

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

**A Reference Manual for
Health Care Providers**

**Core Topic 4: Steps in
AMTSL**



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Core Topic 4: AMTSL

AMTSL is a combination of actions to speed the delivery of the placenta by increasing uterine contractions and minimizing uterine atony. Using AMTSL helps prevent unnecessary blood loss and PPH.

Essential care during the third stage of labor

The time immediately following birth can be particularly active and involved because the skilled birth attendant must attend to both the woman and newborn. Regardless of how the third stage of labor is managed, basic care for the woman and baby during labor and postpartum remains the same. The following actions represent the elements of essential care for the provider and for the woman and newborn during the third stage of labor.

Essential precautions for the provider

Health care providers should take the following precautions for themselves:

- Wear protective gear (gloves, face mask/goggles, apron, and boots or closed shoes).
- Safeguard against splashes and sharps-related injuries.

Essential care for the woman

Health care providers should follow these guidelines in caring for the woman:

- Ensure the woman is in a comfortable position.
- Explain to woman and family what is happening around them.
- Inform the woman about her baby and explain what is happening while you attend to immediate newborn care.
- Encourage breastfeeding, if this is the woman's choice for infant feeding.
- Follow national guidelines for maternal interventions to prevent / reduce the risk of mother-to-child transmission (MTCT) of HIV/AIDS.
- Throughout all phases of care:
 - Give continuous empathetic and physical support.
 - Give the woman as much information and explanation as she desires.
 - Facilitate good communication among the woman and her caregivers and companions.
 - Practice infection prevention.

Essential care for the newborn

Health care providers should follow these guidelines when caring for the newborn:

- Thoroughly dry and stimulate the baby while assessing breathing.
- Place the newborn in skin-to-skin contact with the woman; cover both with a dry warm cloth or blanket. Cover the baby's head to ensure warmth (Figure 7).
- If breastfeeding is the woman's choice for infant feeding, place the baby close to the woman's breast to help encourage the baby to latch on to the breast.



Figure 7. Keeping the baby in skin-to-skin contact with the mother²⁵

- Wait to clamp and cut the cord until 2 to 3 minutes after the baby's birth. (Even if oxytocin is given within one minute after birth of the baby, clamping does not need to happen until 2 to 3 minutes after the baby's birth.)

Note: In situations where cord clamping and cutting was delayed, there were fewer cases of anemia in full-term babies at two months of age and increased duration of early breastfeeding.²⁶

Immediate cord clamping can decrease the red blood cells an infant receives at birth by more than 50 percent.²⁷ Studies show that delaying clamping and cutting of the umbilical cord is helpful to both full-term and preterm babies. In high-risk situations (e.g., low birth weight or premature infant), delaying clamping by as little as a few minutes is helpful. In situations where cord clamping and cutting was delayed for preterm babies, these infants had higher hematocrit and hemoglobin levels and a lesser need for transfusions in the first 4 to 6 weeks of life than preterm babies whose cords were clamped and cut immediately after birth.

- Follow national guidelines for newborn interventions to prevent / reduce the risk of MTCT of HIV/AIDS.

Preparing for active management

Before or during the second stage of labor:

- Prepare the injectable uterotonic (10 IU of oxytocin is the preferred injectable uterotonic) in a sterile syringe before second stage (Figure 8) or have oxytocin in Uniject™ or 600 mcg of misoprostol available.
- Prepare other essential equipment for birth and the third stage of labor before onset of second stage of labor.
- Ask the woman to empty her bladder when second stage is near.
- Assist the woman into her preferred position for giving birth (e.g., squatting, semi-sitting).

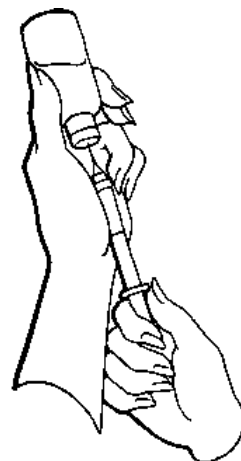


Figure 8. Preparing oxytocin injection



Steps for AMTSL

There are three main components or steps of AMTSL-administering a uterotonic drug, CCT, and massaging the uterus-which should be implemented along with the provision of immediate newborn care.

1. Thoroughly dry the baby, assess the baby's breathing and perform resuscitation if needed, and place the baby in skin-to-skin contact with the mother



Figure 9. Put the baby on the mother's abdomen

After delivery, immediately dry the infant and assess the baby's breathing. Then place the reactive infant, prone, on the mother's abdomen.* Remove the cloth used to dry the baby and keep the infant covered with a dry cloth or towel to prevent heat loss.

**If the infant is pale, limp, or not breathing, it is best to keep the infant at the level of the perineum to allow optimal blood flow and oxygenation while resuscitative measures are performed. Early cord clamping may be necessary if immediate attention cannot be provided without clamping and cutting the cord.*

2. Administer a uterotonic drug within one minute of the baby's birth

Administering a uterotonic drug within one minute of the baby's birth stimulates uterine contractions that will facilitate separation of the placenta from the uterine wall. Before giving the uterotonic drug it is important to rule out the presence of another baby. If the uterotonic drug is administered when there is a second baby, there is a small risk that the second baby could be trapped in the uterus.

The steps for administering a uterotonic drug include:

1. Before performing AMTSL, gently palpate the woman's abdomen to rule out the presence of another baby. At this point, do not massage the uterus.



Figure 10. Give a uterotonic drug

2. If there is not another baby, begin the procedure by giving the woman 10 IU of oxytocin IM in the upper thigh. This should be done within one minute of childbirth. If available, a qualified assistant should give the injection.

3. Cut the umbilical cord

Clamp and cut the cord following strict hygienic techniques after cord pulsations have ceased or approximately 2-3 minutes after birth of the baby, whichever comes first.

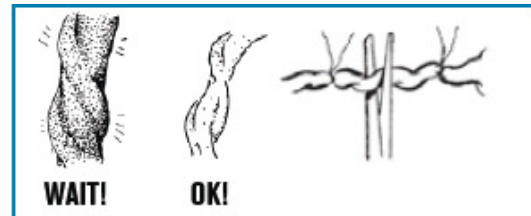


Figure 11. Pulsating and nonpulsating umbilical cord

4. Keep the baby warm



Figure 12. Keep the baby in skin-to-skin contact

Place the infant directly on the mother's chest, prone, with the newborn's skin touching the mother's skin. While the mother's skin will help regulate the infant's temperature, cover both the mother and infant with a dry, warm cloth or towel to prevent heat loss. Cover the baby's head with a cap or cloth.

5. Perform controlled cord traction

CCT helps the placenta descend into the vagina **after it has separated from the uterine wall** and facilitates its delivery. It is important that the placenta be removed quickly once it has separated from the uterine wall because the uterus cannot contract efficiently if the placenta is still inside. CCT includes supporting the uterus by applying pressure on the lower segment of the uterus in an upward direction towards the woman's head, while at the same time pulling with a firm, steady tension on the cord in a downward direction during contractions. Supporting or guarding the uterus (sometimes called "counter-pressure" or "counter-traction") helps prevent uterine inversion during CCT. CCT should only be done during a contraction.

Note: CCT is not designed to separate the placenta from the uterine wall but to facilitate its expulsion only. If the birth attendant keeps pulling on an unseparated placenta, inversion of the uterus may occur.

The steps for CCT include:

1. Wait for cord pulsations to cease or approximately 2-3 minutes after birth of the baby, whichever comes first, and then place one clamp 4 cm from the baby's abdomen.



Note: Delaying cord clamping allows for transfer of red blood cells from the placenta to the baby that can decrease the incidence of anemia during infancy.

2. Gently milk the cord towards the woman's perineum and place a second clamp on the cord approximately 2 cm from the first clamp.
3. Cut the cord using sterile scissors under cover of a gauze swab to prevent blood spatter. After mother and baby are safely cared for, tie the cord.
4. Place the clamp near the woman's perineum to make CCT easier (Figure 13).

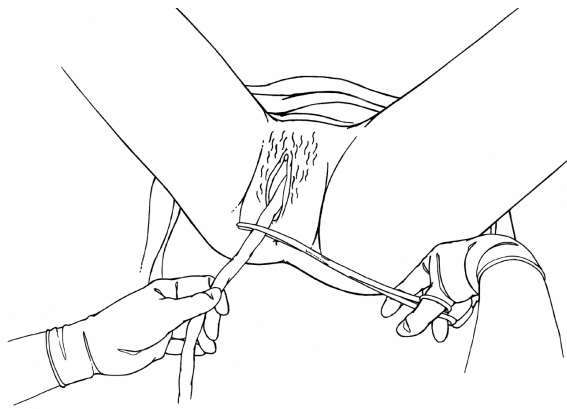


Figure 13. Clamping the umbilical cord near the perineum

5. Hold the cord close to the perineum using a clamp (Figure 13).

6. Place the palm of the other hand on the lower abdomen just above the woman's pubic bone to assess for uterine contractions (Figure 14). If a clamp is not available, controlled cord traction can be applied by encircling the cord around the hand.

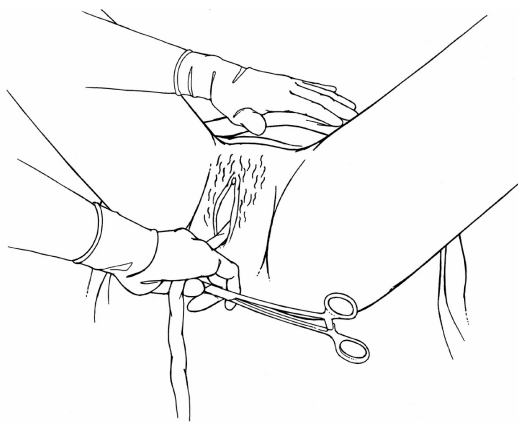


Figure 14. Holding the cord close to the perineum with the clamp or hand, maintain hand on uterine fundus to palpate the next contraction.

7. Wait for a uterine contraction. Only do CCT when there is a contraction.
8. With the hand just above the pubic bone, apply external pressure on the uterus in an upward direction (toward the woman's head) (Figure 15).
9. At the same time with your other hand, pull with firm, steady tension on the cord in a downward direction (follow the direction of the birth canal). Avoid jerky or forceful pulling.

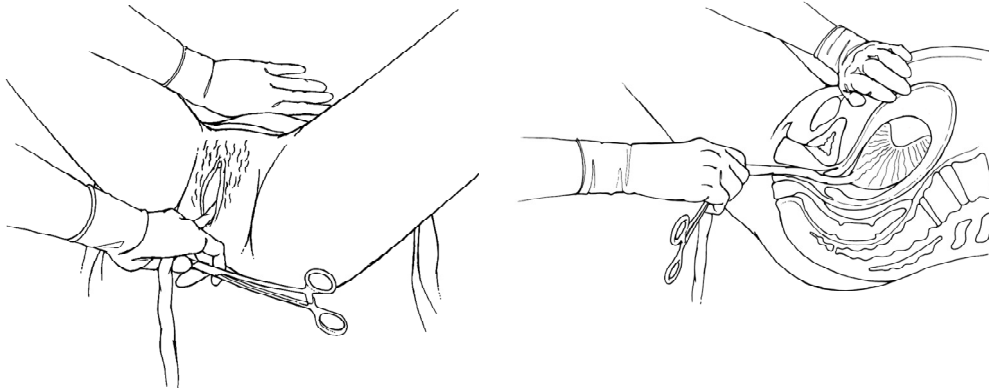
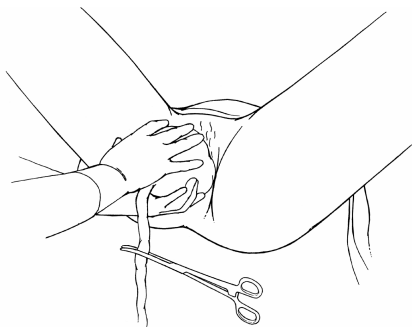


Figure 15. Applying CCT with countertraction to support the uterus

If the placenta does not descend during 30–40 seconds of controlled cord traction (i.e. there are no signs of placental separation), do not continue to pull on the cord:

- Gently hold the cord and wait until the uterus is well contracted again. If necessary, use a sponge forceps to clamp the cord closer to the perineum as it lengthens;
- With the next contraction, repeat controlled cord traction with counter traction.



10. Do not release support on the uterus until the placenta is visible at the vulva. Deliver the placenta slowly and support it with both hands (Figure 16).

Figure 16. Supporting the placenta with both hands

11. As the placenta is delivered, hold and gently turn it with both hands until the membranes are twisted (Figure 17).
12. Slowly pull to complete the delivery. Gently move membranes up and down until delivered (Figure 18).

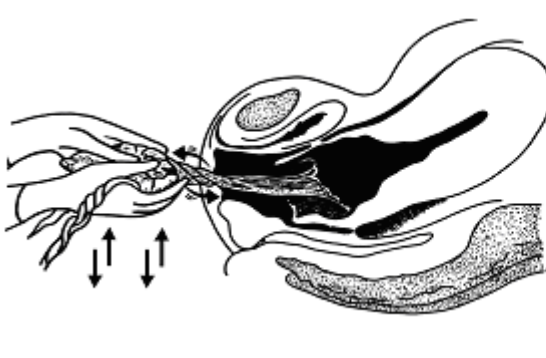


Figure 17. Delivering the placenta with a turning and up-and-down motion

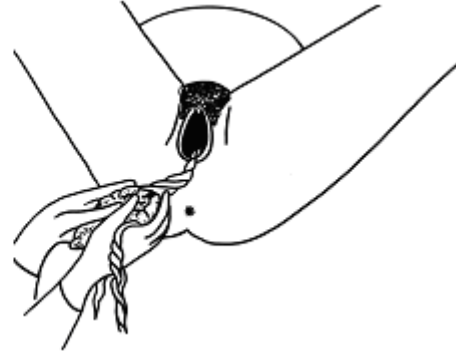


Figure 18. Slowly pull to complete delivery of the placenta.

If the **membranes tear**, gently examine the upper vagina and cervix wearing high-level disinfected or sterile gloves and use a sponge forceps to remove any pieces of remaining membrane.

6. Massage the uterus

Massage the uterus immediately after delivery of the placenta and membranes until it is firm (Figure 19). Massaging the uterus stimulates uterine contractions and helps to prevent PPH. Sometimes blood and clots will be expelled during this process. After stopping massage, it is important that the uterus does not relax again. Instruct the woman how to massage her own uterus, and ask her to call if her uterus becomes soft.



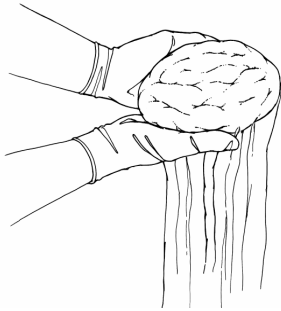
Figure 19. Massaging the uterus immediately after the placenta delivers

7. Examine the placenta

Examine the fetal and maternal sides of the placenta and membranes to ensure they are complete. A small amount of placental tissue or membranes remaining in the woman can prevent uterine contractions and cause PPH.

Note: Follow infection prevention guidelines when handling contaminated equipment, supplies, and sharps.

To examine the placenta for completeness:



1. Hold the placenta in the palms of the hands with the maternal side facing upward and make sure that all lobules are present and fit together (Figure 20).

Figure 20. Examining the maternal side

13. Hold the cord with one hand, allowing the placenta and membranes to hang down. Place the other hand inside the membranes, spreading your fingers to ensure that membranes are complete (Figure 21).

14. Dispose of the placenta as appropriate.



Figure 21. Checking the membranes

8. Examine the lower vagina and perineum

1. Gently separate the labia and inspect the lower vagina and perineum for lacerations that may need to be repaired to prevent further blood loss (Figure 22).
2. Repair lacerations or episiotomy.

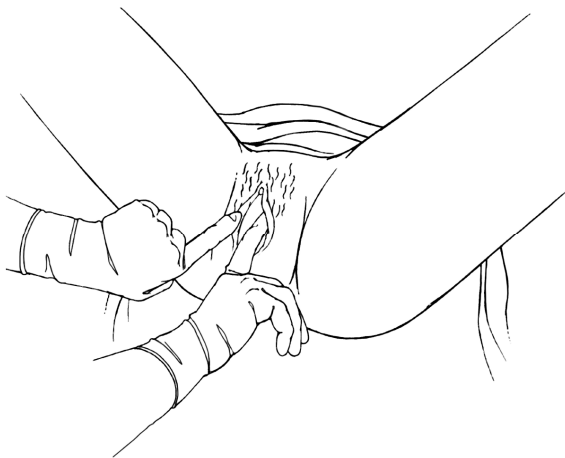


Figure 22. Gently inspect the lower vagina and perineum for lacerations.

3. Gently cleanse the vulva, perineum, buttocks, and back with warm water and a clean compress.
4. Apply a clean pad or cloth to the vulva.
5. Evaluate blood loss.
6. Explain all examination findings to the woman and, if she desires, her family.



9. Provide immediate care

After examining the placenta and external genitals, continue caring for the mother and newborn.



If the woman has chosen to breastfeed, the mother and baby may need assistance to breastfeed within the first hour after the birth and before transferring them out of the delivery room (Figure 23). Assess readiness of the woman and newborn to breastfeed before initiating breastfeeding; do not force the mother and baby to breastfeed if they are not ready.

Figure 23. Encourage breastfeeding Within the first hour after birth.

Also ensure that:

- The baby is kept warm.
- The mother and baby are kept together.
- The mother and baby are not left alone.
- The woman and baby stay in the delivery room for at least one hour after delivery of the placenta.
- PMTCT interventions are provided per national guidelines.
- AMTSL practices are recorded as required by local protocols (on the partograph, woman's chart, or delivery log).
- The woman receives information about how she will be cared for during the next few hours.

10. Monitor the woman and newborn immediately after delivery of the placenta

Perform a comprehensive examination of the woman and newborn one and six hours after childbirth. Continue with routine care for the woman and newborn, provide interventions to prevent / reduce the risk of MTCT of HIV according to national guidelines, and follow applicable requirements for recording information about the birth, monitoring of the woman and newborn, and any care provided.

Monitor and care for the woman

- During the first two hours after the delivery of the placenta, monitor the woman at least every 15 minutes (more often if needed) to:
 - Palpate the uterus to check for firmness.
 - Massage the uterus until firm. (Ask the woman to call for help if bleeding increases or her uterus gets soft.)

- Check for excessive vaginal bleeding.
- Take action to evaluate and treat PPH immediately if excessive bleeding is detected.
- Ensure the uterus does not become soft after massage is stopped.
- Instruct the woman how the uterus should feel and how she can massage it herself.
- Encourage the woman to eat and drink.
- Ask the companion to stay with the woman.
- Encourage the woman to pass urine.
- Inform the woman about danger signs and when she should call for help.

Monitor and care for the newborn

Check the baby at the same time you check the mother every 15 minutes during the first two hours after childbirth:

- Check the baby's breathing.
- Check the baby's color.
- Check warmth by feeling the baby's feet.
- Check the cord for bleeding.
- Take immediate action if a problem is detected.



Frequently asked questions

How is a newborn affected if 10 IU of oxytocin IM is given before clamping the cord?

There are no known harmful effects from giving oxytocin before cord clamping. Mothers naturally produce some oxytocin during labor which is transmitted to the infants. Oxytocin given either IM or IV at delivery supplements this natural process.

Also, giving a uterotonic drug immediately after birth can speed the transfer of blood into the baby from the placenta. This increases the infant's red cell mass.²²

Are there more complications with AMTSL such as a ruptured cord (cord tears off), inverted uterus, or retained placenta?

Some providers express concern that active management increases uterine inversion rates and ruptured cords due to cord traction and increases the risk of retained placenta due to entrapment caused by uterotonic drugs. However research shows:

- No uterine inversions were seen in any of the trials comparing active and physiologic management. However, these trials were not designed to evaluate very rare outcomes.^{15, 22}
- Trials using oxytocin alone showed reduced rates of manual removal of the placenta, whereas those using ergot preparations (e.g., ergometrine) showed increased rates.^{8, 15}
- The trial findings did not show increased risk of cord rupture.

If oxytocin is supplied in 5 IU ampoules, is one ampoule sufficient for performing AMTSL?

Although the recommended dose of oxytocin has changed over the years, WHO now recommends administering 10 IU of oxytocin IM for AMTSL. Trials comparing active and physiologic management have also compared the different uterotonics in active management protocols. Results suggest that increasing the intramuscular dose of oxytocin from 5 IU to 10 IU increases the effectiveness of oxytocin.^{8, 15}

Will routine manual exploration of the uterus after AMTSL help reduce the incidence of PPH from retained placenta or placental fragments?

Routine manual exploration of the uterus is no longer recommended for normal deliveries or those following previous cesarean delivery. Manual exploration is painful and may likely increase the risk of complications, especially infections. Exploration is justified for women with a well-contracted uterus experiencing bleeding from high in the genital tract.

Will "milking" the cord help to increase the baby's hemoglobin?

Because there is no documented benefit from the practice, "milking" the cord toward the baby to exaggerate the transfer of blood to the newborn is discouraged.

WHO supports the practice of delaying cord clamping. The practice of clamping for 2 to 3 minutes has proven beneficial to the baby as it results in higher hemoglobin and hematocrit values and possibly lower levels of early childhood anemia and greater iron stores.²⁸ This may be particularly important for low birthweight and premature infants. If maternal bleeding in the first few minutes after childbirth is significant, a decision to delay cord

clamping for 2 to 3 minutes must be determined by assessing the risk of PPH with the benefit of delayed cord clamping.

What are the risks of giving oxytocin for AMTSL when there is an undiagnosed multiple pregnancy?

There is a theoretical risk of a trapped twin if providers administer oxytocin with an undiagnosed twin. Original research trials on AMTSL that established the effectiveness of AMTSL included giving a uterotonic drug with birth of the anterior shoulder.^{8, 15} However, updated AMTSL protocols take the theoretical risk of a trapped twin into account and now recommend giving oxytocin after birth of the baby and only after excluding the presence of an additional baby. Quality clinical assessment in labor and following delivery of the first baby can establish the diagnosis before giving a uterotonic drug.

If the woman has an IV infusion running at the time the baby is born, how should oxytocin be delivered (dosage and route) for AMTSL?

Typically with vaginal delivery, a dose of 10 IU of oxytocin is administered IM. In patients with an IV, the provider may give 5 IU of oxytocin as a slow intravenous bolus and then continue with the oxytocin infusion.

What part does each of the steps of AMTSL play in preventing PPH?

Trials that administered uterotonics at the time of delivery with physiologic management showed some reduction in PPH rates.⁸ However, a greater reduction in PPH rates is evident with AMTSL. In cases where a uterotonic drug is given without CCT, women experienced a greater incidence of retained placenta; additionally, no reduction in the number of patients receiving blood transfusions was detected.²⁹

A single trial examined the effect of CCT with and without the administration of oxytocin after delivery of the baby. The results suggest that CCT alone does not reduce the incidence of PPH or severe PPH. Another trial found that CCT used with oxytocin immediately after placental delivery resulted in outcomes similar to those with using all three components of AMTSL.³⁰ A third trial showed that true active management resulted in lower PPH rates when compared with CCT followed by oxytocin at the time of placental delivery.³¹

Should CCT be performed by an SBA if there are no uterotonic drugs?

CCT is not recommended unless uterotonic drugs are used or a skilled birth attendant is present. If CCT is applied in the absence of uterotonic drugs or a skilled birth attendant, the practice can cause partial placental separation, and might increase the risk of a ruptured cord, excessive bleeding, and uterine inversion.^{15, 24}

Should uterine massage be performed by an SBA before the delivery of the placenta?

There is no evidence to support the recommendation of providing uterine massage before delivery of the placenta in the absence of a uterotonic drug, and evidence is increasing that uterine massage before delivery of the placenta may lead to increased rates of PPH.



How should the third stage of labor be managed in the absence of uterotonic drugs?

In some settings there will be no uterotonics available due to interruptions of supplies or the setting of birth. In the absence of current evidence, ICM and FIGO recommend that when no uterotonic drugs are available to either the skilled or non-skilled birth attendant, management of the third stage of labor includes the following components (see Appendix A):

- Waiting for signs of separation of the placenta (cord lengthening, small blood loss, uterus firm and globular on palpation at the umbilicus)
- Encouraging maternal effort to bear down with contractions and, if necessary, to encourage an upright position
- Controlled cord traction is not recommended in the absence of uterotonic drugs, or prior to signs of separation of the placenta, as this can cause partial placental separation, a ruptured cord, excessive bleeding and uterine inversion
- Uterine massage after the delivery of the placenta as appropriate.

How should the third stage of labor be managed in situations where no oxytocin is available or birth attendants' skills are limited?

In situations where no oxytocin is available or birth attendants' skills are limited, the 2006 FIGO/ICM joint statement recommends administering misoprostol soon after the birth of the baby to reduce the occurrence of hemorrhage.²⁴ The most common side effects are transient shivering and pyrexia. Education of women and birth attendants in the proper use of misoprostol is essential.

The usual components of giving misoprostol include:

- Administration of 600 micrograms (mcg) misoprostol orally or sublingually after the birth of the baby
- Controlled cord traction ONLY when a skilled attendant is present at the birth
- Uterine massage after the delivery of the placenta as appropriate.

In the absence of active management, should uterotonic drugs be used alone for prevention of PPH?

The most recent WHO recommendations for the prevention of postpartum hemorrhage²³ promote the use of a uterotonic drug (oxytocin or misoprostol) by a health worker trained in its use for prevention of PPH in the absence of active management of the third stage of labor. This recommendation is based on results from two randomized trials and places a high value on the potential benefits of avoiding PPH. In the case of misoprostol, there is the additional benefit of ease of administration of an oral drug in settings where other care is not available.

How does practicing AMTSL differ for women who are infected with HIV?

The practice of AMTSL is the same for all women regardless of their HIV status. However, women who are HIV infected may choose not to breastfeed, so providers need to respect and support the woman's choice for infant feeding. In addition, providers need to ensure that national guidelines for PMTCT are implemented for the woman and newborn in addition to routine care during labor, childbirth, and in the immediate postpartum.

Does nipple stimulation prevent PPH?

Nipple stimulation results in the release of the oxytocin hormone in the woman. The nipples are easily stimulated through early breastfeeding. Research has not shown that nipple stimulation significantly helps to reduce the risk of PPH so this should not replace AMTSL to prevent PPH. However, promoting breastfeeding after birth has several benefits:

- Stimulates natural production of oxytocin.
- May help maintain tone of the contracted uterus.
- Promotes bonding between the mother and newborn.
- Breast milk is perfectly suited to nourish infants and protect them from illness.



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