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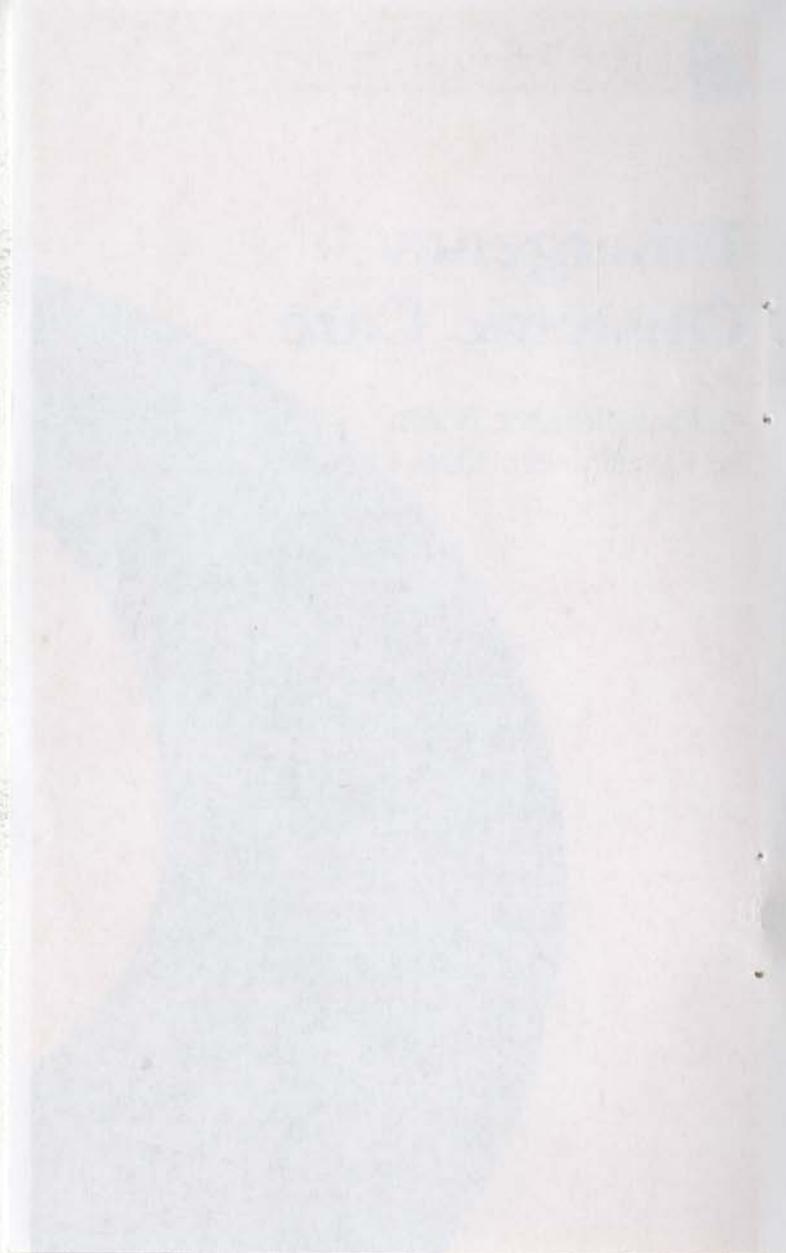
An Affiliate of
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WORKING TO IMPROVE THE HEALTH OF WOMEN AND FAMILIES THROUGHOUT THE WORLD

Emergency Obstetric Care

Quick Reference Guide
for Frontline Providers

Maternal
& Neonatal
Health





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United States Agency for
International Development

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Health

The Maternal and Neonatal Health (MNH) Program is committed to saving mothers' and newborns' lives by increasing the timely use of key maternal and neonatal health and nutrition practices. The MNH Program is jointly implemented by JHPIEGO, the Johns Hopkins Center for Communication Programs, the Centre for Development and Population Activities, and the Program for Appropriate Technology in Health.
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For 30 years, JHPIEGO has been committed to improving the health of women and families throughout the world. JHPIEGO is dedicated to excellence—ensuring quality service delivery and strengthening human capacity development. The organization's work spans a continuum of client-centered care—from prevention to treatment—in reproductive health and family planning, HIV/AIDS, maternal and neonatal health, and cervical cancer. As an affiliate of Johns Hopkins University, JHPIEGO draws on the University's extensive expertise to develop innovative responses to the challenges of today's reproductive health needs.
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PREFACE

The purpose of this Quick Reference Guide is to help the healthcare provider in a Type 1 health post recognize and respond to obstetric emergencies. The goal of emergency obstetric care at the health post level is to diagnose the problem, stabilize the woman, and arrange for transport to the nearest facility capable of managing and treating the complication.

A Type 1 health post is defined by the World Health Organization as a dispensary, health post, or health subcenter providing limited ambulatory and curative services, having no beds (possibly one maternity bed), and staffed by an auxiliary nurse midwife (population served <10,000).

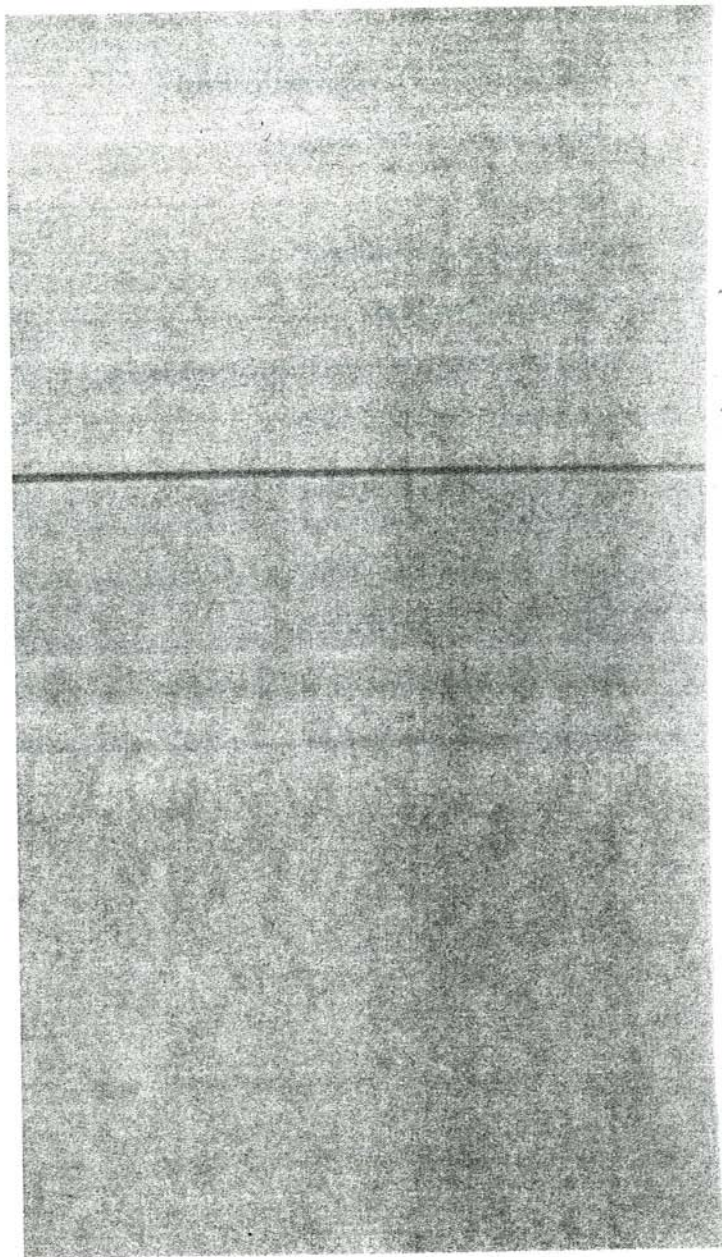
The level of care that can be provided at the health post will differ according to the training and experience of the healthcare provider as well as the availability of drugs, supplies, and instruments. However, for the purpose of this Quick Reference Guide, it is assumed that the healthcare provider staffing the health post has basic midwifery training and skills, and that the health post is equipped to provide basic labor and childbirth care.

This Quick Reference Guide is based on the World Health Organization manual *Managing Complications in Pregnancy and Childbirth: A Guide for Midwives and Doctors* (MCPC) (2000). Like the MCPC, it is arranged by symptom. The Appendices include sections on Essential Drugs and Supplies, Infection Prevention, and Guidelines for Procedures. There is also an Appendix describing the procedures for Active Management of the Third Stage of Labor, which has been proven to prevent postpartum hemorrhage, the cause of 35% of maternal mortality.

This Quick Reference Guide was inspired by the work of Sereen Thaddeus, Director of Behavior Change Communication, MNH Program, on emergency obstetric care job aids. Thanks also go to Ann Davenport for her contribution to early versions of the Guide.

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BEING PREPARED FOR AN EMERGENCY

It is the responsibility of the skilled provider (nurse, midwife, or physician) to make sure that all staff at the health post (whether a clerk, guard, doorkeeper, cleaner, etc.) know how to respond to an emergency. A staff person should be able to identify a woman with danger signs of pregnancy or in advanced labor, take her to the treatment area, and call for the skilled provider. The provider and staff should work together to plan for a way to respond to emergencies. The provider should give staff the information and training they need to be able to perform their jobs if there is an emergency.

REMEMBER

- A woman who is bleeding must be taken care of immediately—she cannot wait for care.
- Everyone at the health post must be ready to help if a woman arrives with an obstetric emergency or signs and symptoms of advanced labor. Take the woman to the treatment area and call for the skilled provider.
- All staff at the health post should be able to perform a Quick Check (see **page 2**).
- The emergency tray should be restocked after each use (see **page 73**).
- All instruments and supplies should be decontaminated, cleaned, and high-level disinfected or sterilized immediately after use.

QUICK CHECK

- **Look at the woman:**
 - Did someone carry her into the health post? (Possible sign of shock, see **page 7**.)
 - Is there blood on her clothing or on the floor beneath her? (Sign of bleeding in pregnancy.)
 - Is she grunting, moaning, or bearing down? (Possible signs of advanced labor.)
- **Ask the woman or someone who is with the woman whether she has now or has recently had:**
 - Vaginal bleeding
 - Severe headache/blurred vision
 - Convulsions or loss of consciousness
 - Difficulty breathing
 - Fever
 - Severe abdominal pain
 - Labor pains
- **If the woman has or recently had ANY of these danger signs, or signs and symptoms of advanced labor, immediately:**
 - **Shout for help.**
 - Stay calm. Focus on the woman.
 - Do not leave the woman alone.
 - Notify the skilled provider.

The skilled provider should perform a rapid initial assessment to assess the woman's need for stabilization and treatment/referral.

RESPONDING TO AN EMERGENCY

The skilled provider should perform a rapid initial assessment to determine what is needed for immediate stabilization, management, and referral.

- Stay calm. Focus on the woman.
- Do not leave the woman alone.
- Take charge. Assign tasks to staff or people who are with the woman.
- **SHOUT FOR HELP.** Have one person go for help and have a staff member gather the emergency tray and any additional supplies.
- Position the woman lying down on her left side with her feet elevated.
- Talk to the woman and help her stay calm. Ask her or someone with her what symptoms she has and when they started.
- Perform a quick examination including blood pressure, pulse, respiration, temperature, and skin color. Check for bleeding and estimate the amount of blood she has lost.

Do not give fluids or antibiotics by mouth to a woman who is in shock or unconscious.

RAPID INITIAL ASSESSMENT

When danger signs are identified during the Quick Check, immediately perform a Rapid Initial Assessment (RIA) to determine the woman's degree of illness and assess her need for emergency care/stabilization.

Note: Even if the woman shows no evidence of shock at this time, this does not mean she will not go into shock; therefore, ***constant vigilance is necessary.***

Suspect or anticipate shock if **ANY** of the following has occurred/is present:

- Vaginal bleeding in pregnancy
- Vaginal bleeding during or after childbirth
- Infection
- Trauma

RAPID INITIAL ASSESSMENT FOR RESPIRATORY DISTRESS

ASSESS

- **Look For**
 - Not breathing
 - Rapid breathing (30 breaths or more per minute)
 - Obstructed breathing or gasping
 - Pale or bluish (cyanotic) skin color
- **Examine**
 - Mouth for foreign bodies (such as pieces of food)
 - Lungs for wheezing or rales

STABILIZE

If the woman IS NOT breathing

- **Shout for help.**
- Keep woman in supine position with her head tilted backwards.
- Lift her chin to open the airway.
- Inspect her mouth for foreign body and remove if found.
- Clear secretions from her throat.
- Ventilate with bag and mask until the woman starts breathing.

If the woman IS breathing but still in respiratory distress

- **Shout for help.**
- Rapidly evaluate vital signs (blood pressure, pulse, breathing).

- Position the woman lying down on her left side with two pillows supporting her back.
- Give oxygen at 4–6 L per minute if available.
- **Refer urgently.**

CONSIDER

- Severe anemia
- Heart failure
- See **Difficulty in Breathing** (page 62)

RAPID INITIAL ASSESSMENT FOR SHOCK

ASSESS

- **Look For**
 - Rapid breathing (30 breaths or more per minute)
 - Cold and clammy skin
 - Pallor of conjunctiva and palms and around the mouth
 - Perspiration
 - Anxiousness, confusion
 - Loss of consciousness
- **Examine**
 - *Pulse*: fast (110 beats per minute or more) and weak
 - *Blood pressure*: systolic 90 mm Hg or less
 - *Urine output*: less than 30 mL per hour

STABILIZE

- **Shout for help.**
- **Turn the woman on her side** to minimize the risk of aspiration if she vomits and to ensure that an airway is open.
- **Ensure that she is breathing.**
- **Keep the woman warm** but do **NOT** overheat her.
- **Elevate her legs** to increase the return of blood to the heart (if possible, raise the foot end of the bed) before and during transport.

- **Start an IV infusion** or oral rehydration solution (see **page 10**).
- **Monitor vital signs** (blood pressure, pulse, breathing) and skin temperature every 15 minutes.
- **Reassess** the woman's response to fluids within 30 minutes to see if her condition is improving. Signs of improvement include:
 - Pulse rate of 90 beats per minute or less
 - Blood pressure: systolic 100 mm Hg or more
 - Less confusion and anxiety
 - Urine output: 30 mL per hour or more
- If her condition improves, adjust the rate of infusion of IV fluids to 1 L in 6 hours. Determine the cause of shock and manage or refer accordingly.
- If she fails to improve or stabilize, **refer immediately**.

CONSIDER

- Inevitable/incomplete abortion
- Ectopic pregnancy
- Abruptio placentae
- Ruptured uterus
- Placenta previa
- See **Vaginal Bleeding in Early Pregnancy** (page 25) and **Vaginal Bleeding after 22 Weeks of Pregnancy or in Labor before Childbirth** (page 32)
- Atonic uterus
- Tears of cervix, vagina, or perineum

- Retained placenta/placental fragments
- **See Vaginal Bleeding after Childbirth (page 34)**

- Septic abortion
- Metritis
- Peritonitis
- **See Fever during Pregnancy and Labor (page 54), Fever after Childbirth (page 56), or Abdominal Pain in Early Pregnancy (page 58)**

- Ruptured uterus
- **See Abdominal Pain in Later Pregnancy or Childbirth (page 60)**

Guidelines for Starting an IV or Oral Rehydration Solution (ORS)

Start an IV infusion (two if possible):

- Use a large-bore needle (16-gauge or largest available).
- Rapidly infuse Ringer's lactate or normal saline at the rate of 1 L in 15–20 minutes.
- Give at least 2 L of fluid in the first hour.

Note: If shock is due to bleeding, aim to replace two to three times the estimated fluid loss.

ONLY if unable to start an IV infusion (for whatever reason), give the woman ORS according to the following guidelines:

- **If the woman is able to drink**, is conscious, and is not having (or has not recently had) convulsions, give ORS 300–500 mL in 1 hour by mouth.

Note: Unless the woman is fully conscious and alert, do NOT give fluid by mouth.

- **If the woman is unable to drink**, is unconscious, or is having (or has recently had) convulsions, give ORS 500 mL rectally over 20–30 minutes, according to the following guidelines:
 - Fill an enema bag/can with 500 mL of fluid.
 - Run water to the end of the tube and clamp off.
 - Insert the lubricated tube about 10 cm (3–4 inches) into the rectum.
 - Run the water in slowly.

Note: It will take 20–30 minutes for the water to run into the woman. If you run it in too rapidly, she will get abdominal cramps and push the water out.

RAPID INITIAL ASSESSMENT FOR CONVULSIONS OR LOSS OF CONSCIOUSNESS

ASSESS

- **Ask**
 - Pregnant?
 - Length of gestation?
- **Examine**
 - *Blood pressure*: diastolic 90 mm Hg or more
 - *Temperature*: 38° C or more

STABILIZE

- **Shout for help.**
- Never leave the woman alone.
- **Protect the woman from injury**, but do not actively restrain her.
- **If she is unconscious**
 - Check the airway.
 - Position the woman lying down on her left side with two pillows supporting her back.
 - Check for neck rigidity.
- **If she is convulsing**, turn her on her side to minimize the risk of aspiration if she vomits and to ensure that an airway is open.

- **Give loading dose of magnesium sulfate.**

Give magnesium sulfate solution* 4 g IV over 5 minutes. Tell the woman that she will experience a feeling of warmth when magnesium sulfate is given.

- Follow promptly with magnesium sulfate 10 g as deep IM injection (5 g in each buttock) with 2% lignocaine 1 mL in the same syringe. Ensure that aseptic technique is used when giving a deep IM injection.
- **If convulsions persist or recur after 15 minutes**, give magnesium sulfate 2 g IV over 5 minutes.
- **If respiratory arrest occurs**, give calcium gluconate 1 g (10 mL of 10% solution) IV slowly over 10 minutes.

WARNING: Before giving the woman another dose of magnesium sulfate, be sure that her respiratory rate is at least 16 breaths per minute, knee reflexes are present, and urine output is at least 30 mL per hour over 4 hours.

- **If magnesium sulfate is NOT available**
 - Give loading dose of **diazepam** 10 mg IV slowly over 2 minutes.
 - **If convulsions recur**, repeat loading dose.
 - **If woman is in late labor or referral is delayed**, give a maintenance dose as follows:
 - Give diazepam 40 mg in 500 mL IV fluids (Ringer's lactate or normal saline)

* Magnesium sulfate comes in different concentrations (e.g., 20%, 40%, 50%). When giving injections IM, it is best to use higher concentrations (e.g., 50%) to decrease the total volume required.

over 6–8 hours, titrated to keep the woman sedated but rousable.

- Stop the maintenance dose if respirations drop below 16 breaths per minute.
- Do not give more than 100 mg of diazepam in 24 hours.
- **Treat/refer urgently. If referral is necessary, follow these steps in addition to those on page 19.**
 - Accompany the woman during transport.
 - Be sure to have sufficient medication available during transport.
- **If referral is delayed or the woman is in late labor**
 - Continue treatment with magnesium sulfate:
 - Give magnesium sulfate 5 g IM plus 2% lignocaine 1 mL (in alternate buttock) every 4 hours.
 - Continue treatment for 24 hours after the birth or after the last convulsion, whichever occurs last.
 - Monitor urine output.

CONSIDER

- Eclampsia
- Tetanus
- Epilepsy
- Complicated malaria
- See **Headache, Blurred Vision, Convulsions, or Loss of Consciousness (page 50)**

RAPID INITIAL ASSESSMENT FOR VAGINAL BLEEDING

ASSESS

- Ask
 - Pregnant?
 - Length of gestation?
 - Abdominal pain?
 - **After 22 weeks of pregnancy, ask if**
 - Recently given birth, date of childbirth
 - Placenta delivered
 - Bleeding is slow and continuous (how long) or sudden onset
- Examine
 - *Vulva*: amount of bleeding, trauma
 - *Vagina*: tears, placenta
 - *Cervix*: products of conception, tears
 - *Uterus*: retained placenta, atony
 - *Bladder*: full
 - **Do not do a vaginal examination at this stage**

STABILIZE

- **Stop the bleeding.** Assess for the cause of bleeding based on the stage of gestation and treat accordingly.

CONSIDER

- Abortion
- Ectopic pregnancy

- Molar pregnancy
- **See Vaginal Bleeding in Early Pregnancy (page 25)**

- Abruptio placentae
- Ruptured uterus
- Placenta previa
- **See Vaginal Bleeding after 22 Weeks of Pregnancy or in Labor before Childbirth (page 32)**

- Atonic uterus
- Tears of cervix, vagina, or perineum
- Retained placenta/placental fragments
- Inverted uterus
- **See Vaginal Bleeding after Childbirth (page 34)**

RAPID INITIAL ASSESSMENT FOR FEVER (TEMPERATURE OF 38° C OR MORE)

ASSESS

- **Ask**
 - Weak, lethargic?
 - Frequent, painful urination?
- **Examine**
 - Unconscious
 - *Temperature:* 38° C or more
 - *Neck:* stiffness
 - *Lungs:* shallow breathing, consolidation
 - *Abdomen:* severe tenderness
 - *Vulva:* purulent discharge
 - *Breasts:* tender

STABILIZE

- **GIVE AMPICILLIN 2 g IV every 6 hours PLUS gentamicin 5 mg/kg body weight IV every 24 hours PLUS metronidazole 500 mg IV every 8 hours.**
- **Refer urgently.**
- **If signs of septic shock, see stabilization procedure for shock (page 7).**
- Start an IV infusion (two if possible) using a large-bore cannula or needle. Rapidly infuse Ringer's lactate or normal saline at the rate of 1 L in 15–20 minutes. Give at least 2 L of fluid in the first hour.

CONSIDER

- Septic abortion
- Amnionitis
- Complicated malaria
- Typhoid
- See **Fever during Pregnancy and Labor** (page 54)

- Metritis
- Wound cellulitis
- Complicated malaria
- Mastitis
- See **Fever after Childbirth** (page 56)

RAPID INITIAL ASSESSMENT FOR ABDOMINAL PAIN

ASSESS

- **Ask**
 - Pregnant?
 - Length of gestation?
- **Examine**
 - *Blood pressure*: systolic 90 mm Hg or less
 - *Temperature*: 38° C or more
 - *Uterus*: length of gestation or date of childbirth

CONSIDER

- Abortion
- Ectopic pregnancy
- Molar pregnancy
- See **Vaginal Bleeding in Early Pregnancy**
(page 25)

- Abruptio placentae
- Ruptured uterus
- Placenta previa
- See **Vaginal Bleeding after 22 Weeks of
Pregnancy or in Labor before Childbirth**
(page 32)

REFERRING THE WOMAN FOR CARE

- After emergency management, discuss decision to refer with woman and family.
- Quickly organize transport and possible financial aid.
- Inform the referral center by radio or phone.
- Give the woman a referral slip containing the following information:
 - Name, age, address
 - Obstetric history (parity, gestational age, antenatal complications)
 - Relevant past obstetric complications
 - Specific problem for which she is referred
 - Treatment applied thus far and results
- Send with the woman:
 - A health worker trained in childbirth care
 - Essential emergency drugs and supplies
 - A family member who can donate blood
 - If there is a baby, send with the mother if there is a family member who can go with the mother to care for the baby
- During journey:
 - Maintain IV infusion.
 - Keep the woman (and baby, if born) warm but do not overheat.
 - If journey is long, give appropriate treatment on the way.
 - Keep record of all IV fluids, medications given, time of administration, and woman's condition.

SYMPTOMS

Vaginal Bleeding	23
Headache, Blurred Vision, Convulsions, or Loss of Consciousness	49
Unsatisfactory Progress in Labor	54
Fever during Pregnancy and Labor (temperature of 38° C or more)	54
Fever after Childbirth (temperature of 38° C or more)	56
Abdominal Pain in Early Pregnancy (before 22 weeks)	58
Abdominal Pain in Later Pregnancy or Childbirth	60
Difficulty in Breathing	62

VAGINAL BLEEDING

Light bleeding: takes longer than 5 minutes for a clean pad or cloth to be soaked.

Heavy bleeding: takes less than 5 minutes for a clean pad or cloth to be soaked.

TYPES OF ABORTION

Spontaneous abortion is the loss of a pregnancy before 22 weeks of pregnancy. Stages of spontaneous abortion may include:

- **Threatened abortion:** pregnancy may continue
- **Inevitable abortion:** pregnancy will not continue and will proceed to incomplete/complete abortion
- **Incomplete abortion:** products of conception are not completely expelled
- **Complete abortion:** products of conception are completely expelled

Induced abortion is a process by which pregnancy is terminated before fetal viability (22 weeks).

Unsafe abortion is a procedure performed either by persons lacking necessary skills or in an environment lacking minimal infection prevention standards or both.

Septic abortion is an abortion complicated by infection. Sepsis may follow either spontaneous or unsafe abortion.

IF UNSAFE ABORTION IS SUSPECTED

- Examine for signs of infection or uterine, vaginal, or bowel injury.
- If infection is present, begin antibiotics (see **page 16**) before performing manual vacuum aspiration (MVA) if available, or referring for MVA.
- If uterine, vaginal, or bowel injury is present, infuse IV fluids (see **page 10**) and **refer urgently for surgery and MVA.**
- If herbs, local medications, or caustic substances were used, thoroughly irrigate the vagina to remove them.

FOLLOWUP OF WOMEN WHO HAVE HAD AN UNSAFE ABORTION

- Counsel the woman regarding her reproductive health and family planning needs.
- Help her select and obtain the most appropriate family planning method, if desired.
- Identify other reproductive health services needed, such as tetanus prophylaxis or booster, treatment for sexually transmitted infections, or cervical cancer screening.

VAGINAL BLEEDING IN EARLY PREGNANCY (UP TO 22 WEEKS OF PREGNANCY)

- Conduct a Rapid Initial Assessment (see **page 14**).
- Stabilize following the procedure for shock (see **page 7**).
- If stabilization is not needed, or after the woman is stabilized, assess signs and symptoms for probable diagnosis and management.

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Light bleeding Closed cervix Uterus corresponds to dates	Threatened abortion
Light bleeding Abdominal pain Closed cervix Uterus slightly larger than normal Uterus softer than normal	Ectopic pregnancy <i>Unruptured:</i> Symptoms of early pregnancy Abdominal and pelvic pain <i>Ruptured:</i> Signs of shock Collapse, weakness Pulse 100 beats per minute or more Systolic blood pressure of 90 mm Hg or less Acute abdominal, pelvic pain Rebound tenderness Pallor
Light bleeding Closed cervix Uterus smaller than dates Uterus softer than normal	Complete abortion
Heavy bleeding Dilated cervix Uterus smaller than or corresponds to dates	Inevitable abortion

MANAGEMENT

Medical treatment usually not necessary; follow up in antenatal clinic.

Woman should avoid hard work and intercourse.

Do not give hormones or tocolytics.

If bleeding does not stop

Refer (may be ectopic pregnancy, twins, or molar pregnancy).

Arrange for immediate transport for laparotomy.

If unruptured

Insert IV line and infuse Ringer's lactate or normal saline 1 L in 6–8 hours.

If ruptured and in shock

Insert IV line and infuse normal saline or Ringer's lactate 1 L in 15–20 minutes (as rapidly as possible).

Repeat 1 L every 30 minutes at rate of 30 mL/min (1 L in 6–8 hours) when pulse slows to less than 100 beats per minute, systolic BP increases to 100 mm Hg or more.

Record time and amount of fluids given.

Evacuation of uterus usually not necessary.

Observe for heavy bleeding.

Give ergometrine 0.2 mg IM or misoprostol 400 µg orally.

Refer if bleeding does not stop immediately.

If MVA is not available

Stabilize and refer urgently.

Give ergometrine 0.2 mg IM (repeat after 15 minutes if necessary) **OR** misoprostol 400 µg orally (repeat once after 4 hours if necessary).

If MVA is available

If pregnancy is less than 16 weeks

Perform MVA.

If pregnancy is greater than 16 weeks

Await spontaneous expulsion of products of conception. If necessary to help expulsion, infuse oxytocin 40 units in 1 L normal saline or Ringer's lactate 40 drops per minute.

Perform MVA to remove any remaining products of conception.

**VAGINAL BLEEDING IN EARLY PREGNANCY
(UP TO 22 WEEKS OF PREGNANCY)
(CONTINUED)**

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Heavy bleeding Dilated cervix Uterus smaller than dates	Incomplete abortion

MANAGEMENT

If bleeding is light to moderate and pregnancy is less than 16 weeks

Use ring forceps, if available, to remove products of conception protruding through cervix.

Give ergometrine 0.2 mg IM (repeat after 15 minutes if necessary) **OR** misoprostol 400 µg by mouth (repeat once after 4 hours if necessary).

**If bleeding is heavy and pregnancy is less than 16 weeks
If MVA is available**

Perform MVA.

If MVA is not available

Perform curettage.

If MVA and curettage are not available

Refer urgently.

If bleeding is heavy and pregnancy is greater than 16 weeks

If MVA is not available

Stabilize and refer urgently.

Give ergometrine 0.2 mg IM (repeat after 15 minutes if necessary) **OR** misoprostol 400 µg by mouth (repeat once after 4 hours if necessary).

If MVA is available

Infuse oxytocin 40 units in 1 L normal saline or Ringer's lactate 40 drops per minute until expulsion of products of conception occurs.

If necessary, give misoprostol 200 µg vaginally every 4 hours until expulsion (do not give more than 800 µg).

Perform MVA to remove any remaining products of conception.

**VAGINAL BLEEDING IN EARLY PREGNANCY
(UP TO 22 WEEKS OF PREGNANCY)
(CONTINUED)**

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Heavy bleeding Dilated cervix Uterus larger than dates Uterus softer than normal Partial expulsion of products of conception, which resemble grapes	Molar pregnancy

MANAGEMENT

If diagnosis is uncertain and/or MVA is not available
Stabilize and refer urgently (see Rapid Initial Assessment, page 14 and stabilization procedure for shock, page 7).

If diagnosis is certain and MVA is available
Perform MVA (have three syringes cocked and ready for use).

If cervical dilation is needed

Use a paracervical block.

Once MVA is started, infuse oxytocin 20 units in 1 L normal saline or Ringer's lactate at 60 drops per minute to prevent hemorrhage.

VAGINAL BLEEDING AFTER 22 WEEKS OF PREGNANCY OR IN LABOR BEFORE CHILDBIRTH

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Bleeding	Abruptio placentae
Intermittent or constant abdominal pain	Ruptured uterus
Severe abdominal pain	Placenta previa

MANAGEMENT

Start an IV infusion (two if possible) using a large-bore cannula or needle.

Rapidly infuse normal saline or Ringer's lactate at the rate of 1 L in 15–20 minutes.

Give at least 2 L of fluid in the first hour.

Refer urgently.

VAGINAL BLEEDING AFTER CHILDBIRTH

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Increased vaginal bleeding within the first 24 hours after childbirth Uterus soft and not contracted	Atonic uterus

Increased vaginal bleeding within the first 24 hours after childbirth	Tears of cervix, vagina, or perineum
---	---

MANAGEMENT

Massage the fundus of the uterus through the woman's abdomen.

Administer oxytocin

IV: infuse 20 units in 1 L normal saline or Ringer's lactate at 60 drops per minute until uterus is contracted, then 20 units in 1 L normal saline or Ringer's lactate at 40 drops per minute. *Do not give more than 3 L.*

PLUS

IM: 10 units.

If oxytocin not available

Administer ergometrine/methyl-ergometrine (do not use if signs/symptoms of pre-eclampsia, hypertension, or heart disease).

IM or IV: slowly infuse 0.2 mg. Repeat 0.2 mg IM after 15 minutes.

If required, give 0.2 mg IM or IV (slowly) every 4 hours.

If bleeding continues

Check for and remove retained placental fragments.

If bleeding does not stop in spite of management

Perform bimanual compression of the uterus or compress the aorta (see pages 42–43).

If bleeding does not stop in spite of compression

Start an IV infusion (two if possible) using a large-bore cannula or needle.

Rapidly infuse normal saline or Ringer's lactate at the rate of 1 L in 15–20 minutes.

Give at least 2 L of fluid in the first hour.

Refer urgently.

Examine the woman carefully and repair tears to the cervix, vagina, or perineum.

If bleeding does not stop immediately

Refer urgently.

VAGINAL BLEEDING AFTER CHILDBIRTH (CONTINUED)

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Placenta not delivered within 30 minutes after childbirth Portion of maternal surface of placenta missing or torn membranes with vessels (there may be no bleeding)	Retained placenta/ placental fragments

MANAGEMENT

Ensure that the bladder is empty (catheterize if necessary).

If you can see the placenta

Ask the woman to push it out.

If you can feel the placenta or placental fragments in the vagina

Remove by hand (wear sterile or high-level disinfected gloves; wrap sterile gauze around fingers).

If placenta is not expelled and cannot be seen or felt

Give oxytocin 10 units IM.

If placenta is undelivered after 30 minutes of oxytocin and the uterus is contracted

Attempt controlled cord traction (see page 67).

If controlled cord traction is unsuccessful

Start an IV infusion (two if possible) using a large-bore cannula or needle.

Rapidly infuse normal saline or Ringer's lactate at the rate of 1 L in 15–20 minutes.

Give at least 2 L of fluid in the first hour.

Attempt manual removal of placenta (see page 44).

If signs of infection

Give ampicillin 2 g IV every 6 hours **PLUS** gentamicin 5 mg/kg body weight IV every 24 hours **PLUS** metronidazole 500 mg IV every 8 hours.

If placenta or placental fragments cannot be removed

OR bleeding does not stop immediately

Refer urgently.

VAGINAL BLEEDING AFTER CHILDBIRTH (CONTINUED)

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Uterine fundus not felt on abdominal palpation Slight or intense pain	Inverted uterus

MANAGEMENT

Start an IV infusion (two if possible) using a large-bore cannula or needle.

Rapidly infuse normal saline or Ringer's lactate at the rate of 1 L in 15–20 minutes.

Give at least 2 L of fluid in the first hour.

Give a single dose of prophylactic antibiotics: ampicillin 2 g IV **PLUS** metronidazole 500 mg IV; OR

Give cefazolin 1 g IV **PLUS** metronidazole 500 mg IV.

Refer urgently.

If there is fever and/or foul-smelling vaginal discharge

Give ampicillin 2 g IV every 6 hours **PLUS** gentamicin 5 mg/kg body weight IV every 24 hours **PLUS** metronidazole 500 mg IV every 8 hours.

Refer urgently.

VAGINAL BLEEDING AFTER CHILDBIRTH (CONTINUED)

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Bleeding occurs more than 24 hours after childbirth Uterus softer and larger than expected for elapsed time since childbirth	Delayed postpartum hemorrhage

MANAGEMENT

Administer oxytocin

IV: infuse 20 units in 1 L normal saline or Ringer's lactate at 60 drops per minute until uterus is contracted, then 20 units in 1 L normal saline or Ringer's lactate at 40 drops per minute. *Do not give more than 3 L.*

PLUS

IM: 10 units.

If oxytocin is not available

Administer ergometrine/methyl-ergometrine (do not use if signs/symptoms of pre-eclampsia, hypertension, or heart disease).

IM or IV: slowly infuse 0.2 mg. Repeat 0.2 mg IM after 15 minutes.

If required, give 0.2 mg IM or IV (slowly) every 4 hours.

If cervix is dilated

Explore uterus by hand (wearing sterile or high-level disinfected gloves) to remove large clots and placental fragments.

If cervix is not dilated and MVA is not available, OR if bleeding does not stop

Refer urgently.

If cervix is not dilated and MVA is available

Perform MVA to remove placental fragments.

If hemoglobin is below 7 g/dL or hematocrit is below 20% (severe anemia)

Give ferrous sulfate or ferrous fumarate 120 mg by mouth **PLUS** folic acid 400 µg by mouth.

Refer urgently.

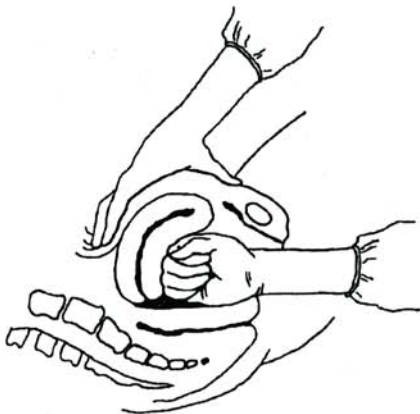
If there is fever and/or foul-smelling vaginal discharge

Give ampicillin 2 g IV every 6 hours **PLUS** gentamicin 5 mg/kg body weight IV every 24 hours **PLUS** metronidazole 500 mg IV every 8 hours.

Refer urgently.

TO PERFORM BIMANUAL COMPRESSION OF THE UTERUS

- Wearing high-level disinfected or sterile gloves (see pages 78–81), insert a hand into the vagina and remove any blood clots from the lower part of the uterus or cervix.
- Form a fist.
- Place the fist into the anterior fornix and apply pressure against the anterior wall of the uterus.
- With the other hand, press deeply into the abdomen behind the uterus, applying pressure against the posterior wall of the uterus.
- Maintain compression until bleeding is controlled and the uterus contracts.



ALTERNATIVELY, COMPRESS THE AORTA

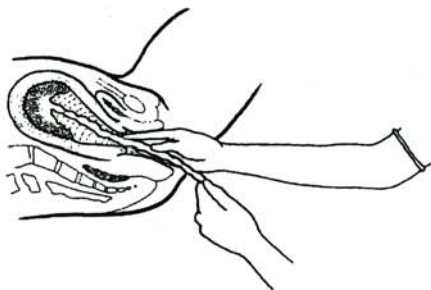
- Apply downward pressure with a closed fist over the abdominal aorta directly through the abdominal wall:
 - The point of compression is just above the umbilicus and slightly to the left.
 - Aortic pulsations can be felt easily through the anterior abdominal wall in the immediate postpartum period.
- With the other hand, palpate the femoral pulse to check the adequacy of compression.
- Maintain compression until bleeding is controlled.



Packing the uterus is ineffective and wastes precious time.

MANUAL REMOVAL OF THE PLACENTA

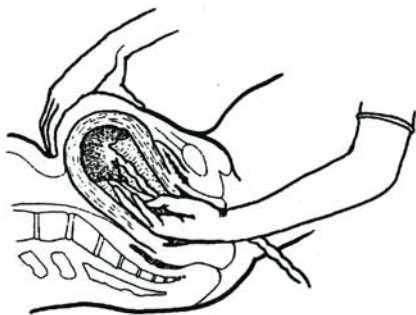
- Review for indications.
- Start an IV infusion.
- Provide emotional support and encouragement. Use calm, soothing language to help the woman relax.
- Catheterize the bladder or ensure that it is empty.
- Give a single dose of prophylactic antibiotics:
 - ampicillin 2 g IV **PLUS** metronidazole 500 mg IV;
 - **OR** cefazolin 1 g IV **PLUS** metronidazole 500 mg IV.
- Hold the umbilical cord with a clamp. Pull the cord gently until it is parallel to the floor.
- Wearing high-level disinfected or sterile elbow-length gloves (see **pages 78–82**), insert the other hand into the vagina and up into the uterus.



- Let go of the cord and move the hand up over the abdomen in order to support the fundus of the uterus and to provide counter-traction during removal to prevent inversion of the uterus.

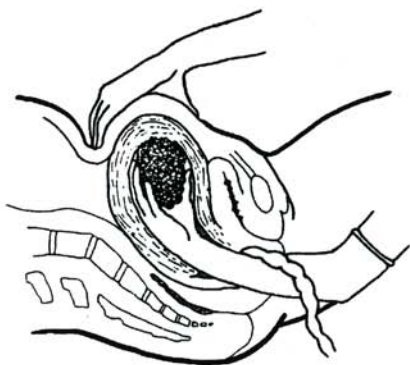
Note: If uterine inversion occurs, refer urgently.

- Move the fingers of the hand in the uterus laterally until the edge of the placenta is located.
- **If the cord has been detached previously**, insert a hand into the uterine cavity. Explore the entire cavity until a line of cleavage is identified between the placenta and the uterine wall.



- Detach the placenta from the implantation site by keeping the fingers tightly together and using the edge of the hand to gradually make a space between the placenta and the uterine wall.
- Proceed slowly all around the placental bed until the whole placenta is detached from the uterine wall.
- **If the placenta does not separate from the uterine surface** by gentle lateral movement of the fingertips at the line of cleavage, remove placental fragments. **If the tissue is very adherent**, suspect placenta accreta and refer immediately for laparotomy and possible subtotal hysterectomy.

- Hold the placenta and slowly withdraw the hand from the uterus, bringing the placenta with it.
- With the other hand, continue to provide counter-traction to the fundus by pushing it in the opposite direction of the hand that is being withdrawn.
- Palpate the inside of the uterine cavity to ensure that all placental tissue has been removed.



- Give oxytocin 20 units in 1 L IV fluids (normal saline or Ringer's lactate) at 60 drops per minute.
- Ask an assistant to massage the fundus of the uterus to encourage a tonic uterine contraction.
- **If there is continued heavy bleeding, give ergometrine 0.2 mg IM.**
- Examine the uterine surface of the placenta to ensure that it is complete. **If any placental lobe or tissue is missing, explore the uterine cavity to remove it.**
- Examine the woman carefully and repair any tears to the cervix or vagina, or repair episiotomy.

PROBLEMS

If the placenta is retained due to a constriction ring or if hours or days have passed since childbirth, it may not be possible to get the entire hand into the uterus. Refer urgently.

POST-PROCEDURE CARE

- Monitor vital signs (blood pressure, pulse, breathing) every 30 minutes for the next 6 hours or until stable.
- Palpate the uterine fundus to ensure that the uterus remains contracted.
- Check for excessive lochia.
- Continue infusion of IV fluids.

HEADACHE, BLURRED VISION, CONVULSIONS, OR LOSS OF CONSCIOUSNESS

If a pregnant woman or a woman who has recently given birth complains of severe headache or blurred vision, or a pregnant woman has elevated blood pressure, test her urine for proteinuria.

A small proportion of women with eclampsia have normal blood pressure. Treat all women with convulsions as if they have eclampsia until another diagnosis is confirmed.

If a pregnant woman living in a malarial area has fever, headaches, or convulsions, and malaria cannot be excluded, it is essential to treat the woman for both malaria and eclampsia.

HEADACHE, BLURRED VISION, CONVULSIONS, OR LOSS OF CONSCIOUSNESS

- Conduct a Rapid Initial Assessment (see page 11).
- Stabilize if necessary (see page 11).
- **Refer urgently.**

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Convulsions Diastolic blood pressure 90 mm Hg or more after 20 weeks of pregnancy Proteinuria 2+ or more	Eclampsia
Difficulty opening mouth and chewing	Tetanus
Convulsions Past history of convulsions Normal blood pressure	Epilepsy
Fever (38° C or more) Chills/rigors Headache Muscle/joint pain Coma Anemia	Complicated malaria

MANAGEMENT

Stabilize according to **stabilization procedure for convulsions or loss of consciousness** (see page 11).
Refer urgently.

Control spasms with diazepam 10 mg IV slowly over 2 minutes.
Remove the cause of sepsis.
Give benzyl penicillin 2 million units IV every 4 hours.
Refer urgently.

If the woman is convulsing

Give diazepam 10 mg IV slowly over 2 minutes.
Repeat if convulsions recur after 10 minutes.
Refer urgently.

If convulsions occur

Give diazepam 10 mg IV slowly over 2 minutes.

If eclampsia is diagnosed

Prevent subsequent convulsions with magnesium sulfate (see page 53).
Refer urgently.

If complicated malaria is diagnosed and the woman is conscious

Give three tablets of sulfadoxine pyrimethamine **OR** chloroquine.
Refer urgently.

MAGNESIUM SULFATE* SCHEDULES FOR SEVERE PRE-ECLAMPSIA AND ECLAMPSIA

LOADING DOSE:

- Magnesium sulfate solution 4 g IV over 5 minutes.
- Follow promptly with 10 g of magnesium sulfate solution, 5 g in each buttock as deep IM injection with 1 mL of 2% lignocaine in the same syringe. Ensure that aseptic technique is practiced when giving magnesium sulfate deep IM injection. Warn the woman that a feeling of warmth will be felt when magnesium sulfate is given.
- If convulsions recur after 15 minutes, give 2 g magnesium sulfate IV over 5 minutes.

MAINTENANCE DOSE:

- 5 g magnesium sulfate + 1 mL lignocaine 2% IM every 4 hours into alternate buttocks.
- Continue treatment with magnesium sulfate for 24 hours after childbirth or the last convulsion, whichever occurs last.

BEFORE REPEAT ADMINISTRATION, ENSURE THAT:

- Respiratory rate is at least 16 breaths per minute.
- Patellar reflexes are present.
- Urine output is at least 30 mL per hour over 4 hours.

WITHHOLD OR DELAY DRUG IF:

- Respiratory rate falls below 16 breaths per minute.
- Patellar reflexes are absent.
- Urine output falls below 30 mL per hour over preceding 4 hours.

KEEP ANTIDOTE READY:

- *In case of respiratory arrest:*
Assist ventilation (mask and bag, anesthesia apparatus, intubation).
Give calcium gluconate 1 g (10 mL of 10% solution) IV slowly until respiration begins to antagonize the effects of magnesium sulfate.

* Magnesium sulfate comes in different concentrations (e.g., 20%, 40%, 50%). When giving injections IM, it is best to use higher concentrations (e.g., 50%) to decrease the total volume required.

UNSATISFACTORY PROGRESS IN LABOR

SIGN/SYMTOM	PROBABLE DIAGNOSIS
In labor more than 12 hours Presentation other than vertex	Obstruction Malpresentation or malposition

FEVER DURING PREGNANCY AND LABOR (TEMPERATURE OF 38° C OR MORE)

SIGNS/SYMTOMS	PROBABLE DIAGNOSIS
Fever/chills Foul-smelling vaginal discharge in first 22 weeks Tender uterus	Septic abortion

Fever/chills Foul-smelling watery vaginal discharge after 22 weeks of pregnancy Abdominal pain	Amnionitis
Fever (38° C or more) Chills/rigors Headache Muscle/joint pain Coma Anemia	Complicated malaria
Fever Headache Dry cough Malaise Anorexia Enlarged spleen	Typhoid

MANAGEMENT

Start an IV infusion using a large-bore cannula or needle. Infuse Ringer's lactate or normal saline at the rate of 3 mL/minute over 6 hours.

Refer urgently.

MANAGEMENT

Immediately give ampicillin 2 g IV every 6 hours **PLUS** gentamicin 5 mg/kg body weight IV every 24 hours **PLUS** metronidazole 500 mg IV every 8 hours until woman is fever-free for 48 hours.

Prior to 16 weeks

If MVA available

Perform MVA.

If MVA is not available

Refer urgently.

After 16 weeks

Refer urgently after giving antibiotics.

Immediately give ampicillin 2 g IV every 6 hours **PLUS** gentamicin 5 mg/kg body weight IV every 24 hours. Refer for childbirth.

If woman is conscious

Give three tablets of sulfadoxine pyrimethamine **OR** chloroquine and **refer urgently.**

If woman is unconscious or convulsing

Give diazepam 10 mg IV slowly over 2 minutes.

Refer urgently.

Give ampicillin 1 g by mouth four times per day **OR** give amoxicillin 1 g by mouth three times per day for 14 days. Alternative therapy will depend on local sensitivity patterns. **Refer urgently.**

FEVER AFTER CHILDBIRTH (TEMPERATURE OF 38° C OR MORE)

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Fever/chills Lower abdominal pain Purulent, foul-smelling lochia Tender uterus	Metritis Delayed or inadequate treatment may result in: Pelvic abscess Peritonitis Septic shock Deep vein thrombosis Pulmonary embolism Chronic pelvic infection Tubal blockage and infertility
Painful and tender wound Erythema and edema beyond edge of incision	Wound cellulitis
Fever (38° C or more) Chills/rigors Headache Muscle/joint pain Coma Anemia	Complicated malaria
Fever Headache Dry cough Malaise Anorexia Enlarged spleen	Typhoid
Breast pain and tenderness Reddened, wedge-shaped area on breast 3-4 weeks after delivery	Mastitis

MANAGEMENT

Immediately give ampicillin 2 g IV every 6 hours **PLUS** gentamicin 5 mg/kg body weight IV every 24 hours **PLUS** metronidazole 500 mg IV every 8 hours until woman is fever-free for 48 hours.

Refer urgently.

Immediately give penicillin G 2 million units IV every 6 hours **PLUS** gentamicin 5 mg/kg body weight IV every 24 hours **PLUS** metronidazole 500 mg IV every 8 hours.

Refer urgently.

Infuse quinine dihydrochloride 20 mg/kg body weight in IV fluids (5% dextrose, normal saline, or Ringer's lactate) over 4 hours.

Wait 4 hours after completing the loading dose.

Then, infuse quinine dihydrochloride 10 mg/kg body weight over 4 hours.

Repeat every 8 hours.

Refer urgently.

Give cloxacillin 500 mg by mouth every 6 hours for 10 days **OR** erythromycin 250 mg by mouth every 8 hours for 10 days.

Encourage continued breastfeeding.

ABDOMINAL PAIN IN EARLY PREGNANCY (BEFORE 22 WEEKS)

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Low-grade fever/chills Lower abdominal pain Absent bowel sounds	Peritonitis
Light bleeding Abdominal pain Closed cervix Uterus slightly larger than normal Uterus softer than normal	Ectopic pregnancy

MANAGEMENT

Start an IV infusion using a large-bore cannula or needle. Infuse normal saline or Ringer's lactate at the rate of 1 L in 6–8 hours unless in shock.

Immediately give penicillin G 2 million units IV every 6 hours

PLUS gentamicin 5 mg/kg body weight IV every 24 hours

PLUS metronidazole 500 mg IV every 8 hours.

Refer urgently.

Arrange for immediate transport for laparotomy.

If unruptured, insert IV line and infuse Ringer's lactate or normal saline at the rate of 1 L in 6–8 hours.

ABDOMINAL PAIN IN LATER PREGNANCY OR CHILDBIRTH

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Intermittent or constant abdominal pain Bleeding after 22 weeks of pregnancy	Abruptio placentae
Severe abdominal pain (may decrease after rupture) Bleeding (intra-abdominal and/or vaginal)	Ruptured uterus
Fever/chills Foul-smelling watery vaginal discharge after 22 weeks of pregnancy Abdominal pain	Amnionitis
Fever/chills Lower abdominal pain Purulent, foul-smelling lochia Tender uterus	Metritis
Low-grade fever/chills Lower abdominal pain Absent bowel sounds	Peritonitis

MANAGEMENT

Start an IV infusion (two if possible) using a large-bore cannula or needle.

Rapidly infuse normal saline or Ringer's lactate at the rate of 1 L in 15–20 minutes.

Give at least 2 L of fluid in the first hour.

Refer urgently.

Start an IV infusion (two if possible) using a large-bore cannula or needle.

Rapidly infuse normal saline or Ringer's lactate at the rate of 1 L in 15–20 minutes.

Give at least 2 L of fluid in the first hour.

Refer urgently.

Immediately give ampicillin 2 g IV every 6 hours **PLUS** gentamicin 5 mg/kg body weight IV every 24 hours.
Refer for childbirth.

Immediately give ampicillin 2 g IV every 6 hours **PLUS** gentamicin 5 mg/kg body weight IV every 24 hours **PLUS** metronidazole 500 mg IV every 8 hours until woman is fever-free for 48 hours.

Refer urgently.

Provide nasogastric suction.

Start an IV infusion using a large-bore cannula or needle.

Rapidly infuse normal saline or Ringer's lactate at the rate of 1 L in 15–20 minutes.

Give at least 2 L of fluid in the first hour.

Immediately give penicillin G 2 million units IV every 6 hours

PLUS gentamicin 5 mg/kg body weight IV every 24 hours

PLUS metronidazole 500 mg IV every 8 hours.

Refer urgently.

DIFFICULTY IN BREATHING

SIGNS/SYMPTOMS	PROBABLE DIAGNOSIS
Difficulty in breathing Pallor of conjunctiva, tongue, nail beds, and/or palms Hemoglobin 7 g/dL or less Hematocrit 20% or less	Severe anemia
Symptoms and signs of severe anemia, plus Edema Cough Rales Swelling of legs Enlarged liver Prominent neck veins	Heart failure due to anemia
Difficulty in breathing Diastolic murmur and/or Harsh systolic murmur with palpable thrill	Heart failure due to heart disease

MANAGEMENT

Start an IV infusion using a large-bore cannula or needle.
Infuse normal saline or Ringer's lactate at the rate of 1 L over 8 hours.

Refer urgently for transfusion.

Start an IV infusion using a large-bore cannula or needle.
Infuse normal saline or Ringer's lactate at the rate of 1 L over 8 hours.

Refer urgently for transfusion.

Start an IV infusion using a large-bore cannula or needle.
Infuse normal saline or Ringer's lactate at the rate of 1 L over 12 hours.

Position the woman on her left side.

Give oxygen at 4–6 L per minute if available.

Refer urgently.

APPENDICES

Active Management of the Third Stage of Labor.....	67
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ACTIVE MANAGEMENT OF THE THIRD STAGE OF LABOR

Active management of the third stage (active delivery of the placenta) helps prevent postpartum hemorrhage.

Active management of the third stage of labor includes:

- immediate oxytocin;
- controlled cord traction with counter traction to the uterus;
- uterine massage.

OXYTOCIN

- Within 1 minute of the birth of the baby, palpate the abdomen to rule out the presence of an additional baby(s) and give oxytocin 10 units IM.
- Oxytocin is preferred because it is effective 2–3 minutes after injection, has minimal side effects, and can be used in all women. **If oxytocin is not available**, give ergometrine 0.2 mg IM or prostaglandins. Make sure there is no additional baby(s) before giving these medications.

Do not give ergometrine to women with pre-eclampsia, eclampsia, or high blood pressure because it increases the risk of convulsions and cerebrovascular accidents.

CONTROLLED CORD TRACTION

- Clamp the cord close to the perineum using sponge forceps within 1 minute of birth. Hold the clamped cord and the end of forceps with one hand.

- Place the other hand just above the woman's pubic bone and stabilize the uterus by applying counter traction during controlled cord traction. This helps prevent inversion of the uterus.
- Keep slight tension on the cord and await a strong uterine contraction (2–3 minutes).
- When the **uterus becomes rounded or the cord lengthens**, very gently pull downward on the cord to deliver the placenta. Do not wait for a gush of blood before applying traction on the cord. Continue to apply counter-traction to the uterus with the other hand.
- If the **placenta does not descend** during 30 to 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 sponge forceps to clamp the cord closer to the perineum as it lengthens;
 - With the next contraction, repeat controlled cord traction with counter-traction.

<p>Never apply cord traction (pull) without applying counter-traction (push) above the pubic bone with the other hand.</p>
--

- As the placenta delivers, the thin membranes can tear off. Hold the placenta in two hands and gently turn it until the membranes are twisted.
- Slowly pull to complete the delivery.

- **If the membranes tear**, gently examine the upper vagina and cervix wearing high-level disinfected or sterile gloves and use sponge forceps to remove any pieces of membrane that are present.
- Look carefully at the placenta to be sure none of it is missing. **If a portion of the maternal surface is missing or there are torn membranes with vessels**, suspect retained placental fragments.
- **If you can feel the placenta or placental fragments in the vagina**, remove by hand (wear sterile or high-level disinfected gloves; wrap sterile gauze around fingers).
- **If uterine inversion occurs**, refer immediately!
- **If the cord is pulled off**, manual removal of the placenta may be necessary (see page 44).

UTERINE MASSAGE

- Immediately massage the fundus of the uterus through the woman's abdomen until the uterus is contracted.
- Repeat uterine massage every 15 minutes for the first 2 hours.
- Ensure that the uterus does not become relaxed (soft) after you stop uterine massage.

ESSENTIAL DRUGS AND SUPPLIES FOR EMERGENCY OBSTETRIC CARE AT THE TYPE 1 HEALTH POST

DRUGS

Anesthetics

Lidocaine

Analgesics

Paracetamol

Anti-allergics

Epinephrine

Anticonvulsant

Diazepam

Magnesium
sulfate

Antibiotics

Ampicillin

Gentamicin

Metronidazole

Procaine benzyl

penicillin or

benzathine

benzylpenicillin

Antimalarials

Quinine

dihydrochloride

Sulfadoxine-

Pyrimethamine

Disinfectants

and antiseptics

Chlorhexidine

Iodine

Surgical spirit

IV solutions

Glucose

5%, 50%

Normal saline

Ringer's lactate

Sterile water for
injection

Oxytocics

Ergometrine

0.2 mg for IM

or IV use

Misoprostol

100 µg or

200 µg tablets

Oxytocin

10 IU for IV or

IM use

Vaccines

Tetanus toxoid

(stored in cold

box)

SET OF INSTRUMENTS AND SUPPLIES FOR CHILDBIRTH

Instruments

(stored in covered stainless steel container)

- 1 stainless steel placenta bowl
- 2 scissors
- 2 straight artery forceps (Kelly clamps)

Supplies

- 1 clean cloth drape to place over the woman's abdomen
- 4 cotton balls (three to cleanse perineum, one to prep skin for oxytocin injection)
- 6 gauze compresses (4x4)
- 5 cc syringe and needle for oxytocin
- Clean cloth to cover the baby
- Clean cloth to dry the baby
- Clean plastic or cloth drape to place under the woman's buttocks
- Umbilical tape

SUPPLIES

Infection prevention

Chlorine
Clean towels
Clean water supply
Face mask
Face shield
Gloves (high-level disinfected or sterile)
Plastic or rubber aprons
Protective eyewear
Puncture-proof container
Receptacle for soiled linens
Separate containers for general and medical waste disposal and contaminated instruments
Soap

Medical

Adult Ambu bag and mask
Adult stethoscope
Blood pressure cuff
Clean cotton wipes and alcohol
Fetal stethoscope
Indwelling urinary catheter
Infant Ambu bag and mask
IV line administration set (16- to 19-gauge cannula or needle)
Needle and suture
Needle and syringe
Ring forceps
Specimen containers and test tubes
Sponge forceps
Tape measure
Thermometer
Urine containers and dipsticks
Vaginal speculum

Furnishings

Clock (or watch)
Curtains for privacy (if needed)
Drape or blanket to cover woman
Examination surface (table or bed with washable surface and clean linen)
Light source
Pillow

Forms

Patient records or forms
Referral forms

SET OF INSTRUMENTS AND SUPPLIES FOR SUTURING

Instruments

(stored in covered stainless steel container)
1 needle holder
1 scissors
1 tissue forceps without teeth
5 cc syringe and needle

Supplies

4 cotton balls
6 gauze compresses (4x4)
Diazepam
Emergency tray
Epinephrine
Gloves (high-level disinfected or sterile)
IV fluids
Magnesium sulfate
Oxytocin, ergometrine
Protective eyewear
Syringes, needles

SUPPLIES FOR EMERGENCY TRAY

Diazepam
Epinephrine
Gloves (high-level disinfected or sterile)
IV fluids
Magnesium sulfate
Oxytocin, ergometrine
Protective eyewear
Syringes, needles

INFECTION PREVENTION¹

- Infection prevention (IP) has two primary objectives:
 - prevent major infections when providing services;
 - minimize the risk of transmitting serious diseases such as hepatitis B and HIV/AIDS to patients and to healthcare providers and staff, including cleaning and housekeeping personnel.
- The recommended IP practices are based on the following principles:
 - Consider every person (patient or staff) potentially infectious;
 - Wear gloves before touching anything wet—broken skin, mucous membranes, blood, or other body fluids (secretions or excretions);
 - Use personal protective equipment (protective goggles, face masks, and closed shoes) if splashes and spills of any body fluids are anticipated;
 - Use safe work practices, such as not recapping or bending needles, proper instrument processing, and proper disposal of medical waste.

Handwashing is the single most important procedure in preventing infection.

¹ *Adapted from:* Tietjen L, D Bossemeyer, and N McIntosh. 2003. *Infection Prevention Guidelines for Healthcare Facilities with Limited Resources*. JHPIEGO Corporation: Baltimore, MD.

HANDWASHING

- Wash hands:
 - before and after examining the patient (or having any direct contact);
 - before putting on gloves;
 - after exposure to mucous membranes, blood, or any body fluids (secretions or excretions);
 - after handling soiled instruments and other items, even if gloves were worn;
 - after removing gloves because the gloves may have holes in them.

Steps for routine handwashing

STEP 1: Thoroughly wet hands with clean water, either from a tap or a bucket.

STEP 2: Lather hands using plain soap.

STEP 3: Vigorously rub all areas of hands and fingers together for at least 10–15 seconds.

STEP 4: Rinse hands thoroughly with clean water.

STEP 5: Dry hands with a paper towel and use the towel to turn off the faucet, or air dry hands. Do not use shared towels to dry hands.

Alternatively, if hands are not visibly soiled, use a **waterless, alcohol-based antiseptic handrub**.

- Pour about 5 mL of antiseptic handrub solution into palm.
- Rub solution vigorously into all surfaces of hands, until dry.

Alcohol-Based Solution for Handrub

A nonirritating, antiseptic handrub can be made by adding 2 mL of glycerin, propylene glycol, or sorbitol to 100 mL of 60–90% ethyl or isopropyl alcohol solution.

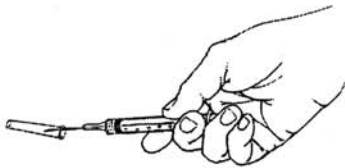
HANDLING SHARP INSTRUMENTS AND NEEDLES

- Do not leave sharp instruments or needles (“sharps”) in places other than “safe zones.”
- Tell other workers before passing sharps.

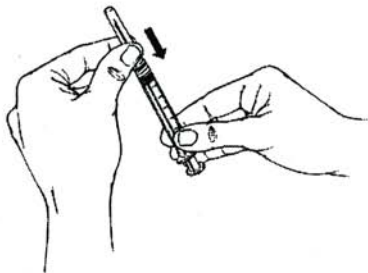
Hypodermic Needles and Syringes

- Use each needle and syringe only once.
- Do not disassemble needle and syringe after use.
- Do not recap, bend, or break needles before disposal.
- Decontaminate the needle and syringe before disposal.
- Dispose of needles and syringes in a puncture-proof container.
- **Note:** Where disposable needles and syringes are not available and recapping is practiced, use the “one-handed” recap method:
 - First, place the needle cap on a firm, flat surface; then remove hand.

- Next, hold the syringe with one hand and use the needle to “scoop up” the cap.



- Finally, when the cap covers the needle completely, turn the syringe upright, so that the capped needle is pointing toward the ceiling. Use your forefinger and thumb to hold the cap 1.27 cm (half-inch) from its open end (at the place the needle joins the syringe under the cap). Press the cap firmly onto the hub of the needle.



GLOVES AND GOWNS

- Wear gloves:
 - when performing a procedure (see **page 80**);
 - when handling soiled instruments, gloves, and other items;
 - when disposing of contaminated waste items (cotton, gauze, or dressings).

- A separate pair of gloves must be used for each patient to avoid cross-contamination.

Do not use gloves that are cracked, peeling, or have detectable holes or tears.

- Disposable gloves are preferred, but surgical gloves can be reused if they are:
 - decontaminated by soaking in 0.5% chlorine solution for 10 minutes;
 - washed and rinsed;
 - sterilized by autoclaving or high-level disinfected by steaming or boiling.

Note: If single-use disposable surgical gloves are reused, they should not be processed more than three times because invisible tears may occur.

- A clean, but not necessarily sterile, gown should be worn during all childbirth procedures; if the gown has long sleeves, the gloves should be put over the gown sleeves.

GLOVE AND PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIREMENTS FOR COMMON OBSTETRIC PROCEDURES

PROCEDURE	PREFERRED GLOVES ^a
Blood drawing, starting IV infusion	Exam ^b
Pelvic examination	Exam
Manual vacuum aspiration	Exam
Repair of cervical or perineal tears	High-level disinfected surgical
Bimanual compression of uterus Manual removal of placenta	High-level disinfected surgical, elbow-length
Vaginal childbirth	Sterile surgical, elbow-length
Handling/cleaning instruments	Utility ^d
Handling contaminated waste	Utility
Cleaning blood or body fluid spills	Utility

^a Gloves and gowns are not required to be worn to check blood pressure or temperature, or to give injections.

^b Exam gloves are single-use disposable latex gloves.

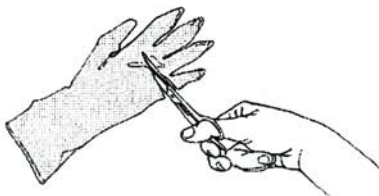
^c Surgical gloves are latex gloves that are sized to fit the hand. If surgical gloves are reusable, they should be decontaminated, cleaned, and either sterilized or high-level disinfected before use.

^d Utility gloves are thick household gloves.

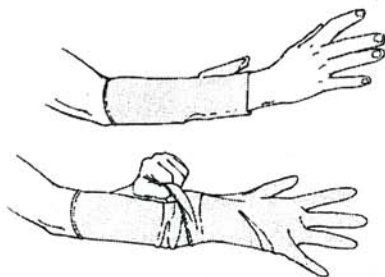
ACCEPTABLE GLOVES	PPE
High-level disinfected surgical ^e	None
High-level disinfected surgical	None
High-level disinfected surgical	Plastic or rubber apron or gown
Sterile surgical	Plastic or rubber apron or gown
Sterile surgical, elbow-length	Plastic or rubber apron or gown
High-level disinfected, elbow-length	Sterile gown or plastic/rubber apron, face mask and goggles, or face shield
Exam or surgical	None
Exam or surgical	None
Exam or surgical	None

How to make elbow-length gloves

- Decontaminate, clean, and dry used surgical gloves.
- Cut the four fingers completely off each glove just below where all the fingers join the glove.



- Sterilize or high-level disinfect the cut gloves.
- Put the cut sterile or high-level disinfected gloves on both hands and pull up to the elbow.



- Put intact sterile or high-level disinfected surgical gloves on over the cut gloves, so that the opening of the intact glove covers the lower end of the cut glove.

WASTE DISPOSAL

- The purpose of waste disposal is to:
 - prevent the spread of infection to providers who handle the waste;

- prevent the spread of infection to the local community;
 - protect those who handle waste from accidental injury.
- Noncontaminated waste (e.g., paper from offices, boxes) poses no infectious risk and can be disposed of according to local guidelines.
 - Proper handling of contaminated waste (blood or body fluid-contaminated items) is required to minimize the spread of infection to providers and the community. Proper handling means:
 - wearing utility gloves;
 - transporting solid contaminated waste to the disposal site in covered containers;
 - disposing of all sharp items in puncture-proof containers;
 - carefully pouring liquid waste down a drain or flushable toilet;
 - burning or burying contaminated solid waste;
 - washing hands, gloves, and containers after disposal of infectious waste.

GUIDELINES FOR PROCESSING INSTRUMENTS, SURGICAL GLOVES, AND OTHER ITEMS

INSTRUMENTS/ ITEMS	DECONTAMINATION	CLEANING
Process	Decontamination is the first step in handling used items; it reduces risk of HBV and HIV/AIDS.	Cleaning removes all visible blood, body fluids, and dirt.
Airways (plastic)	Soak in 0.5% chlorine solution for 10 minutes before cleaning. Rinse and wash immediately. ^c	Wash with soap and water. Rinse with clean water; air or towel dry.
Ambu bags/CPR face masks	Wipe exposed surfaces with gauze pad soaked in 60–90% alcohol or 0.5% chlorine solution; rinse immediately.	Wash with soap and water. Rinse with clean water; air or towel dry.
Bed pans/ urinals Emesis basins	Not necessary.	Using a brush, wash with disinfectant soap and water. Rinse with clean water.
Cotton cord ties	Not necessary.	Not necessary.
Exam tables or other large surface areas (carts and stretchers)	Wipe off with 0.5% chlorine solution.	Wash with soap and water if organic material remains after decontamination.

Sterilization destroys all microorganisms, including endospores.

High-level disinfection destroys all viruses, bacteria, parasites, fungi, and some endospores.

STERILIZATION*

OR

HIGH-LEVEL DISINFECTION

Not necessary.

Not necessary.

Not necessary.

Not necessary.

Not necessary.

Not necessary.

Not practical.

Place in small metal bowl. Place bowl in steamer and steam for 20 minutes. Air dry.

Not necessary.

Not necessary.

**GUIDELINES FOR PROCESSING INSTRUMENTS,
SURGICAL GLOVES, AND OTHER ITEMS
(CONTINUED)**

INSTRUMENTS/ ITEMS	DECONTAMINATION	CLEANING
Hypodermic needles and syringes (glass or plastic)	Fill assembled needle and syringe with 0.5% chlorine solution. Flush x3 and either dispose of needle or soak for 10 minutes before cleaning. Rinse by flushing (x3) with clean water. ^c	Disassemble, then wash with soap and water. Rinse with clean water; air or towel dry syringes (only air dry needles).
Instruments (vaginal specula, forceps, scissors, needle holders, needles)	Soak in 0.5% chlorine solution for 10 minutes before cleaning. Rinse or wash immediately. ^c	Using a brush, wash with soap and water. Rinse with clean water. If to be sterilized, air or towel dry.
MVA cannulae (plastic)	Soak in 0.5% chlorine solution for 10 minutes before cleaning. Rinse or wash immediately. ^c	Wash with soap and water, removing all particles.

STERILIZATION ^a	OR	HIGH-LEVEL DISINFECTION
<p>Preferable</p> <ul style="list-style-type: none"> • Dry heat for 2 hours after reaching 160°C (320°F) (glass syringes only), <p>OR</p> <ul style="list-style-type: none"> • Autoclave at 121°C (250°F), and 106 kPa (15 lbs/in²) for 20 minutes (30 minutes if wrapped). 	<p>Acceptable^d</p> <ul style="list-style-type: none"> • Steam or boil for 20 minutes. <p>(Chemical HLD is not recommended because chemical residue may remain even after repeated rinsing with boiled water. These residues may interfere with the action of drugs being injected.)</p>	
<p>Preferable</p> <ul style="list-style-type: none"> • Dry heat for 1 hour after reaching 170°C (340°F), <p>OR</p> <ul style="list-style-type: none"> • Autoclave at 121°C (250°F), and 106 kPa (15 lbs/in²) for 20 minutes (30 minutes if wrapped). 	<p>Acceptable</p> <ul style="list-style-type: none"> • Steam or boil for 20 minutes. • Chemically high-level disinfect by soaking for 20 minutes. Rinse well with boiled water and air dry before use or storage. 	
<p>For sharp instruments</p> <ul style="list-style-type: none"> • Dry heat for 2 hours after reaching 160°C (320°F). 	<p>Steam or boil for 20 minutes.</p>	
<p>Not recommended. (Heat from autoclaving or dry-heat ovens will damage cannulae.)</p>	<p>Steam or boil for 20 minutes.</p>	

**GUIDELINES FOR PROCESSING INSTRUMENTS,
SURGICAL GLOVES, AND OTHER ITEMS
(CONTINUED)**

INSTRUMENTS/ ITEMS	DECONTAMINATION	CLEANING
Plastic aprons, sheets	Wipe off with 0.5% chlorine solution.	Wash with soap and hot water. Rinse with clean water; air dry.
PPE (caps, masks, covergowns) ^b , cloth drapes, cloths to dry and wrap the baby	Not necessary. (Laundry staff should wear protective gowns, gloves, and eyewear when handling soiled linen.)	Wash with soap and hot water. Rinse with clean water; air or machine dry.
Stethoscope	Not necessary.	Wipe with 60–90% alcohol.
Storage containers for instruments, specimen cups, test tubes	Soak in 0.5% chlorine solution for 10 minutes before cleaning. Rinse or wash immediately. ^c	Wash with soap and water. Rinse with clean water; air or towel dry.
Suction bulbs	Soak in 0.5% chlorine solution for 10 minutes before cleaning. Rinse and wash immediately. ^c	Wash with soap and water. Rinse with clean water; air or towel dry.

STERILIZATION*	OR	HIGH-LEVEL DISINFECTION
Not necessary.		Not necessary.
Not necessary.		Not necessary.
Not necessary.		Not necessary.
<ul style="list-style-type: none"> • Dry heat for 1 hour after reaching 170°C (340°F), OR • Autoclave at 121°C (250°F), and 106 kPa (15 lbs/in²) for 20 minutes (30 minutes if wrapped). 		<p>Boil container and lid for 20 minutes. If container is too large:</p> <ul style="list-style-type: none"> • Fill container with 0.5% chlorine solution and soak for 20 minutes. • Rinse with water that has been boiled for 20 minutes and air dry before use.
Not necessary.		Not necessary.

**GUIDELINES FOR PROCESSING INSTRUMENTS,
SURGICAL GLOVES, AND OTHER ITEMS
(CONTINUED)**

INSTRUMENTS/ ITEMS	DECONTAMINATION	CLEANING
Suction catheter	Soak in 0.5% chlorine solution for 10 minutes before cleaning. Rinse or wash immediately. ^c	Wash with soap and water. Rinse three times with clean water (inside and outside).
Surgical gloves	Soak in 0.5% chlorine solution for 10 minutes before cleaning. Rinse or wash immediately. ^c	Wash with soap and water. Rinse with clean water and check for holes. If to be sterilized, dry inside and out (air or towel dry) and package.
Thermometer, oral ^f	Soak in 0.5% chlorine solution for 10 minutes before cleaning. Rinse and wash immediately. ^c	Wash with soap and water. Rinse with clean water; air or towel dry.
Thermometer, rectal ^f	Soak in 0.5% chlorine solution for 10 minutes before cleaning. Rinse and wash immediately. ^c	Wash with soap and water. Rinse with clean water; air or towel dry.

STERILIZATION*	OR	HIGH-LEVEL DISINFECTION
<p>Not recommended. (Heat from autoclaving or dry-heat ovens will damage catheter.)</p>		<p>Steam or boil for 20 minutes. (Chemical HLD is not recommended because chemical residue may remain even after repeated rinsing with boiled water. These residues may interfere with the action of drugs being injected.)</p>
<p>If used for surgery:</p> <ul style="list-style-type: none"> • Autoclave at 121°C (250°F), and 106 kPa (15 lbs/in²) for 20 minutes. • Do not use for 24–48 hours. 		<p>Steam for 20 minutes and allow to dry in steamer.</p>
<p>Not necessary.</p>		<p>Not necessary.</p>
<p>Not necessary.</p>		<p>Not necessary.</p>

GUIDELINES FOR PROCESSING INSTRUMENTS, SURGICAL GLOVES, AND OTHER ITEMS (CONTINUED)

INSTRUMENTS/ ITEMS	DECONTAMINATION	CLEANING
Transfer forceps (chittle) and container	Not necessary. Reprocess per shift or when contaminated.	Using a brush, wash with soap and water. Rinse with clean water. If to be sterilized, air or towel dry.
Urinary catheters	Soak in 0.5% chlorine solution for 10 minutes before cleaning. Rinse or wash immediately. ^c	Using a brush, wash with soap and water. Rinse three times with clean water (inside and outside).

- ^a If unwrapped, use immediately; if wrapped, reprocess if package becomes damaged or contaminated.
- ^b Paper or plastic. Place in leakproof waste container or plastic bag for disposal.
- ^c Avoid prolonged exposure to chlorine solution to minimize corrosion (rusting) of instruments and deterioration of rubber or cloth products.
- ^d If sterilization (dry-heat or autoclave) not available, these items can be high-level disinfected either by boiling, steaming, or soaking in a chemical disinfectant.
- ^e Instruments with cutting edges or needles should not be sterilized at temperatures above 160° C to avoid dulling.
- ^f Oral and rectal thermometers should never be mixed even after cleaning. Keep them in separate containers.

STERILIZATION*	OR	HIGH-LEVEL DISINFECTION
<p>Preferable</p> <ul style="list-style-type: none"> • Dry heat for 1 hour after reaching 170° C (340° F)*, OR • Autoclave at 121° C (250° F), and 106 kPa (15 lbs/in²) for 20 minutes (30 minutes if wrapped). 	<p>Acceptable*</p> <ul style="list-style-type: none"> • Steam or boil for 20 minutes. • Chemically high-level disinfect by soaking for 20 minutes. Rinse well with boiled water and air dry before use or storage. 	
<ul style="list-style-type: none"> • Dry heat for 2 hours after reaching 160° C (320° F) (metal only), OR • Autoclave at 121° C (250° F), and 106 kPa (15 lbs/in²) for 20 minutes (30 minutes if wrapped) (metal only). 	<p>Steam or boil for 20 minutes.</p>	

GUIDELINES FOR PROCEDURES

Before any simple (nonoperative) procedure, it is necessary to:

- Gather and prepare all supplies. Missing supplies can disrupt a procedure.
- Explain the procedure and the need for it to the woman and obtain consent.
- Provide adequate pain medication according to the extent of the procedure planned.
- Place the patient in a position appropriate for the procedure being performed. The most common position used for obstetric procedures (e.g., manual vacuum aspiration) is the lithotomy position.



- Wash hands with soap and water or use alcohol rub (see **pages 76 and 77**) and put on gloves appropriate for the procedure (see **page 80**).

- **If the vagina and cervix need to be prepared with an antiseptic** for the procedure (e.g., manual vacuum aspiration):
 - Wash the woman's lower abdomen and perineal area with soap and water, if visibly soiled;
 - Gently insert a high-level disinfected or sterile speculum or retractor(s) into the vagina;
 - Apply antiseptic solution (e.g., iodophors, chlorhexidine) three times to the vagina and cervix using a high-level disinfected or sterile ring forceps and a cotton or gauze swab.

INSTRUCTIONS FOR SKIN PREPARATION FOR INJECTIONS AND IV INFUSION

- If the proposed injection site is visibly soiled, wash with soap and water before cleaning with an antiseptic.
- With antiseptic applied to a fresh cotton swab, wipe the injection site thoroughly using a circular, overlapping motion, starting at the center.