall of the uterus through the abdomen**
 - b) placing a gloved fist into the anterior fornix and applying pressure against the posterior wall of the uterus, while the other hand presses against the anterior wall of the uterus through the abdomen
 - c) placing both hands on the abdomen and applying pressure downward toward the spine
 - d) placing both hands on the abdomen and applying pressure upward toward the diaphragm



7. When performing abdominal aortic compression to control PPH, the place to compress is:
 - a) just below and slightly to the right of the umbilicus
 - b) just below and slightly to the left of the umbilicus
 - c) just above and slightly to the right of the umbilicus
 - d) **just above and slightly to the left of the umbilicus**
8. When performing cervical inspection after childbirth
 - a) a tenaculum should be used to grasp the cervix
 - b) **all the edges of the cervix should be seen**
 - c) the woman should be sedated
 - d) the cervix should be inspected visually and then the lower uterine segment should be explored manually
9. PPH is traditionally defined as
 - a) vaginal bleeding of any amount after childbirth
 - b) sudden bleeding after childbirth
 - c) vaginal bleeding in excess of 300 mL after childbirth
 - d) **vaginal bleeding in excess of 500 mL after childbirth**

Final Evaluation Form

Please evaluate the following by ticking (✓) how you feel about each statement.
 Feel free to comment below and use the back for more writing space.

Statement	Strongly Agree	Agree	Not Decided	Disagree	Strongly Disagree
1. For the work I do, training was appropriate.					
2. For the work I do, training was helpful.					
3. Training facilities and arrangements were satisfactory.					
4. The Participant's Notebook and other reading materials were easy to understand					
5. The reference manual and other reading materials helped me to learn					
6. Teaching aids were useful (films, charts, models).					
7. The methods used for teaching were helpful (case studies, role plays, clinical)					
8. The facilitators were knowledgeable and skilled.					
9. The facilitators were fair and friendly.					
10. The facilitators communicated clearly and simply.					
11. The objectives of the training were met					

12. What 3 topics were most useful to you?

13. What 3 things would you change about the training?

Other comments (please use back of paper if needed):

