



**National Standards
for
Reproductive Health Services**

**Intra partum and
Emergency Obstetric
Care Standards**

**Reproductive Health Task Force
Department of Women and Reproductive Health
Ministry of Health
Transitional Islamic Government of Afghanistan**

2004

ACKNOWLEDGMENTS

The following individuals participated in the process of developing the National *Intrapartum and Emergency Obstetric Care Standards*:

Women's and Reproductive Health Directorate, Ministry of Health

Dr. Mehr Afzoon Mehr Nessar, Director
Dr. Fakhria, SMI Team Leader
Dr. Sohaila Zeiaee, SMI Officer
Dr. Karima Mayar, FP Officer

Malalai Maternity Hospital

Dr. Fahima Sekandari, Director

Rabia Balkhi Women's Hospital

Dr. Nasrin Oriakheil, Director
Dr. Maryam, Deputy Director

52 Beds Khair Khana Hospital

Dr. Husnia, Staff Obstetrician

United Nation Population Fund (UNFPA)

Dr. Zibulnessa, MCH Advisor UNFPA/Afghanistan

United Nation Children's Fund (UNICEF)

Dr. Malalai Naziri, MCH Program Officer

World Health Organization (WHO)

Dr. Adela Mubasher, MCH Officer

JHPIEGO – USAID/REACH

Dr. Jeffrey M. Smith, Safe Motherhood Advisor
Dr. Friha Hayat Hamayun, Safe Motherhood Program Officer
Ms. Sheena Currie, Midwifery Advisor
Ms. Judith O'Heir, Midwifery Consultant
Ms. Melissa McCormick, Editor

International Medical Corps (IMC)

Dr. Ghousia, Senior Master Trainer

Swedish Committee for Afghanistan (SCA)

Ms. Kathy Carter-Lee, MCH Advisor
Dr. Malalai Ahmadzai, MCH Officer

Columbia University/Averting Maternal Death and Disability Program

Dr. Halima Mouniri

TABLE OF CONTENTS

Acknowledgments.....	ii
Table of Contents.....	iii
List of Tables.....	iv
List of Textboxes.....	iv
List of Figures.....	iv
Introduction.....	1
National Standards for RH Services.....	2
Section One: Preparing for Intrapartum and Emergency Obstetric Care.....	3
Preparation of the Care Site.....	5
Equipment and Supplies.....	7
Use of the Operating Room.....	11
Preparation for Anesthesia.....	12
Clinical Use of Blood and Blood Products.....	13
Record Keeping.....	18
Reception of Mother at the Health Facility.....	19
Referral and Transfer.....	22
Section Two: Care During Labor and Childbirth.....	25
Monitoring During Labor and Childbirth.....	27
Assessment of the Mother and Fetus/Baby During Labor and Childbirth.....	28
Supportive Care During Labor and Childbirth.....	33
Section Three: Management of Selected Complications of Pregnancy, Labor, and Childbirth.....	39
Vaginal Bleeding in Pregnancy and Labor.....	41
Vaginal Bleeding in Later Pregnancy and Labor.....	42
Vaginal Bleeding After Childbirth.....	44
Unsatisfactory Progress in Labor.....	45
Malpositions and Malpresentations.....	46
Hypertensive Disorders in Pregnancy.....	48
Fever During Pregnancy and Labor and After Childbirth.....	52
Shoulder Dystocia.....	54
Prolapsed Cord.....	55
Fetal Distress in Labor.....	55
Prelabor Rupture of Membranes.....	56
References.....	58
Appendix 1. Glossary of Terms.....	59
Appendix 2: Labor Room Floor Plan.....	62
Appendix 3: Delivery room floor plan.....	63
Appendix 4: Triage Flowchart.....	64
Appendix 5: Partograph.....	65
Appendix 6: Use of Uterotonic Drugs in Pregnancy and Childbirth Care.....	67

LIST OF TABLES

Table 1. Criteria for Basic and Comprehensive Essential Obstetric Care	2
Table 2. Essential Equipment and Supplies for Routine Childbirth Care	7
Table 3. Essential Equipment and Supplies for Obstetric Emergency/Complication Care	8
Table 4. Essential Equipment and Supplies for Emergency Obstetric Surgery, Anesthesia, and Blood Transfusion.....	8
Table 5. Essential Drugs/Vaccines	10
Table 6. Essential Equipment and Supplies for Infection Prevention.....	18
Table 7. Rapid Initial Assessment	20
Table 8. Overview of Monitoring during Labor and Childbirth.....	27
Table 9. Ongoing Assessment of the Mother and Fetus/Baby during Labor and Childbirth..	29
Table 10. Supportive Care During Labor and Childbirth.....	33
Table 11. Variations of Pregnancy-Induced Hypertension and Diagnoses.....	49

LIST OF TEXTBOXES

Textbox 1. Quick Check.....	19
Textbox 2. Guidelines for Referral/Transfer of the Mother or Newborn.....	22
Textbox 3. The Partograph.....	32
Textbox 4. Immediate Newborn Care.....	36
Textbox 5. Active Management of Third Stage of Labor	37
Textbox 6. Immediate Postpartum Care.....	37
Textbox 7. Management of Vaginal Bleeding in Early Pregnancy	42
Textbox 8. Management of Vaginal Bleeding in Later Pregnancy and Labor.....	43
Textbox 9. Management of Vaginal Bleeding After Childbirth.....	44
Textbox 10. Management of Unsatisfactory Progress in Labor.....	46
Textbox 11. Management of Malpositions and Malpresentations.....	47
Textbox 12. Management of Severe Pre-Eclampsia/Eclampsia.....	50
Textbox 13. Management of Fever During Pregnancy and Labor	53
Textbox 14. Management of Fever after Childbirth	53
Textbox 15. Management of Shoulder Dystocia	54
Textbox 16. Management of Prolapsed Cord.....	55
Textbox 17. Management of Fetal Distress in Labor.....	56
Textbox 18. Management of Prelabor Rupture of Membranes	57

LIST OF FIGURES

Figure 1. Flow Sheet for the Management of Severe Pre-Eclampsia/Eclampsia	51
---	----

INTRODUCTION

In 2003, the Ministry of Health (MOH) developed a National Reproductive Health (RH) Strategy for Afghanistan (2003–2004). A major focus of that strategy is the provision of emergency obstetric care (EmOC),¹ as well as the expansion of skilled attendance at birth and evidence-based antenatal and postpartum care.

In addition to the National RH Strategy, the MOH has put forward a Basic Package of Health Services (BPHS). The BPHS provides a comprehensive list of essential services to be offered at four standard levels of facilities within the health system: health post, basic health center, comprehensive health center, and district hospital. As well, the Essential Package of Hospital Services (EPHS) outlines the necessary service delivery functions of district, provincial, and regional (including specialty) hospitals. As outlined in the BPHS and EPHS, maternal and newborn healthcare is to be provided at all levels of the healthcare delivery system. The elements of maternal and newborn care included in the BPHS and EPHS are consistent with the elements of essential obstetric care (EOC), and serve as a goal to be achieved in increasing the availability and quality of maternal and newborn healthcare services throughout the country.

The aim in providing EOC services is to reduce maternal and newborn mortality and morbidity. In Afghanistan, the maternal mortality ratio (MMR)² is presently estimated at 1,600/100,000 live births; one of the key interventions for reducing the high MMR is to increase skilled attendance and the quality and utilization of EOC.

EOC is used to describe the elements of obstetric care needed for the management of normal and complicated pregnancy, labor, and childbirth care. EOC, whether basic or comprehensive, must be available 24 hours a day, seven days a week. All elements of comprehensive EOC should be available at district hospitals, while all elements of basic EOC should be available at basic and comprehensive health centers.

Basic EOC includes the management of normal pregnancy, labor, childbirth, and the postpartum period, including the parenteral administration of antibiotics, uterotonics, and anticonvulsants; manual removal of placenta; removal of retained products; and assisted vaginal childbirth.

Comprehensive EOC includes—in addition to the elements of basic EOC—blood transfusion, anesthesia, and surgical procedures such as cesarean section.

EmOC is a subset of EOC and refers to the management of complications such as hemorrhage and obstructed labor.

¹ Definitions of all terms used in this document can be found in **Appendix 1**.

² The **maternal mortality ratio** is the number of maternal deaths during a given time period per 100,000 live births during the same time period. This is a measure of the risk of death once the woman becomes pregnant, or obstetric risk. The **maternal mortality rate** is the number of maternal deaths in a given period per 100,000 women of reproductive age during the same period. This reflects the frequency at which women are exposed to risk through fertility. A **maternal death** is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Table 1. Criteria for Basic and Comprehensive EOC

Basic EOC	Comprehensive EOC
Management of normal and complicated pregnancy, childbirth, and postpartum period, including: <ul style="list-style-type: none"> • parenteral administration of antibiotics, uterotonics, and anticonvulsants • manual removal of placenta • removal of retained products • assisted vaginal childbirth 	All elements of Basic EOC, <i>plus</i> : <ul style="list-style-type: none"> • surgery (e.g., cesarean section) • anesthesia • blood transfusion

National Standards for RH Services

In addition to the National RH Strategy mentioned above, national standards for RH services have been developed and endorsed for antenatal care, postpartum care, newborn care, and family planning. The *National Standards for Intrapartum and Emergency Obstetric Care* completes the series and will enable healthcare facility managers to ensure that the required equipment, supplies, and drugs are in place, and that staff have the knowledge and skills to provide intrapartum and emergency obstetric care based on the established national standards.

Intrapartum and emergency obstetric care should be provided by skilled attendants. A **skilled attendant** is a healthcare provider (midwife, doctor, or nurse with midwifery and life-saving skills) who has the knowledge and skills necessary to give safe and effective care during pregnancy and childbirth to women and their newborns, in a variety of settings. Safe and effective care requires that the skilled attendant is able to manage normal pregnancy, labor, and childbirth; recognize the onset of complications; perform essential emergency interventions; and safely refer the mother and/or her baby, when necessary.

Textboxes that contain only the basic steps for selected procedures and management protocols are included throughout the document. Further details of these procedures and protocols can be found in the WHO guide, *Managing Complications in Pregnancy and Childbirth* (MCPC). Standards for intrapartum and emergency obstetric care are highlighted at strategic points throughout the document. This document is divided into three sections:

- In **Section One**, preparation of the healthcare facility is described, including physical infrastructure, equipment and supplies, drugs/vaccines, use of the operating room, preparation for anesthesia, clinical use of blood and blood products, infection prevention, record keeping, reception of the mother at the facility, and referral and transfer of the mother and/or newborn to a higher level of care, should this be necessary.
- In **Section Two**, care during labor and childbirth is described, including initial assessment of the mother, ongoing monitoring of the mother and fetus/baby during labor and childbirth, use of the partograph, supportive care during labor and childbirth, immediate newborn care, active management of the third stage of labor (including the appropriate use of uterotonics), and immediate postpartum care.
- In **Section Three**, the management of selected complications of pregnancy, labor, and childbirth is described, covering vaginal bleeding in pregnancy and labor and after childbirth, unsatisfactory progress in labor, malpositions and malpresentations, hypertensive disorders in pregnancy, fever during pregnancy and labor and after childbirth, shoulder dystocia, prolapsed cord, fetal distress in labor, and prelabor rupture of membranes.

**SECTION ONE:
PREPARING FOR INTRAPARTUM AND
EMERGENCY OBSTETRIC CARE**

PREPARING FOR INTRAPARTUM AND EMERGENCY OBSTETRIC CARE

This section describes preparation of the care site, equipment and supplies, drugs/vaccines, use of the operating room, preparation for anesthesia, clinical use of blood and blood products, infection prevention, record keeping, and reception and referral of the mother and/or newborn. Where appropriate, standards of care are included.

Preparation of the Care Site

The care site is where care for labor and birth (history taking, physical examination, labor monitoring and support, etc.) takes place. Whether in a health center or hospital, this area should meet the basic requirements outlined below.

General Cleanliness, Comfort, and Order. The area should be clean, comfortable, and orderly:

- The area should be clean and free from clutter and the room temperature should be maintained at approximately 25–32°C.
- Surfaces should be wiped with chlorine solution (0.5%) before use.
- Essential equipment and supplies (i.e., delivery packs containing necessary instruments and materials for birth) should be available, easily accessible, and ready for use (i.e., clean and high-level disinfected/sterile). They should be stored in sufficient quantities to meet the needs of the labor unit for responding to normal and complicated births.
- Contaminated objects and waste from previous visits should have been removed or placed in the appropriate containers.
- Separate containers for soiled linen (to be laundered) and contaminated instruments (to be processed) should be conveniently located.
- Separate containers for proper disposal of different kinds of waste should be conveniently located, including:
 - Containers for general (nonmedical, nontoxic) waste, such as paper, bottles, and cans;
 - Covered containers for medical waste, such as blood and bandages; and
 - Puncture-proof containers for sharps, such as needles and glass slides.

Clean Water Supply. A supply of clean water should be available. The water may come from a faucet, pump, or portable container with a tap, or it may be poured from a container or basin. All water containers, basins and jugs must be clean so as not to contaminate the water that they hold. Water that is unlikely to be clean (e.g. water from uncovered or soiled containers) should not be used.

Light Source. A reliable source of adequate light, which may be artificial or natural, should be available. Natural light, as from a window, may be adequate for a general physical examination. A generator should be available when city power is unavailable. The examination surface should be positioned toward the window, but it should not be possible to see into the care site from outside of the room. Artificial light sources, such as a lamp or torch (flashlight), may provide more intense light. These light sources are better for certain procedures, such as a pelvic examination, repair of the cervix or vagina, or examination of the inside of a newborn's mouth.

Heating. A reliable source of heating should be available during the winter months in all patient care areas.

Furnishings. Suitable furnishing should be made available in the labor, delivery, and operating rooms, as follows:

- **Labor Room** (see **Appendix 2** for floor plan):
 - Beds, comfortable arm chairs, and a floor pillow (or foam pads) to allow mother to labor comfortably.
 - Small bedside tables for mother to store belongings.
 - Curtains to screen beds, arm chairs, or floor pillows.
 - Seating for the mother's companion (family member).
 - A desk or table and a chair.
 - A trolley or table for equipment.
- **Delivery Room** (see **Appendix 3** for floor plan):
 - Delivery beds with comfortable, rubber-covered mattresses and pillows; the foot of the beds should be close to screened or painted windows to allow for natural light.
 - Shelving for water jug and glass and to store mother's belongings.
 - Curtains to screen delivery beds.
 - Receptacles for infection prevention.
 - Clean, conveniently located trolleys for instruments, supplies, and equipment.
 - A clean, warm surface for newborn resuscitation (to be placed as far away as possible from air conditioners or fans).
 - Cupboards for storing drugs, equipment, and supplies.
 - An angle lamp and stool (for repair of tears or episiotomy).
 - A small trolley for emergency equipment.
 - A desk or table and chair.
 - White board (for patients' and doctors' names).
- **Operating Room** (district hospital and above):
 - Operating table.
 - Instrument stand/trolley.
 - Overhead lighting (or angled theatre light).
 - Anesthetic machine.
 - Oxygen cylinder (with manometer and flowmeter).
 - Foot-operated or electrically operated suction machine.
 - A clean, warm surface for newborn resuscitation (to be placed as far away as possible from air conditioners or fans).
 - Drug cupboard.
 - Instrument cupboard.

- Emergency trolley (resuscitation and intubation equipment, and emergency drugs).
- Receptacles for infection prevention.

STANDARDS

All healthcare facilities providing pregnancy and childbirth care should be clean and orderly, and have a clean water supply, good lighting, reliable heating, and basic furnishings.

The labor room should be located close to the delivery room and both should provide comfort and privacy for the mother. A clean toilet and shower should also be located within easy access of the labor and delivery rooms.

The operating room should be within reasonable access of the labor and delivery rooms and have the capacity for emergency obstetric surgery.

Equipment and Supplies

The equipment and supplies, including drugs/vaccines, are listed in **Tables 2–5** and cover routine care, infection prevention, and emergency care (including obstetric surgery, anesthesia, and blood transfusion). In addition to listing what must be available for routine and emergency care, optional equipment and supplies are listed.

Table 2. Essential Equipment and Supplies for Routine Childbirth Care

Records and Forms	<ul style="list-style-type: none"> • Birth certificates • Discharge forms • Family card (to be kept by mother) • Identity bracelets for mother and baby • Obstetric register • Partographs • Referral forms • Registration logbook
For Mother and Newborn	<ul style="list-style-type: none"> • Adult and fetal stethoscopes • Adult blood pressure apparatus • Baby weigh scale • Clean cloths or sanitary pads • Clean cloths or towels to dry mother • Clean, dry cloths to dry baby and to wrap after drying • Collection tubes appropriate for samples (e.g., blood, urine) • Container for placenta • Delivery kit containing the following:³ <ul style="list-style-type: none"> ○ Kidney basin ○ Kelly forceps (2) ○ Scissors ○ Umbilical cord clamp(s) and/or tie(s) ○ Clean cloth, 1 meter x 1 meter (2 pieces) ○ Clean gauze, swab, or cloth for wiping baby's eyes ○ Clean perineal pad • Diagrams or wall charts (for explaining labor and childbirth) • Diapers/napkins • Drape or blanket to cover mother • Gestational age calculator or calendar • Gown • Hat or covering for baby's head • Laboratory equipment/supplies for conducting hemoglobin, syphilis, HIV, blood group (ABO, Rh) tests • Syringes and needles • Thermometer

³ The number of delivery kits required at a facility will depend on the average number of births in a 24-hour period. For example, if there are 10 births/24 hours there should be at least 10 delivery kits available.

STANDARD

All healthcare facilities providing pregnancy and childbirth care should have the equipment and supplies required for routine care.

Table 3. Essential Equipment and Supplies for Obstetric Emergency/Complication Care⁴

For Mother and Newborn	<ul style="list-style-type: none"> • 16- to 18-gauge IV cannulas • Absorbable, nonreactive sutures (e.g., polyglycolic, chromic catgut) and suture needles • Adhesive tape • Ambu self-inflating bag and face masks (adult size and newborn sizes 0 and 1) • Amniotic hook or Kocher clamp • Bandage scissors • Closed bag or container for catheter drainage • Dextrose solution (5%) • Insecticide-treated (bed)nets (in malaria-endemic areas only) • IV administration sets • Laboratory equipment/supplies for conducting nitrazine and ferning tests • Manual vacuum aspiration kits • Needle holder • Oral rehydration solution • Oxygen tubing, nasal cannulae, and face masks¹ • Oxygen¹ • Radiant warmer, incubator, or covered hot water bottle to keep newborn warm • Ring or sponge forceps • Ringer's lactate or normal saline • Scissors (for cutting sutures or episiotomy) • Suction apparatus (e.g., DeLee mucus trap with catheter) • Thermometer (adult oral thermometer and low reading rectal thermometer for newborn) • Tourniquet • Urinary catheter • Vacuum extractor • Vaginal speculum • Water-based lubricant¹
-------------------------------	---

¹Optional.

STANDARD

All healthcare facilities providing pregnancy and childbirth care should have the equipment and supplies required for providing EmOC and responding to complications.

Table 4. Essential Equipment and Supplies for Emergency Obstetric Surgery, Anesthesia, and Blood Transfusion⁵

Basic Equipment	<ul style="list-style-type: none"> • 16- to 18-gauge IV cannulas • Absorbable, nonreactive sutures (e.g., polyglycolic, chromic catgut) and suture needles • Adhesive tape • Adult and infant laryngoscope tubes • Adult and infant laryngoscope with spare bulb and batteries • Ambu self-inflating bag and face masks (adult size and newborn sizes 0 and 1) • Dextrose solution (5%) • IV administration sets • Oxygen • Oxygen tubing, nasal cannulae, and face masks • Ringer's lactate or normal saline • Sphygmomanometer (aneroid) and stethoscope (binaural)
------------------------	---

⁴ For labor and delivery rooms.

⁵ For operating room.

Table 4. Essential Equipment and Supplies for Emergency Obstetric Surgery, Anesthesia, and Blood Transfusion (cont.)⁶

Basic Equipment (cont.)	<ul style="list-style-type: none"> • Suction tubing and catheters • Surgical scrub brushes • Tourniquet • Urinary catheters and closed bag or container for catheter drainage
Obstetric Laparotomy and/or Cesarean Section	<ul style="list-style-type: none"> • Abdominal retractors, double-ended (Richardson) (2) • Curved operating scissors, blunt-pointed (Mayo), 17 cm (1) • Hysterectomy forceps, straight, 22.5 cm (4) • Mosquito forceps, 12.5 cm (6) • Needle holder, straight, 17.5 cm (1) • Round-bodied needles, No. 12, size 6 (2) • Sponge forceps, 22.5 cm (6) • Stainless steel instrument tray with cover • Straight artery forceps, 16 cm (4) • Straight operating scissors, blunt-pointed (Mayo), 17 cm (1) • Surgical knife blades (4) • Surgical knife handle, No. 3 (1), No. 4 (1) • Tissue forceps, 19 cm (6) • Towel clips (5) • Triangular-point suture needles, 7.3 cm, size 6 (2) • Uterine hemostasis forceps, 20 cm (8)
Craniotomy	<ul style="list-style-type: none"> • Cranial perforator (Simpson) (1) • Decapitation hook (1) • Scalp forceps (Willet) (4)
Anesthesia	<ul style="list-style-type: none"> • Anesthetic face masks • Endotracheal tube connectors, 15 mm, plastic (3 of each tube size) • Endotracheal tubes with cuffs (8 mm and 10 mm) • Intubating forceps (Magill) • Oropharyngeal airways • Spinal needles (range of sizes, 18-gauge to 25-gauge)
Blood Transfusion (cross-matching, collecting donor blood, transfusion)⁷	<ul style="list-style-type: none"> • 20% bovine albumin • 37°C water bath (or incubator) • 8.5 g/L sodium chloride solution • Airway needle for collecting blood • Artery forceps and scissors • Blood giving sets • Centrifuge • Compound microscope and slides • Microscope illuminator • Pilot bottles (containing 1 mL ACD solution) • Pipettes, volumetric (1 mL, 2 mL, 3 mL, 5 mL, 10 mL, 20 mL) • Sphygmomanometer cuff • Test tubes (small and medium size)

STANDARD

All healthcare facilities providing emergency obstetric surgery (e.g., district hospitals) should have the equipment and supplies required for emergency obstetric surgical procedures, anesthesia, and blood transfusion.

⁶ For operating room.

⁷ The equipment and supplies listed should be available in the hospital laboratory.

Table 5. Essential Drugs/Vaccines

<p>Routine Care</p>	<ul style="list-style-type: none"> • Albendazole or mebendazole (in hookworm-endemic areas only) • Antimicrobial eye prophylaxis (1% silver nitrate solution, 2.5% polyvidone-iodine, OR 1% tetracycline eye ointment) • Iron/folate tablets • Oxytocin and ergometrine (needs to be refrigerated) • Sulfadoxine-pyrimethamine (in malaria-endemic areas only) • Tetanus toxoid (needs to be refrigerated) • Vaccines: OPV, BCG, HBV (need to be refrigerated) • Vitamin A supplements (in areas endemic for vitamin A deficiency only) • Vitamin K₁
<p>Emergency/Complication Care</p>	<ul style="list-style-type: none"> • 15-methyl prostaglandin F_{2α}¹ • Adrenaline • Amoxicillin • Ampicillin • Antiretroviral (ARV) therapy: Zidovudine (AZT), Nevirapine (NVP), Lamivudine (3TC) • Atropine sulfate • Benzathine benzylpenicillin (or procaine benzylpenicillin) • Benzylpenicillin • Calcium gluconate • Cloxacillin (if erythromycin is unavailable) • Diazepam¹ • Diphenhydramine • Ergometrine/methylethergometrine¹ • Erythromycin • Gentamicin • Hepatitis immune globulin¹ • Hydralazine • Isoniazid¹ • Ketamine • Lidocaine 2% (for dilution to 0.5% to 1%) • Magnesium sulfate • Metronidazole • Misoprostol¹ • Nifedipine • Nystatin cream (or 0.5% gentian violet) • Nystatin oral solution (or 0.5% gentian violet) • Paracetamol (acetaminophen) • Pethidine • Phenobarbital • Polyvidone-iodine (2.5%) • Stool softener¹ • Topical antibiotic ointment • Trimethoprim/sulfamethoxazole

¹ Optional

STANDARD

All healthcare facilities providing pregnancy and childbirth care should have the drugs and vaccines required for routine care and for emergencies and complications, including those for anesthesia.

Emergency Trolley and Drug Box. The equipment, supplies, and drugs required to respond to emergencies should be conveniently located in delivery room (see **Appendix 3**) and the operating room (district hospitals), and include the items listed below. The emergency trolley and drug box must be checked on a daily basis, including drug expiry dates, and replenished when necessary.

- 16- to 18-gauge IV cannulas and IV administration set (2 of each)
- 22-gauge needles and 5-cc syringes (4 of each)
- Adhesive tape

- Ambu self-inflating bag and face mask (adult size)
- Calcium gluconate
- Diazepam⁸
- Diphenhydramine
- Examination gloves (4 pair)
- Hydralazine
- Magnesium sulfate
- Oxygen tubing and oxygen (if available)
- Oxytocin and ergometrine⁹
- Ringer's lactate or normal saline (2 bags)
- Scissors

STANDARD

All healthcare facilities providing pregnancy and childbirth care should have an emergency trolley and drug box located in the delivery room and operating room (district hospitals). The trolley and drug box should be checked on a daily basis and replenished when necessary.

Use of the Operating Room

The operating room is a room specifically for use by anesthesia and surgical staff and must not be used for other purposes. All staff should be trained to abide by the following procedures for use of the operating room:

- All doors to the operating room should be kept closed, except as needed for the passage of equipment, personnel, and the patient.
- Some sutures and extra instruments should be stored in the operating room to decrease the need for people to enter and leave the operating room during a surgical procedure.
- The number of people allowed to enter the operating room, especially after a procedure has started, should be kept to a minimum.
- The operating room should be kept uncluttered and easy to clean.
- Between cases, the operating table and instrument surfaces should be cleaned and disinfected.
- At the end of each day, the operating room should be cleaned, starting at the top and continuing to the floor, including all furniture, overhead equipment, and lights, using a disinfectant.
- All surgical instruments and supplies should be decontaminated, cleaned, and sterilized after use and stored ready for the next use (see section on Infection Prevention).
- The operating room should be left ready for use in case of an emergency.
- Operating room equipment and supplies should not be removed from the operating room for use elsewhere in the hospital.

Surgical Scrub. Before each operation, all members of the surgical team (i.e., those who will touch the sterile surgical field, surgical instruments, or wound) should scrub their hands and arms to the elbows. A written policy should be in place in the operating room that specifies the length and type of scrub to be undertaken. For example, the first scrub of the day is longer

⁸ Diazepam should only be used if magnesium sulfate is not available; however, every effort should be made to ensure that magnesium sulfate is available.

⁹ Because oxytocin and ergometrine should be stored in a cool place, they should be replaced with fresh vials every other day.

(5 minutes) than any subsequent scrubs between consecutive clean operations. When scrubbing:

- All jewelry should be removed and the nails trimmed.
- Soap, a brush, and running water should be used to clean thoroughly under and around the nails.
- Hands and arms should be scrubbed up to the elbows.
- After scrubbing, the arms should be held up to allow water to drip off the elbows.
- The taps should be turned off with the elbows.
- After scrubbing, the hands should be dried with a sterile towel.
- The hands and forearms should be held away from the body and higher than the elbows until sterile gown and gloves have been put on.

Aseptic Technique. Infection is the most important and preventable cause of impaired wound healing. Microorganisms can reach the tissue during an operation or manipulation of a surgical wound, and are carried and transmitted by:

- people, including the patient;
- inanimate objects, including instruments, sutures, linen, swabs, solutions, mattresses, and blankets;
- air around the wound, which can be contaminated by dust and droplets of moisture from anyone assisting at the operation or caring for the wound.

The aseptic treatment of a wound is an attempt to prevent contamination by bacteria from all these sources, during the operation and throughout the initial phase of healing. Bacteria can never be absolutely eliminated from the operating field, but aseptic measures can reduce the risk of contamination. Aseptic technique includes attention to many details of operating technique and behavior. Anyone entering the operating room, for whatever reason, should first put on:

- clean clothes;
- an impermeable mask to cover the mouth and nose;
- a cap or hood to cover all of the hair on the head and face;
- a clean pair of shoes or clean shoe-covers.

Caps, gowns, and masks are worn to decrease the risk of patient exposure to contamination or infection from the surgical team. Sterile instruments, gloves, and drapes are also key elements in the fight against contamination.

STANDARDS

All healthcare facilities providing emergency obstetric surgery (e.g., district hospitals) should have a written policy for using the operating room, including procedures for surgical scrub and aseptic technique.

All staff at healthcare facilities providing emergency obstetric surgery should follow the established procedures for using the operating room, including procedures for surgical scrub and aseptic technique.

Preparation for Anesthesia

The anesthesia options for obstetric surgery include:

- local anesthesia;

- spinal anesthesia;
- ketamine;
- and general anesthesia.

Note: Ketamine anesthesia should **not** be used in women with elevated blood pressure, pre-eclampsia, eclampsia, or heart disease. In addition, its use should be avoided in women with a history of psychosis, because when used alone ketamine can cause unpleasant hallucinations.

Before giving an anesthetic, it is the responsibility of both the anesthetist (or the person designated to administer anesthetics) and surgeon to check that the patient has been properly prepared for surgery. This is particularly important for the use of general anesthesia, when the person administering the anesthesia should check that:

- All of the apparatus to be used is available and working.
- Sufficient gas is available, if using compressed gases.
- Anesthetic vaporizers are connected.
- The breathing system that delivers the gas to the patient is securely and correctly assembled.
- Breathing circuits are clean.
- Resuscitation apparatus is present and working.
- Laryngoscope, tracheal tubes, and suction equipment are ready and have been decontaminated.
- Needles and syringes are available and sterile.
- Drugs intended to be used are drawn up into labeled syringes.
- Other drugs that might be needed are available in the room.

When using local anesthesia for cesarean section, it is necessary for the provider to counsel the mother and reassure her throughout the procedure. In addition, when using either local or spinal anesthetic, it is important to make sure that there are no known allergies to the local anesthetic or other related drugs.

STANDARD

All healthcare staff involved in the administration of anesthesia for emergency obstetric surgery should prepare adequately for the procedure and follow established guidelines for the use of local anesthesia, spinal anesthesia, ketamine, and general anesthesia.

Clinical Use of Blood and Blood Products

Obstetric care may require blood transfusions. It is important to use blood and blood products appropriately and to be aware of the principles designed to assist healthcare providers in deciding when (and when not) to transfuse. The appropriate use of blood products is defined as the transfusion of safe blood products to treat a condition leading to significant morbidity or mortality that cannot be prevented or managed effectively by other means. Conditions that may require transfusion include:

- postpartum hemorrhage leading to shock;
- loss of a large volume of blood at operative delivery;
- severe anemia, especially in early pregnancy or if accompanied by cardiac failure.

District hospitals should, therefore, be prepared for the urgent need for blood transfusion.

Unnecessary Use of Blood Products. Used correctly, blood transfusion can save lives and improve health; however, as with any therapeutic intervention, it may result in acute or delayed complications, and it carries the risk of transmission of infectious agents. Unnecessary transfusion can expose the mother to unnecessary risks.

Before prescribing blood or blood products for a mother, it is essential to consider the risks of transfusing against the risks of not transfusing:

- The transfusion of red cell products carries the risk of incompatible transfusion and serious hemolytic transfusion reactions.
- Blood products can transmit infectious agents—including HIV, hepatitis B, hepatitis C, syphilis, malaria, and Chagas disease—to the recipient.
- Any blood product can become bacterially contaminated and very dangerous if it is manufactured or stored incorrectly.
- Plasma can transmit most of the infections present in whole blood and can also cause transfusion reactions.
- There are very few clear indications for plasma transfusion (e.g., coagulopathy) and the risks very often outweigh any possible benefit to the mother.

Blood Safety. The risks associated with transfusion can be reduced by:

- effective blood donor selection, deferral, and exclusion;
- screening for transfusion-transmissible infections in donor blood;
- quality assurance programs; and
- high-quality blood grouping, compatibility testing, component separation, and storage and transportation of blood products.

Every unit of donated blood should be screened for transfusion-transmissible infection using the most appropriate and effective tests, in accordance with both national policies and the prevalence of infectious agents in the potential blood donor population:

- All donated blood should be screened for HIV-1 and HIV-2; hepatitis B surface antigen (HBsAg), and *Treponema pallidum* antibody (syphilis).
- Where possible, all donated blood should also be screened for hepatitis C, Chagas disease (in countries where the seroprevalence is significant), and malaria (in low prevalence countries when donors have traveled to malarial areas). In areas with a high prevalence of malaria, blood transfusion should be accompanied by prophylactic antimalarials.
- No blood or blood product should be released for transfusion until all nationally required tests are shown to be negative.
- Compatibility tests should be performed on all blood components transfused even if, in life-threatening emergencies, the tests are performed after the blood products have been issued.

Principles of Clinical Transfusion. The fundamental principle of the appropriate use of blood or blood products is that transfusion is only one element of the mother's management. When there is sudden rapid loss of blood due to hemorrhage, surgery, or complications of childbirth, the most urgent need is usually the rapid replacement of the fluid lost from circulation. Transfusion of red cells may also be vital to restore the oxygen-carrying capacity of the blood.

Principles to remember include the following:

- Transfusion is only one element of the mother's care.

- Decisions about prescribing a transfusion should be based on national guidelines on the clinical use of blood, taking the mother’s needs into account.
- Blood loss should be minimized to reduce the mother’s need for transfusion.
- The mother with acute blood loss should receive effective resuscitation (IV replacement fluids, oxygen, etc.) while the need for transfusion is being assessed.
- The mother’s hemoglobin value, although important, should not be the sole deciding factor in starting the transfusion. The decision to transfuse should be supported by the need to relieve clinical signs and symptoms and prevent significant morbidity and mortality.
- Healthcare providers should be aware of the risks of transfusion-transmissible infection in blood products that are available.
- Transfusion should be prescribed only when the benefits to the mother are likely to outweigh the risks (see MCPC for details).
- A trained healthcare provider should monitor the mother during and after transfusion and respond immediately if any adverse effects occur (see MCPC for details).
- The reason for transfusion should be recorded on the mother’s record and any adverse effects should be investigated (see MCPC for details).

STANDARDS

All healthcare facilities providing blood transfusion services (e.g., district hospitals) should follow established guidelines for the clinical use of blood and blood products, including screening for transfusion-transmissible infection, safe prescribing practices, and close monitoring of the transfused mother.

All doctors and midwives who provide care during pregnancy and childbirth should have the knowledge and skill to follow the established guidelines for the clinical use of blood and blood products.

Infection Prevention¹⁰

One of the most significant causes of maternal death is postpartum infection (or puerperal sepsis), which accounts for 15% of all maternal deaths in developing countries. Healthcare workers and support staff are also at risk of infection when caring for women during labor and childbirth, as they may be exposed to contaminated surgical instruments, blood or body fluids, and other infectious items.

Infection prevention practices focus on preventing infection and disease transmission in both patients and healthcare workers. These practices should be integrated into every component of maternal and newborn care to protect the mother, newborn, healthcare workers, and other health facility staff.

Infection prevention practices are based on the following **infection prevention principles**:

- Every person (patient or healthcare worker) is considered infectious because infections may be present but asymptomatic.
- Every person is considered at risk of infection.

¹⁰ Further detailed information regarding Infection Prevention is available in the National Infection Prevention Guidelines: “*Infection Prevention Guidelines for Healthcare Facilities with Limited Resources.*”

- Handwashing is the most practical procedure for preventing the spread of infection.
- Gloves are worn on both hands before touching broken skin, mucous membranes, or blood or other body fluids, and before performing an invasive procedure.
- Protective barriers such as goggles, face masks, or aprons are worn if splashes or spills of any body fluids are anticipated.
- Antiseptic agents are used to clean the skin or mucous membranes before certain procedures, or for cleaning wounds.
- All healthcare workers and facility staff follow safe work practices (e.g., not recapping or bending needles, properly processing instruments, and suturing with blunt needles when appropriate).
- The care site is cleaned regularly and waste is properly disposed of.

The following **infection prevention practices** should be in place at all facilities where maternal and newborn care is provided.

Handwashing. Handwashing is the most practical procedure for preventing the spread of infection. Hands should be washed with soap and water:

- before and after examining a patient/client;
- before putting on gloves;
- after contact with blood or other body fluids, or soiled instruments; and
- after removing gloves.

Antiseptics. When combined with good hand hygiene and other infection prevention practices, proper antiseptics can help prevent infection by reducing the number of microorganisms on the skin.

Gloves. Gloves are the most important physical barrier for preventing the spread of infection. However, it is important to note that they do not replace handwashing. Gloves should be worn in the following situations:

- When there is a reasonable chance of hand contact with broken skin, mucous membranes, blood, or other body fluids.
- When performing an invasive procedure.
- When handling soiled instruments or contaminated waste items, or when touching contaminated surfaces.

Safe Handling of Sharps. Hypodermic (hollow bore) needles cause the most injuries to healthcare workers at all levels. The following safety guidelines should be followed when handling sharp instruments such as needles and syringes:

- Sharp instruments should never be passed from one hand directly to another person's hand.
- A needle holder should be used when suturing; the needle should never be held with the fingers.
- After use, needles and syringes should be decontaminated by flushing them with a 0.5% chlorine solution three times.

- Sharps should be disposed of immediately in a puncture-resistant container. Needles should not be recapped, bent, broken, or disassembled before disposal.

Personal Protective Equipment. Personal protective equipment is used to protect healthcare workers and clients from infectious organisms, especially when splashing blood or other body fluids is likely. These include gloves, eyewear (face shield, goggles, or glasses), rubber or plastic aprons to provide a fluid resistant barrier that keeps contaminated fluids off the healthcare worker’s clothing and skin, and footwear to protect the healthcare worker’s feet from injury by sharps or heavy items that may accidentally fall on them.

Instrument Processing. Soiled instruments, used surgical gloves, and other reusable items can transmit disease if infection prevention procedures are not properly followed. These procedures include the following:

- **Decontamination.** This process makes inanimate objects safer to handle before cleaning and involves soaking soiled items in 0.5% chlorine solution for 10 minutes and wiping soiled surfaces such as examination tables with a 0.5% chlorine solution.
- **Cleaning.** After instruments and other reusable items have been decontaminated, they need to be cleaned to remove visible dirt and debris, including blood and body fluids. Cleaning is the most effective way to reduce the number of microorganisms on soiled instruments and equipment.
- **Sterilization.** This process destroys all microorganisms, including bacterial endospores, which are present on instruments or equipment. Instruments, surgical gloves, and other items that come in contact with the blood stream or other sterile tissue should be sterilized. Sterilization can be achieved using an autoclave, dry heat, or a chemical.
- **High-Level Disinfection (HLD).** HLD destroys all microorganisms except some bacterial endospores on instruments or objects. It is the only acceptable alternative to sterilization and can be achieved by boiling, steaming, or soaking items in a chemical solution.

Sterilized and HLD items must be stored in a clean, dry area. Sterile packs and containers should be dated and rotated, using a “first in, first out” approach. Wrapped packages that remain dry may be used up to one week, and wrapped packages sealed in plastic up to one month.

Housekeeping and Waste Disposal. Housekeeping refers to the general cleaning of hospitals and clinics, including the floors, walls, equipment, tables, and other surfaces. In addition to reducing the number of microorganisms that may come into contact with patients, visitors, and healthcare facility staff, regular and thorough housekeeping helps provide a clean and pleasant atmosphere for everyone.

Most waste (e.g., paper, trash, food, boxes) at health centers and hospitals is not contaminated and poses no risk of infection to the people who handle it. These items can be disposed of using the usual methods. Some waste, however, is contaminated and, if not disposed of properly, may carry microorganisms that can infect people who come in contact with it. Contaminated waste includes blood and other body fluids, and items that come in contact with them, such as used dressings. Contaminated waste must therefore be disposed of separately from non-contaminated waste, preferably by burning. Contaminated sharps (e.g., needles and syringes) should be placed in a puncture-resistant container and burned when the container is two-thirds full.

STANDARD

All healthcare providers and support staff (e.g., cleaners) involved in pregnancy and childbirth care should use recommended infection prevention practices.

The supplies and equipment needed for the infection prevention practices described above are included in **Table 6**.

Table 6. Essential Equipment and Supplies for Infection Prevention

Handwashing/ Antisepsis	<ul style="list-style-type: none"> • Clean water supply • Cotton wipes and alcohol • Soap or alcohol-based antiseptic handrub • Soft brush¹ • Towel for drying hands
Personal Protective Equipment	<ul style="list-style-type: none"> • Face mask • Footwear that covers entire foot • Gloves: <ul style="list-style-type: none"> – Clean examination gloves for starting IV, drawing blood, handling blood or body fluids, etc. – Sterile or HLD gloves for birth, examination during labor, or contact with broken skin or tissue under skin – Sterile or HLD elbow-length (“gauntlet”) gloves for when hand and forearm will be inserted into vagina¹ • Protective eyewear • Rubber or plastic apron
Safe Handling of Sharps	<ul style="list-style-type: none"> • Pan (e.g., sterile kidney basin) for passing sharps • Puncture-proof container for sharps disposal
Instrument Processing and Storage	<ul style="list-style-type: none"> • Autoclave (and autoclave tape), dry heat, chemical sterilization (e.g., glutaraldehyde solution, formaldehyde), or covered pan with heat source for boiling² • Brush • Chlorine solution (0.5%) • Individual wrappings/packaging (for instruments pre-sterilization) • Plastic container for decontaminated instruments
Housekeeping and Waste Disposal	<ul style="list-style-type: none"> • Chlorine solution (0.5%) • Clean water supply • Clean, dry area for storage • Cloth or rag for cleaning • Plastic container • Separate covered receptacles for soiled linens, medical waste, and nonmedical waste • Sterile or HLD container (if instruments are not packaged) • Utility gloves

¹ Optional.

² This equipment may be found in a central sterilization room serving all areas of the facility, rather than in the labor and delivery rooms.

STANDARD

All healthcare facilities providing pregnancy and childbirth care should have the equipment and supplies required for infection prevention.

Record Keeping

Accurate record keeping is essential for adequate monitoring of the condition of the mother and newborn and for providing continuity of care (over time and across healthcare workers). Records should be complete, accurate, easy to read, and should be written at the time of client/patient contact, whenever possible. The types of information that should be included on each mother’s record is as follows:

- Personal information (e.g., mother’s name, age, address, etc.);
- Chief complaint (client’s reason for coming to the health facility);
- Findings from the history, physical examination, screening, and other diagnostic tests and procedures;
- Details of the care provided; and
- Referrals made, if any.

The specific records to be completed for the mother and newborn include the following:

- Registration logbook
- Family card (to be kept by mother)
- Partograph (including delivery record on reverse side)
- Referral form, if necessary
- Obstetric register
- Discharge form
- Birth certificate

STANDARD

All midwives and doctors who provide care during labor and childbirth should complete the records required for the mother and her newborn.

Reception of Mother at the Health Facility

Quick Check. The person¹¹ who has first contact with the mother on arrival at the health facility should perform a quick check (**Textbox 1**) to ensure that life-threatening conditions are recognized as soon as possible, and to eliminate delay in obtaining the potentially life-saving attention required.

Textbox 1. Quick Check

- **Observe and ask** the mother whether she has any signs/symptoms of labor or if she has or has recently (in the past 24 hours) had **any** danger sign.
- If the mother has signs/symptoms of labor but has **NO** danger sign, provide basic labor/childbirth care.
- If the mother has any danger sign(s), immediately perform the following steps:
 - Call for help;
 - Initiate the designated emergency-response procedures; and
 - Notify the skilled attendant, who should perform a Rapid Initial Assessment (**Table 7**) to assess the mother's needs for stabilization and referral/transfer.
- If none of the danger signs or signs/symptoms of labor is present (or was present in the past 24 hours), have the mother wait to be seen by the skilled provider.

The person who performs the Quick Check must be able to recognize the signs/symptoms of advanced labor and danger signs, as listed below. If a danger sign is present, a Rapid Initial

¹¹ This is a designated female healthcare facility staff member (e.g., clerk, guard, doorkeeper) who is trained and equipped to recognize and respond appropriately to danger signs and signs of advanced labor.

Assessment (see **Table 7**) is performed by a skilled attendant to determine the mother's degree of illness and initiate appropriate management (see **Appendix 4** for triage flowchart).

Signs/symptoms of advanced labor include:

- Strong, regular contractions
- Urge to push
- Leaking of fluid from vagina
- Grunting or moaning

Danger signs include:

- Severe headache/blurred vision
- Convulsions/loss of consciousness
- Breathing difficulty (abnormal respiration, gasping, wheezing or rales, pallor or cyanosis [blueness], not breathing)
- Fever (feeling of hotness)
- Foul-smelling discharge/fluid from vagina
- Vaginal bleeding
- Severe abdominal pain
- Decreased/absent fetal movement
- A cord or fetal part visible at vaginal opening
- Leaking of meconium-stained fluid from vagina
- Vaginal bleeding (heavy or sudden increase)
- Pain in calf, with or without swelling
- Foul-smelling discharge from tears/incisions

Table 7. Rapid Initial Assessment

Assess	Danger Signs	Possible Problems
Airway and breathing	LOOK FOR: <ul style="list-style-type: none"> • cyanosis (blueness) • respiratory distress EXAMINE: <ul style="list-style-type: none"> • skin for pallor • lungs for wheezing or rales 	<ul style="list-style-type: none"> • severe anemia • heart failure • pneumonia • asthma
Signs of shock	EXAMINE: <ul style="list-style-type: none"> • skin cool and clammy • fast, weak pulse • low blood pressure (BP) 	<ul style="list-style-type: none"> • shock (either hypovolemic or septic)

Table 7. Rapid Initial Assessment (cont.)

<p>Vaginal bleeding (early or late pregnancy or after childbirth)</p>	<p>ASK IF:</p> <ul style="list-style-type: none"> • pregnant, length of gestation • recently given birth • placenta delivered <p>EXAMINE:</p> <ul style="list-style-type: none"> • vulva for amount of bleeding, retained placenta, obvious tears • uterus for atony • bladder for fullness <p>DO NOT DO A VAGINAL EXAMINATION if woman is more than 22 weeks pregnant or is in labor</p>	<ul style="list-style-type: none"> • abortion • ectopic pregnancy • molar pregnancy (bleeding in early pregnancy) • abruptio placentae • ruptured uterus • placenta previa (bleeding in later pregnancy and labor) • atonic uterus • tears of cervix and vagina • retained placenta • inverted uterus (bleeding after childbirth)
<p>Unconscious or convulsing</p>	<p>ASK IF:</p> <ul style="list-style-type: none"> • pregnant, length of gestation <p>EXAMINE:</p> <ul style="list-style-type: none"> • high BP (diastolic 90 mmHg or more) • high temperature (38°C or more) 	<ul style="list-style-type: none"> • eclampsia • malaria • epilepsy • tetanus
<p>Dangerous fever</p>	<p>ASK IF:</p> <ul style="list-style-type: none"> • weak, lethargic • frequent, painful urination <p>EXAMINE:</p> <ul style="list-style-type: none"> • high temperature (38°C or more) • unconscious • neck for stiffness • lungs for shallow breathing, consolidation • abdomen for severe tenderness • vulva for purulent discharge • breasts for tenderness 	<ul style="list-style-type: none"> • urinary tract infection • malaria (fever during pregnancy and labor) • metritis • pelvic abscess • peritonitis • breast infection (fever after childbirth) • complications of abortion (vaginal bleeding in early pregnancy) • pneumonia
<p>Abdominal pain</p>	<p>ASK IF:</p> <ul style="list-style-type: none"> • pregnant, length of gestation <p>EXAMINE:</p> <ul style="list-style-type: none"> • low BP (systolic less than 90 mmHg) • rapid pulse (110 or more) • high temperature (38°C or more) • uterus for state of pregnancy 	<ul style="list-style-type: none"> • ovarian cyst • appendicitis • ectopic pregnancy • possible term or preterm labor • amnionitis • abruptio placentae • ruptured uterus

Implementing a Rapid Initial Assessment Scheme. Rapid initiation of treatment requires immediate recognition of the specific problem and quick action. This can be done by:

- training all staff—including doctors, midwives, nurses, clerks, guards, door-keepers, and receptionists—to react in an agreed upon manner (e.g., **sound the alarm, shout for help**) when a mother arrives at the facility with an obstetric emergency or pregnancy complication or when the facility is notified that a mother is being referred;
- conducting clinical or emergency drills with staff to ensure their readiness at all levels;
- ensuring that access is not blocked (keys are always available) and equipment is in working order (conduct daily checks) and staff are properly trained to use it;
- having norms and protocols (and knowing how to use them) to recognize a genuine emergency and knowing how to react immediately;
- clearly identifying which women in the waiting room—even those waiting for routine care—warrant prompt or immediate attention from the healthcare provider and should therefore pass to the front of the queue (agreeing that women in labor or pregnant women

who have any of the danger signs listed above should be seen immediately by a healthcare provider); and

- agreeing on schemes by which women with emergencies can be exempted from payment, at least temporarily.

STANDARD

All healthcare facility staff—including doctors, midwives, nurses, clerks, guards, door-keepers, and receptionists—should be trained to sound the alarm or shout for help when a mother arrives at the facility with an obstetric emergency or pregnancy complication or when the facility is notified that a mother is being referred.

All skilled attendants (i.e., doctors, midwives, nurses with midwifery and life-saving skills) should have the skills to perform a rapid initial assessment.

Referral and Transfer

If a mother or newborn presents with a problem that requires more than the services available at the facility, the skilled attendant must weigh the potential risks and benefits of referring/transferring the mother or newborn to a healthcare facility that has the capabilities and resources to effectively manage the problem.

If the skilled attendant decides that it is necessary to refer/transfer the mother or newborn to another facility (e.g., from a comprehensive health center to district hospital) for appropriate care, the guidelines shown in **Textbox 2** should be followed when preparing for and during the transfer. An ambulance should be available to facilitate transfer of the mother or newborn. If the referring health facility (e.g., comprehensive health center) does not have an ambulance on standby, one should be called from the facility to which the mother or newborn is being referred (e.g., district hospital).

Textbox 2. Guidelines for Referral/Transfer of the Mother or Newborn

- Stabilize the mother/newborn (if necessary) before leaving the healthcare facility.
- Explain to mother and/or family the reason for the referral/transfer.
- Arrange or assist family in arranging for transfer without delay.
- Notify referral site (if possible) about condition of mother/newborn and the estimated time of arrival.
- Send mother's/newborn's records to referral site; charts should include findings of examinations, treatments given, time of admission, and reason for referral/transfer. If records are not available, carefully record general information about the mother/newborn, findings of examinations, treatments given, and reason for referral/transfer on a referral note to give to the skilled provider at referral site.
- If the mother is in labor, ensure availability of supplies needed for a clean and safe birth during transfer.
- Ensure an adequate supply of appropriate drugs/medications as needed during transfer. Give oxygen, if available, if the mother or baby is having breathing difficulty, or if mother is in shock or has any other problem requiring oxygen.
- If possible, have a skilled provider accompany the mother/newborn to referral site to ensure fluids and/or medications continue to be given (if appropriate), provide support and care, and attend birth if it occurs during transfer.
- Ensure that mother's/newborn's condition (e.g., vital signs, intake, output) is monitored before and during transfer, and that all findings are recorded.
- Request that referral site/skilled provider return information to referring site/skilled provider regarding management of mother/newborn.

Textbox 2. Guidelines for Referral/Transfer of the Mother or Newborn (cont.)

For the mother, also:

- Cover the mother with a blanket to prevent heat loss, but ensure that she is not overheated.
- Allow one family member (in addition to the healthcare provider) to accompany the mother or newborn.
- Encourage the family to send with the mother one member who could donate blood if needed.

For the newborn, also:

- Ensure that s/he is kept warm before and during transfer:
 - Maintain warmth by transporting newborn in skin-to-skin contact with mother (or relative) and covering both with clothes;
 - Cover baby with warm blankets/coverings and ensure that head is covered.
- If the climate is very hot, use fewer coverings, but protect the baby from direct sun.
- If possible, have the mother or other caregiver hold the baby securely in her/his lap during transfer, and encourage the mother to breastfeed her baby during the journey.

STANDARD

The basic conditions for referral and transfer should be applied for all mothers and/or newborns requiring referral and transfer for further care.

SECTION TWO: CARE DURING LABOR AND CHILDBIRTH

CARE DURING LABOR AND CHILDBIRTH

In this section, the following elements of labor and childbirth care are described: initial assessment of the mother, ongoing monitoring of the mother and fetus/baby during labor and childbirth, use of the partograph, supportive care during labor and childbirth, immediate care of the newborn, active management of the third stage of labor and appropriate use of uterotonic drugs, and immediate postpartum care. Standards of care are provided for each of these elements.

Care during labor and childbirth begins for the mother with a Quick Check (see **Textbox 1** above) when she presents at the health facility. Providing that the birth is not imminent and there are no danger signs found, a history and physical examination are completed and the process of labor monitoring is started. The aim is to detect and manage potential problems and/or complications in a timely manner and ensure the best possible outcome for the mother and newborn.

Monitoring During Labor and Childbirth

The condition of the mother or baby can change rapidly during labor, childbirth, and the immediate postpartum/newborn period. Therefore, **continuous monitoring** of the mother and baby, at intervals appropriate to the stage and phase of labor, is required to ensure the well-being of both and to detect abnormalities/complications early. **Table 8** provides an overview of monitoring during labor and childbirth.

Table 8. Overview of Monitoring During Labor and Childbirth

Components/Elements	Initial Assessment	1 st Stage	2 nd & 3 rd Stages	4 th Stage
ASSESSMENT				
Ongoing Assessment (Table 9)	✓	✓	✓	✓
History				
1. Personal information	✓	–	–	–
2. Estimated date of childbirth/ menstrual history	✓	–	–	–
3. Present pregnancy and labor/birth	✓	–	–	–
4. Obstetric history	✓	–	–	–
5. Medical history	✓	–	–	–
Physical Examination				
1. General well-being	✓	–	–	–
2. Vital signs	✓	1	1	1
3. Breasts	✓ ²	–	–	–
4. Abdomen	✓	1	1	1
5. Genitals	✓	1	1	1
6. Cervix	✓	1	1	1

Table 8. Overview of Monitoring During Labor and Childbirth (cont.)

Components/Elements	Initial Assessment	1 st Stage	2 nd & 3 rd Stages	4 th Stage
Testing³				
1. RPR (or VDRL)	✓	–	–	–
3. Blood group and Rh factor (where possible)	✓	–	–	–
CARE PROVISION				
Ongoing supportive care (Table 10)	✓	✓	✓	✓
1. Key actions for 1 st stage (Tables 9 and 10)	–	✓	–	–
2. Key actions for 2 nd and 3 rd stages (Tables 9 and 10)	–	–	✓	–
3. Key actions for 4 th stage (Tables 9 and 10)	–	–	–	✓

¹ Element is also part of ongoing assessment.

² Element can be postponed to 4th stage.

³ Mother may choose not to be tested for HIV.

STANDARD

All women in labor will be assessed on admission to the health facility (see **Table 8**) and then monitored continuously throughout labor and childbirth (see **Tables 8 and 9**).

Assessment of the Mother and Fetus/Baby During Labor and Childbirth

Throughout the four stages of labor, the mother and fetus/baby should be assessed at regular intervals by a skilled attendant, who performs specific key actions appropriate to the stage/phase of labor as outlined in **Table 9**, below. The table indicates what to assess and how often, according to the four stages of labor, which are defined as follows:

- **1st Stage/Latent Phase:** dilatation of the cervix is 1–3 cm, contractions are irregular, and descent is not progressive.
- **1st Stage/Active Phase:** dilatation of the cervix is 4–10 cm (rate of approximately 1 cm per hour), contractions are regular with increasing frequency and duration, and fetal descent begins.
- **2nd Stage:** dilatation of the cervix is 10 cm, the urge to push becomes progressively stronger with each contraction, and descent progresses until the presenting part reaches the pelvic floor.
- **3rd Stage:** begins with the birth of the baby and ends with the delivery of the placenta.
- **4th Stage:** the first two hours after childbirth.

Most of the assessment parameters listed in **Table 9** should be recorded on a partograph (see **Textbox 3** and **Appendix 5**).

Table 9. Ongoing Assessment of the Mother and Fetus/Baby During Labor and Childbirth

What to Assess	Stage, Phase of Labor/ How Often to Assess				Action
	1 st , Latent	1 st , Active ¹	2 nd	4 th , 2	
Maternal BP*	Every 4 hr	Every 4 hr (at least)	Once (at least)	Every 15 min	<ul style="list-style-type: none"> • If systolic BP is less than 90 mmHg, assess for other related signs/symptoms and manage accordingly • If diastolic BP is 90–110 mmHg, assess for other signs/symptoms of pre-eclampsia and manage accordingly (Textbox 12) • If diastolic BP is more than 110 mmHg, assess for other signs/symptoms of severe pre-eclampsia/eclampsia and manage accordingly (Textbox 12)
Maternal temperature*	Every 4 hr	Every 2 hr	Once (at least)	Once	<ul style="list-style-type: none"> • If temperature is 38°C or more, assess for other signs/symptoms associated with fever and manage accordingly (Textbox 13)
Maternal pulse*	Every 4 hr	Every 30 min	Every 30 min	Every 15 min	<ul style="list-style-type: none"> • If pulse is less than 90 or 110 or more beats/minute, assess for other related signs/symptoms and manage accordingly
Fetal heart tones*	Every 4 hr	Every 30 min	Every 5 min	–	<ul style="list-style-type: none"> • If fetal heart tones are absent, urgently refer/transfer mother to hospital if in 1st stage of labor or deliver as quickly as possible if in 2nd stage of labor (see MCPC for details) • If fetal heart rate is less than 100 or more than 180, listen to fetal heart rate during next 3 contractions and if still not normal, urgently refer/transfer mother to hospital if in 1st stage of labor or deliver as quickly as possible if in 2nd stage of labor (see MCPC for details)
Membranes and amniotic fluid*	When doing vaginal exam or when leaking of fluid from vagina is observed or reported	When doing a vaginal exam or when leaking of fluid from vagina is observed or reported	When doing a vaginal exam or when leaking of fluid from vagina is observed or reported	–	<ul style="list-style-type: none"> • If the fluid is greenish/brownish, urgently refer/transfer mother to hospital if in 1st stage of labor or deliver as quickly as possible if in 2nd stage of labor (see MCPC for details) • If the fluid is foul-smelling, start IV and give antibiotics (see MCPC for details) • If it has been more than 18 hr since membranes ruptured, give antibiotics and urgently refer/transfer mother to hospital (see MCPC for details)

Table 9. Ongoing Assessment of the Mother and Fetus/Baby During Labor and Childbirth (cont.)

What to Assess	Stage, Phase of Labor/ How Often to Assess				Action
	1 st , Latent	1 st , Active ¹	2 nd	4 th , 2	
Molding of fetal head	When doing vaginal exam	When doing vaginal exam	When doing vaginal exam		<ul style="list-style-type: none"> If the bones overlap, be alert for signs/symptoms of unsatisfactory progress of labor (e.g., fetal descent or cervical dilation not progressing, contractions become more irregular)
Fetal descent*	Once	Every 4 hr	Every 15 min	–	<ul style="list-style-type: none"> If descent is not progressing continually, be alert for signs/symptoms of unsatisfactory progress of labor (e.g., cervical dilatation not progressing, contractions become more irregular)
Contractions: frequency* and duration*	Every 4 hr	Every 30 min	Every 30 min	–	<p>1st stage/latent phase:</p> <ul style="list-style-type: none"> If contractions are decreasing in frequency/duration, assess for false labor (e.g., dilatation and descent not progressive, contractions irregular) <p>1st stage/active phase:</p> <ul style="list-style-type: none"> If contractions are decreasing in frequency/duration, for further assessment and management see Textbox 10 <p>2nd stage:</p> <ul style="list-style-type: none"> If contractions are increasing in frequency/duration and fetal head is not descending continually, for further assessment and management see Textbox 10 If contractions are decreasing in frequency/duration, be alert for signs/symptoms of unsatisfactory progress of labor (e.g., fetal descent not progressing)

Table 9. Ongoing Assessment of the Mother and Fetus/Baby During Labor and Childbirth (cont.)

What to Assess	Stage, Phase of Labor/ How Often to Assess				Action
	1 st , Latent	1 st , Active ¹	2 nd	4 th , 2	
Cervix: dilatation* and presentation	Every 4 hr	Every 4 hr	–	–	<ul style="list-style-type: none"> If fetus is breech, for further assessment and management see Textbox 11 1st stage/latent phase: <ul style="list-style-type: none"> If dilatation has not increased for more than 8 hours and contractions are regular, for further assessment and management see Textbox 10 If dilatation reaches 1–3 cm but then progressive dilatation stops, for further assessment and management see Textbox 10 1st stage/active phase: <ul style="list-style-type: none"> If dilatation has not increased at least 4 cm in 4 hr and contractions are regular, for further assessment and management see Textbox 10
Vaginal secretions or bleeding	Every 4 hr (or when increased secretion/bleeding reported)	Every 4 hr (or when increased secretion/bleeding reported)	Cont.	Every 15 min	<ul style="list-style-type: none"> 1st/2nd stage: <ul style="list-style-type: none"> If vaginal bleeding, for further assessment and management see Textbox 8 4th stage: <ul style="list-style-type: none"> If there is frank, heavy bleeding; a steady slow trickle of blood; intermittent gushes of blood; or blood clots larger than 5 cm, for further assessment and management see Textbox 9
Bladder	Every 4 hr	Every 2 hr	Every hr	Every 15 min	<ul style="list-style-type: none"> If bladder is palpable, encourage mother to urinate If mother is unable to urinate, pass a straight catheter to empty bladder
Maternal ability to cope (response to labor)	Cont.	Cont.	Cont.	Cont.	<ul style="list-style-type: none"> If mother's ability to cope is not within normal range, consider in context of further assessment and provide support and encouragement
Uterine fundus	–	–	–	Every 15 min	<ul style="list-style-type: none"> If uterine fundus remains soft or quickly becomes soft after uterine massage, for further assessment and management see Textbox 9
Newborn respiration	–	–	At birth	Every 15 min	<ul style="list-style-type: none"> Initiate immediate newborn care (see Textbox 4) If respiratory rate is less than 30 or more than 60, manage as for newborn breathing difficulty
Newborn warmth	–	–	–	Every 15 min	<ul style="list-style-type: none"> If feet are cold to the touch, measure axillary temperature and rewarm as necessary

Table 9. Ongoing Assessment of the Mother and Fetus/Baby During Labor and Childbirth (cont.)

What to Assess	Stage, Phase of Labor/ How Often to Assess				Action
	1 st , Latent	1 st , Active ¹	2 nd	4 th , 2	
Newborn color	–	–	–	Every 15 min	<ul style="list-style-type: none"> If there is central cyanosis or pallor, refer baby for further assessment and management
Breastfeeding	–	–	–	Whenever newborn breast-feeds	<ul style="list-style-type: none"> If findings are not within normal range and attachment or suckling does not appear effective, provide breastfeeding guidance and support to mother

*Once active labor begins, this element is recorded on a partograph and interpreted accordingly.

¹ From this point up to childbirth, all elements followed by an asterisk (*) are recorded on a partograph and interpreted accordingly.

² Constant vigilance of the mother and baby is critical during the 3rd stage of labor, although not a formal component of this table. If the mother and baby are stable, ongoing monitoring resumes with the 4th stage of labor at the times indicated in this table.

The Partograph. The partograph (see **Textbox 3** and **Appendix 5**), which is a chart for recording information about the progress of labor and the condition of the mother and fetus, provides objective data on which to base clinical decisions during the 1st stage/active phase of labor. Skilled management of labor using a partograph is key to the appropriate prevention and management of prolonged labor and its complications. The partograph should be used for all women during labor.

Textbox 3. The Partograph

The partograph should be started at the beginning of the active phase of the 1st stage of labor, when the cervix reaches 4 cm dilatation.

The partograph helps the skilled attendant make decisions about a mother's care during labor by providing a visual representation of the conditions of the mother and fetus. Information plotted on the partograph helps the skilled attendant determine whether and when to intervene if labor is not progressing normally. Each time the skilled attendant plots information on the partograph, she should consider, "Is this what should be happening at this point in the mother's labor?":

- If the answer is yes, the skilled attendant should then consider what she expects to happen in the next 2–4 hours if labor is progressing normally. This sets the standard to which progress of the mother's labor as well as the status of the fetus should be compared.
- If the answer is no, the skilled attendant must consider what to do to address the condition of the mother or fetus. For example, if cervical dilatation is plotted to the right of the "alert line," she knows that progress is abnormal and the mother will require additional care and possibly management of complications.

Used in this way, the partograph helps to ensure that the mother and fetus are carefully monitored during labor so that unnecessary interventions are avoided and complications are recognized and responded to in a timely manner.

STANDARD

All women should have a partograph started at the beginning of the 1st stage of labor when cervical dilatation reaches 4 cm (1st stage/active phase). All assessment information (see **Table 9**) will then be recorded on the partograph.

Supportive Care During Labor and Childbirth

Continuous emotional support during labor is associated with shorter labor, the use of less medication (including epidural analgesia), and fewer operative deliveries. Labor and birth can be stressful and exhausting for the mother, even when progress is normal. It is important, therefore, that the skilled attendant and birth companion provide continuous encouragement and support for the mother's physical and emotional well-being, as described in **Table 10**. Throughout labor and birth, the provider should respect the mother's privacy and dignity. She should introduce herself to the mother at the first encounter, and each new provider should also introduce herself. Procedures should be explained before being done, and any results of tests or assessments should be discussed with the mother.

Table 10. Supportive Care During Labor and Childbirth

Element	1 st Stage/Latent Phase	1 st Stage/Active Phase	2 nd and 3 rd Stages	4 th Stage
Communication/attendance	<ul style="list-style-type: none"> Constant vigilance is not yet necessary. Attend to mother as needed, at least every 4 hr. If she lives close by, she can go home and return when contractions become stronger. Periodically engage her in conversation, even if briefly. Allow relative or family member to stay with her. 	<ul style="list-style-type: none"> Never leave mother alone more than 30 min, even if birth companion is with her. Closer attendance may be needed if mother has difficulty coping, companion is not attentive, or fetal or maternal condition requires closer monitoring. Periodically engage her in conversation, even if briefly. Provide information and reassurance about progress in labor and well-being of baby. Allow relative or family member to stay with her. 	<ul style="list-style-type: none"> Never leave mother alone during 2nd or 3rd stage. Use and expect minimal verbal interactions. Be direct and clear. Look for nonverbal cues of her needs and preferences. Give her verbal encouragement and praise. Provide information and reassurance about progress in labor and well-being of baby. Allow relative or family member to stay with her. 	<ul style="list-style-type: none"> Skilled provider should attend to mother at least every 15 min, when checking vital signs. Look for nonverbal cues of her needs and preferences, and provide information and reassurance about her condition and well-being of baby.
Rest, activity, and positions	<ul style="list-style-type: none"> Allow mother to remain as active as she desires. Encourage rest or sleep, as she desires, so that she is well rested when active labor begins. 	<ul style="list-style-type: none"> Encourage mother to choose a position that eases her discomfort and promotes labor. Assist her to relax between contractions to conserve energy. Encourage position changes, as well as walking, pacing, standing, rocking, or leaning over a chair. 	<ul style="list-style-type: none"> Encourage mother to choose a position that eases her discomfort and promotes labor. Assist her to relax between contractions to conserve energy. If a position becomes uncomfortable, assist mother to change position between contractions to facilitate progress. 	<ul style="list-style-type: none"> Ensure that mother has enough blankets to maintain warmth. Maintain a calm environment conducive to rest for mother that facilitates bonding with baby and initiation of breastfeeding.

Table 10. Supportive Care During Labor and Childbirth (cont.)

Element	1 st Stage/Latent Phase	1 st Stage/Active Phase	2 nd and 3 rd Stages	4 th Stage
Comfort	<ul style="list-style-type: none"> • Give mother a back rub or massage. • Teach her to breathe out more slowly than usual during contractions and relax with each breath. 	<ul style="list-style-type: none"> • Lightly massage mother's back, or apply pressure to lower back. • Provide a cool cloth for her face and chest. • Continue to coach her to breathe through her mouth during contractions in deliberate, slow breaths. 	<ul style="list-style-type: none"> • Lightly massage or rub her back, as she desires. • Apply lower back pressure to help relieve back pain. • Provide a cool cloth for her face and chest. • Stretch legs out and flex foot upwards to relieve muscle cramps in legs and feet. • Continue to coach her to breathe during contractions until she has urge to push; then coach her to push when she has the urge. 	<ul style="list-style-type: none"> • Ensure that mother and baby have enough blankets to stay warm. • Maintain a calm environment conducive to rest for the mother that facilitates bonding with baby and initiation of breastfeeding.
Nutrition	<ul style="list-style-type: none"> • Encourage foods as tolerated. Do not restrict intake as long as mother has no nausea and/or vomiting. • Provide mother with nutritious drinks to maintain hydration. Two liters of oral fluids per 24-hr period is a minimum amount. 	<ul style="list-style-type: none"> • Encourage light meals/food as tolerated. Do not restrict intake as long as the mother has no nausea and/or vomiting. • Provide mother with nutritious drinks to maintain hydration. Two liters of oral fluids per 24-hr period is a minimum amount. <p>Note: Some women experience nausea and/or vomiting as labor progresses; it is especially important in these cases to offer small sips of fluids as tolerated to maintain hydration.</p>	<ul style="list-style-type: none"> • Offer sips of cool, sweetened fluids between contractions. <p>Note: The mother will probably not want food during this time. Some women experience nausea and/or vomiting in the 2nd stage; offer fluids as tolerated to maintain hydration.</p>	<ul style="list-style-type: none"> • Encourage mother to eat and drink, as she desires.
Elimination	<ul style="list-style-type: none"> • Encourage mother to empty her bladder every 2 hr and empty her bowels as needed. 	<ul style="list-style-type: none"> • Encourage mother to empty her bladder every 2 hr and empty her bowels as needed. • Record urine output on partograph. 	<ul style="list-style-type: none"> • Have mother empty her bladder before onset of pushing. 	<ul style="list-style-type: none"> • Encourage mother to pass urine when urge is felt or if bladder is palpable.

Table 10. Supportive Care During Labor and Childbirth (cont.)

Element	1 st Stage/Latent Phase	1 st Stage/Active Phase	2 nd and 3 rd Stages	4 th Stage
Hygiene/ infection prevention	<ul style="list-style-type: none"> • Encourage her to bathe before active labor begins. • Cleanse genital area if necessary before each examination. • Before and after each exam, wash your hands (with soap and water) and dry with a clean towel or air dry. • Clean up spills immediately. • Replace soiled cloths/blankets with clean, dry cloths/blankets. 	<ul style="list-style-type: none"> • Encourage her to bathe before active labor begins. • Cleanse genital area if necessary before each examination. • Before and after each exam, wash your hands (with soap and water) and dry with a clean towel or air dry. • Clean up spills immediately. • Replace soiled cloths/blankets with clean, dry cloths/blankets. 	<ul style="list-style-type: none"> • Dispose of soiled linen in a bucket, plastic bag, or other container that can be closed for transport to washing facility. • Keep mother clean by immediately wiping feces and secretions from perineum. 	<ul style="list-style-type: none"> • Replace soiled and wet clothing and bedding. • Dispose of soiled linen in a bucket, plastic bag, or other container that can be closed for transport to a washing facility. • Keep clean pads/cloths against the perineum.
Mother-baby bonding	N/A	N/A	N/A	<ul style="list-style-type: none"> • Ensure that mother and newborn are kept together as much as possible; facilitate rooming-in for mother and newborn. • Maintain skin-to-skin contact between mother and baby as much as possible. • Encourage early and exclusive breastfeeding.

STANDARD

All women should be provided appropriate supportive care during labor and childbirth (see **Table 10**).

Immediate Newborn Care

At birth, the skilled attendant places the newborn on the mother’s abdomen, thoroughly dries the baby and covers her/him with a clean, dry cloth. This helps prevent heat loss, which results in additional oxygen requirements in the newborn and places stress on vital organs. Immediate assessment of breathing helps to ensure that the baby’s oxygen requirements are being met. Clamping and cutting the cord helps prevent blood loss, and standard infection prevention measures help prevent cord infection, which can be fatal. Wiping the newborn’s eyes with a clean swab or cloth removes transient organisms that may harm the baby’s eyes. Immediate care of the newborn is outlined in **Textbox 4**.

Textbox 4. Immediate Newborn Care

After placing the newborn on the mother's abdomen:

- Thoroughly dry the baby (removing maternal blood and other secretions) and cover the baby with a clean, dry cloth.
- While wiping the baby's eyes (using a separate clean swab or cloth for each eye) assess breathing. If the baby does not start breathing immediately, begin newborn resuscitation.
- Tie or clamp the umbilical cord in two places and cut the cord between the ties.
- Ensure that the baby is kept warm and in skin-to-skin contact on the mother's chest, and encourage breastfeeding, preferably within the first hour after birth.
- Cover the baby with a cloth or blanket; ensure that the head is covered to prevent heat loss.
- Provide eye prophylaxis: instill an antimicrobial (2.5% polyvidone solution, 1% silver nitrate solution, OR 1% tetracycline ointment) into each eye within one hour of birth.

STANDARD

All newborns should be provided immediate care to ensure warmth, breathing, clean cord cutting, and eye prophylaxis.

Active Management of Third Stage of Labor

Because of the risk of postpartum hemorrhage, delivery of the placenta and membranes is potentially the most hazardous part of childbirth. Several definitive studies have found that women who received active management had a shorter third stage of labor and reduced need for blood transfusion and uterotonic drugs.

Oxytocin is preferred for active management of the third stage of labor because it is effective 2–3 minutes after injection and has minimal side effects. However, If oxytocin is not available, ergometrine IM or misoprostol by mouth can be used (see MCPC for details). Note that ergometrine should not be given to women with pre-eclampsia, eclampsia, or high blood pressure because it increases the risk of convulsions and cerebrovascular accidents. Oxytocin (and ergometrine) should be stored at 4–8°C and away from sunlight and moisture.

Oxytocin is inexpensive and in countries where it is available to the general public, there have been maternal and fetal deaths associated with its use. Therefore, **oxytocin should only be used by skilled attendants** (midwives, doctors, or nurses with midwifery and life-saving skills) and not by the general public (see **Appendix 6** for further information on the use of uterotonics).

Active management of the third stage of labor is outlined in **Textbox 5**.

Textbox 5. Active Management of Third Stage of Labor

- Within one minute of birth, palpate the abdomen to rule out the presence of another baby(s).
- Give oxytocin IM and perform controlled cord traction, as follows:
 - Clamp the cord close to the perineum.
 - Apply countertraction.
 - Wait for a strong uterine contraction (2–3 minutes).
 - Very gently pull downward on the cord to deliver the placenta.
 - Continue to apply countertraction:
 - If the placenta does not descend during 30–40 seconds of controlled cord traction, relax the tension and repeat with the next contraction.
 - If the placenta does not deliver in 30 minutes, perform manual removal of the placenta.
- Deliver and examine the placenta.
- Massage the uterus until it is firmly contracted.
- Inspect the vagina and perineum for tears.

STANDARDS

Active management of the third stage of labor should be practiced for all mothers.

All midwives and doctors who provide care during labor and childbirth should have the skills to practice active management of the third stage of labor.

Immediate Postpartum Care

Vigilant monitoring of the postpartum mother is vital to averting death from postpartum hemorrhage. Encouraging the mother to initiate early and exclusive breastfeeding helps to stimulate the mother's uterus to contract, decreasing blood loss. This also helps to establish a successful pattern of breastfeeding, prevent newborn hypothermia and hypoglycemia, provide energy that the baby needs for adjusting to life outside of the uterus, and promote mother-baby bonding. Reviewing the complication readiness plan (developed during antenatal care) helps ensure the mother and her family are prepared for a possible emergency. Essential health messages should be provided to help keep the mother and her baby healthy and prevent possible complications. Immediate postpartum care is described in **Textbox 6**.

Textbox 6. Immediate Postpartum Care

Monitor the postpartum mother as follows:

- Take the mother's temperature.
- Continue to massage her uterus every 15 minutes for the first 2 hours after birth.
- Help initiate early breastfeeding; allow unrestricted time at the breast once the baby starts to suckle.
- Review the mother's complication readiness plan with her, updating it to reflect postpartum/newborn needs, and advise the mother of maternal and newborn danger signs.
- Provide health messages and counseling based on the mother's history and other relevant findings, emphasizing warmth of the newborn and uterine massage.

STANDARD

All mothers should continue to be monitored for a minimum of two hours after childbirth and provided appropriate support and counseling.

**SECTION THREE:
MANAGEMENT OF SELECTED
COMPLICATIONS OF PREGNANCY, LABOR,
AND CHILDBIRTH**

MANAGEMENT OF SELECTED COMPLICATIONS OF PREGNANCY, LABOR, AND CHILDBIRTH

In this section, management of the following complications is described: vaginal bleeding in pregnancy and labor and after childbirth, unsatisfactory progress in labor, malpositions and malpresentations, hypertensive disorders in pregnancy, fever during pregnancy and labor and after childbirth, shoulder dystocia, prolapsed cord, fetal distress in labor, and prelabor rupture of membranes. Each of the complications is defined and management is outlined. Standards of care are provided for each complication.

Vaginal Bleeding in Early Pregnancy

Vaginal bleeding in early pregnancy is bleeding that occurs during the first 22 weeks of pregnancy.

Ectopic pregnancy should be considered when identifying the cause of vaginal bleeding in early pregnancy in any mother with anemia, pelvic inflammatory disease (PID), threatened abortion, or unusual complaints about abdominal pain. An ectopic pregnancy is one in which implantation occurs outside the uterine cavity. The fallopian tube is the most common site of ectopic implantation.

Abortion should be considered in any mother of reproductive age who has a missed period (delayed menstrual bleeding with more than one month having passed since her last menstrual period) and has one or more of the following: bleeding, cramping, partial expulsion of products of conception, dilated cervix, or smaller uterus than expected.

- **Spontaneous abortion** is defined as the loss of pregnancy before fetal viability (22 weeks gestation). The stages of spontaneous abortion may include:
 - threatened abortion (pregnancy may continue);
 - inevitable abortion (pregnancy will not continue and will proceed to incomplete or complete abortion);
 - incomplete abortion (products of conception are partially expelled);
 - complete abortion (products of conception are completely expelled).
- **Induced abortion** is a process by which a pregnancy is terminated before fetal viability.
- **Unsafe abortion** is a procedure performed either by persons lacking necessary skills or in an environment lacking minimal medical standards, or both.
- **Septic abortion** is an abortion complicated by infection. Sepsis may result from infection if organisms rise from the lower genital tract following either spontaneous or unsafe abortion. Sepsis is more likely to occur if there are retained products of conception and evacuation has been delayed. Sepsis is a frequent complication of unsafe abortion involving instrumentation.
- **Molar pregnancy** is characterized by an abnormal proliferation of chorionic villi.

The management of vaginal bleeding in early pregnancy is described in **Textbox 7**.

Textbox 7. Management of Vaginal Bleeding in Early Pregnancy

General Management:

- Rapidly assess the general condition of the woman (see **Table 7**).
- If shock is suspected, begin treatment immediately.
- If the mother is in shock, consider ruptured ectopic pregnancy.
- Start an IV infusion and infuse IV fluids.

Threatened Abortion:

- Medical treatment is not usually necessary.
- Advise the mother to avoid strenuous activity and sexual intercourse, but bed rest is not necessary.
- If bleeding stops, follow-up in antenatal clinic.
- If bleeding persists, assess for fetal viability (pregnancy test/ultrasound).

Inevitable Abortion:

- If pregnancy is less than 16 weeks, plan for evacuation of uterine contents (see MCPC for details).
- If pregnancy is greater than 16 weeks, await spontaneous expulsion of products of conception and then evacuate the uterus to remove remaining products of conception.
- Ensure follow-up of the mother after treatment.

Incomplete Abortion:

- If pregnancy is less than 16 weeks, remove products of conception with fingers or ring forceps (for light to moderate bleeding) or manual vacuum aspiration (for heavy bleeding).
- If evacuation is not immediately possible, give ergometrine OR misoprostol (see MCPC for details).
- If pregnancy is greater than 16 weeks, infuse oxytocin and evacuate remaining products of conception (see MCPC for details).
- Ensure follow-up of the mother after treatment.

Complete Abortion:

- Evacuation of the uterus is not usually necessary.
- Observe for heavy bleeding.
- Ensure follow-up of the mother after treatment.

Ectopic Pregnancy:

- Cross-match blood and arrange for immediate laparotomy.*

Molar Pregnancy:

- If diagnosis of molar pregnancy is certain, evacuate uterus using manual vacuum aspiration (see MCPC for details).
- Infuse oxytocin to prevent hemorrhage.

* Arrange urgent referral/transfer of the mother to a higher level of care (see **Textbox 2**), if necessary.

Vaginal Bleeding in Later Pregnancy and Labor

Vaginal bleeding in later pregnancy is bleeding that occurs after 22 weeks of pregnancy. The probable causes are abruptio placentae, ruptured uterus, and placenta previa; all three of these conditions may be accompanied by shock:

- **Abruptio placentae** is the detachment of a normally located placenta from the uterus before the fetus is delivered. It is characterized by bleeding after 22 weeks gestation and intermittent or constant abdominal pain.
- **Ruptured uterus** is characterized by intra-abdominal and/or vaginal bleeding and severe abdominal pain that may decrease after rupture.
- **Placenta previa** is implantation of the placenta at or near the cervix and is characterized by bleeding after 22 weeks gestation.

- **Coagulopathy** (clotting failure) is both a cause and a result of massive obstetric hemorrhage. Abruptio placentae, fetal death in-utero, eclampsia, amniotic fluid embolism, and many other causes can trigger coagulopathy. The clinical picture ranges from major hemorrhage, with or without thrombotic complications, to a clinically stable state that can be detected only by laboratory testing. In many cases of acute blood loss, the development of coagulopathy can be prevented if blood volume is restored promptly by infusion of IV fluids (normal saline or Ringer’s lactate).

The management of vaginal bleeding in later pregnancy and labor is described in **Textbox 8**.

Textbox 8. Management of Vaginal Bleeding in Later Pregnancy and Labor

General Management:

- Shout for help. Urgently mobilize all available personnel.
- Rapidly assess the mother’s general condition (see **Table 7**).
- Do not do a vaginal examination at this stage.
- If shock is suspected, immediately begin treatment.
- Start an IV infusion and infuse IV fluids.

Abruptio Placentae:

- Assess clotting status using a bedside clotting test (see MCPC for details).
- Transfuse as necessary, preferably with fresh blood.
- If bleeding is heavy and cervix is fully dilated, deliver by vacuum extraction (see MCPC for details).
- If bleeding is heavy and delivery is not imminent, deliver by cesarean section.*
- If bleeding is light to moderate, monitor fetal heart rate:
 - If fetal heart rate is normal or absent, rupture membranes and augment labor with oxytocin if contractions are poor. If cervix is unfavorable, perform cesarean section.*
 - If fetal heart rate is abnormal, perform rapid vaginal delivery or, if this is not possible, deliver by cesarean section.*

Ruptured Uterus:

- Restore blood volume by infusing IV fluids before surgery.
- When stable, immediately perform cesarean section and deliver baby and placenta.*
- Repair the uterus if the edges of the tear are not necrotic.
- If the uterus cannot be repaired, perform sub-total hysterectomy.

Placenta Previa:

- Do not perform a vaginal examination unless preparations have been made for immediate cesarean section.
- Restore blood volume by infusing IV fluids.
- If bleeding is heavy and continuous, arrange for cesarean section regardless of fetal maturity.*
- If bleeding is light or has stopped and fetus is alive but premature, consider expectant management until delivery or heavy bleeding occurs.

* Arrange urgent referral/transfer of the mother to a higher level of care (see **Textbox 2**), if necessary.

STANDARDS

All patient assessment/care areas should have supplies, equipment, and drugs to provide care to women with vaginal bleeding in pregnancy and labor (see **Tables 3–5**).

All midwives and doctors who provide care during labor and childbirth should have the skills¹² to detect and manage vaginal bleeding in pregnancy and labor.

¹² Surgical skills are the domain of doctors.

Vaginal Bleeding After Childbirth

Postpartum hemorrhage (PPH) is defined as vaginal bleeding in excess of 500 mL after childbirth. There are, however, some problems with this definition. For instance, estimates of blood loss are notoriously low, often half the actual loss. Blood is mixed with amniotic fluid and sometimes urine, and is often dispersed on sponges, towels and linens, in buckets, and on the floor. The importance of a given blood volume varies with the mother's hemoglobin level. A mother with a normal hemoglobin level will tolerate blood loss that would be fatal for an anemic mother. Bleeding may occur at a slow rate over several hours, and the condition may not be recognized until the mother suddenly enters shock. Therefore, **active management of the third stage of labor should be practiced on all women because it reduces the incidence of PPH due to uterine atony** (failure of the uterus to contract after childbirth).

Immediate PPH is increased vaginal bleeding within the first 24 hours after childbirth.

Delayed PPH is increased vaginal bleeding following the first 24 hours after childbirth.

The management of vaginal bleeding after childbirth is outlined in **Textbox 9**.

Textbox 9. Management of Vaginal Bleeding After Childbirth

General Management:

- Shout for help. Urgently mobilize all available personnel.
- Rapidly assess the mother's general condition.
- If shock is suspected, immediately begin treatment.
- Massage the uterus to expel blood and blood clots, and give oxytocin (see MCPC for details).
- Start an IV infusion and infuse IV fluids.
- Catheterize the bladder.
- Check to see if the placenta has been expelled, and examine it for completeness.
- Examine the cervix, vagina, and perineum for tears.
- After **bleeding is controlled** (24 hours after bleeding stops), determine hemoglobin or hematocrit and give ferrous sulfate or ferrous fumarate (see MCPC for details).
- Where **hookworm is endemic**, give either albendazole OR mebendazole (see MCPC for details).

Atonic Uterus:

- Continue to massage the uterus.
- Give uterotonics (see MCPC for details).
- Anticipate the need for blood early, and transfuse as necessary.
- If **bleeding continues**, check placenta again for completeness and if there are signs of retained placental fragments, remove remaining placental tissue; assess clotting status using bedside clotting test.
- If bleeding continues in spite of management outlined above, perform bimanual compression of uterus or compress the abdominal aorta.
- If bleeding continues, perform uterine and utero-ovarian artery ligation;* if life-threatening bleeding continues after ligation, perform subtotal hysterectomy.

Tears of Cervix, Vagina, or Perineum:

- Examine the mother carefully and repair tears of cervix, vagina, or perineum.
- If **bleeding continues**, assess clotting status using bedside clotting test.

* Refer/transfer the mother to a higher level of care (see **Textbox 2**), if necessary.

Textbox 9. Management of Vaginal Bleeding After Childbirth (cont.)

Retained Placenta:

- If placenta can be seen, ask the mother to push it out.
- If the placenta is felt in the vagina, remove it.
- Ensure the bladder is empty; catheterize the bladder if necessary.
- If placenta is not expelled, give oxytocin if not already done for active management of third stage. Do not give ergometrine because it causes tonic uterine contraction, which may delay expulsion.
- If placenta is undelivered after 30 minutes of oxytocin stimulation and uterus is contracted, attempt controlled cord traction.
- If this is unsuccessful, attempt manual removal of placenta (see MCPC for details).
- If bleeding continues, assess clotting status using bedside clotting test (see MCPC for details).
- If there are signs of infection, give antibiotics as for metritis (see MCPC for details).

STANDARDS

All patient assessment/care areas should have supplies, equipment, and drugs to provide care to mothers with vaginal bleeding after childbirth (see **Tables 3–5**).

All midwives and doctors who provide care during labor and childbirth should have the skills¹³ to detect and manage vaginal bleeding after childbirth, including manual removal of placenta, bimanual compression of the uterus, and compression of the abdominal aorta.

Unsatisfactory Progress in Labor

A diagnosis of **prolonged latent phase** is made when the cervix is not dilated beyond 4 cm after 8 hours of regular contractions. A diagnosis of **prolonged active phase** is made when cervical dilatation moves to the right of the alert line on the partograph.

Cephalopelvic disproportion is said to be present when secondary arrest of cervical dilatation and descent of presenting part in the presence of good contractions occur. Cephalopelvic disproportion occurs because the fetus is too large or the maternal pelvis is too small. If labor persists with cephalopelvic disproportion, it may become arrested or obstructed. The best test to determine if a pelvis is adequate is a trial of labor.

Signs of **obstruction** include secondary arrest of cervical dilatation and descent of presenting part, a large caput, third-degree molding, an edematous cervix, a cervix that is poorly applied to the presenting part, ballooning of the lower uterine segment, formation of a retraction band, and fetal distress.

Use of the partograph (see **Textbox 3**) for all women in labor is essential for the early detection and management of unsatisfactory progress in labor.

The management of unsatisfactory progress in labor is outlined in **Textbox 10**.

¹³ Surgical skills are the domain of doctors.

Textbox 10. Management of Unsatisfactory Progress in Labor

General Management:

- Rapidly assess the condition of the mother and fetus, and provide supportive care.
- Test urine for ketones and treat with IV fluids if ketotic.
- Review partograph.

Prolonged Latent Phase:

- Assess cervix.
- If there has been a change in cervical effacement or dilatation, rupture membranes and induce labor using oxytocin or prostaglandins (see MCPC for details).
- If there are signs of infection, augment labor immediately with oxytocin and give antibiotics (see MCPC for details):
 - If the mother delivers vaginally, discontinue antibiotics postpartum.
 - If the mother has a cesarean section, continue antibiotics until fever-free for 48 hours after cesarean section.

Prolonged Active Phase:

- If no signs of cephalopelvic disproportion or obstruction and membranes intact, rupture membranes.
- Provide supportive care (see **Table 10**).
- If cephalopelvic disproportion is confirmed, deliver by cesarean section.*
- If the fetus is dead, delivery by craniotomy.* If the operator is not proficient in craniotomy, deliver by cesarean section.
- If labor becomes obstructed, the fetus is alive, and conditions allow, deliver by vacuum extraction or, if this is not possible, by cesarean section (see MCPC for details).
- If contractions are inefficient and cephalopelvic disproportion and obstruction have been excluded, rupture the membranes and augment labor with oxytocin** (see MCPC for details).
- Never leave the woman alone during augmentation.
- Reassess progress by vaginal examination 2 hours after strong contractions are established and, if no progress, deliver by cesarean section.*

Prolonged Expulsive Phase:

- If malpresentation and obvious obstruction have been excluded, augment labor with oxytocin (see MCPC for details).
- If there is no descent after augmentation, deliver by vacuum extraction or cesarean section.

* Refer/transfer the mother to a higher level of care (see **Textbox 2**), if necessary.

** Augmentation of labor should not be commenced unless cesarean section is available.

STANDARDS

All women should have labor monitored using a partograph, to enable early detection and management of unsatisfactory progress in labor.

All patient assessment/care areas should have supplies, equipment, and drugs to provide care to women who experience unsatisfactory progress in labor (see **Tables 3–5**).

All midwives and doctors who provide care during labor and childbirth should have the skills¹⁴ to detect and manage unsatisfactory progress in labor.

Malpositions and Malpresentations

The most common presentation is the vertex of the fetal head. **Malpositions** are abnormal positions of the vertex of the fetal head (with the occiput as the reference point) relative to the maternal pelvis, and **malpresentations** are all presentations of the fetus other than vertex:

¹⁴ Surgical skills are the domain of doctors.

- **Occiput posterior position** occurs when the fetal occiput is posterior in relation to the maternal pelvis.
- **Occiput transverse position** occurs when the fetal occiput is transverse to the maternal pelvis. If an occiput transverse position persists into the later part of the first stage of labor, it should be managed as an occiput posterior position.
- **Brow presentation** is caused by partial extension of the fetal head so that the occiput is higher than the sinciput. In brow presentation, engagement is usually impossible and arrested labor is common.
- **Face presentation** is caused by hyper-extension of the fetal head so that neither the occiput nor the sinciput are palpable on vaginal examination. The chin serves as the reference point in describing the position of the head.
- **Compound presentation** occurs when an arm prolapses alongside the presenting part. Both the prolapsed arm and the fetal head present in the pelvis simultaneously.
- **Breech presentation** occurs when the buttocks and/or the feet are the presenting parts:
 - **Complete (flexed) breech presentation** occurs when both legs are flexed at the hips and knees.
 - **Frank (extended) breech presentation** occurs when both legs are flexed at the hips and extended at the knees.
 - **Footling breech presentation** occurs when a leg is extended at the hip and the knee.
- **Transverse lie and shoulder presentation** occur when the long axis of the fetus is transverse. The shoulder is typically the presenting part.

The management of malpositions and malpresentations is outlined in **Textbox 11**.

Textbox 11. Management of Malpositions and Malpresentations

General Management:

- Rapidly assess the general condition of the mother (see **Table 7**).
- Assess fetal condition (see MCPC for details).
- Provide encouragement and supportive care (see **Table 10**).

Occiput Posterior Positions:

- If there are signs of obstruction or the fetal heart rate is abnormal, deliver by cesarean section.*
- Rupture membranes and, if indicated, augment labor with oxytocin (see MCPC for details).
- Deliver by vacuum extraction or cesarean section, depending on cervical dilatation and descent of fetal head.

Brow Presentation:

- Deliver by cesarean section.*

Face Presentation:

- If the chin is in the anterior position and the cervix is fully dilated, proceed with normal childbirth.
- If progress is slow and there is no sign of obstruction, augment with oxytocin (see MCPC for details).
- If descent is unsatisfactory, deliver by forceps.
- If the chin is in the posterior position and the cervix is fully dilated, deliver by cesarean section.*
- If the cervix is not fully dilated, monitor descent, rotation, and progress.

Textbox 11. Management of Malpositions and Malpresentations (cont.)

Compound Presentation:

- Assist the mother to assume the knee-chest position and push the arm of the baby above the pelvic brim and hold it there until a contraction pushes the head into the pelvis.
- If this procedure fails or the cord prolapses, deliver by cesarean section.

Breech Presentation:

- If the mother is in early labor, gestation is at or after 37 weeks, membranes are intact, vaginal birth is possible, and there are no complications, attempt external version (see MCPC for details).
- If external version fails, proceed with vaginal breech delivery or cesarean section.*

Transverse Lie and Shoulder Presentation:

- If the mother is in early labor and the membranes are intact, attempt external version (see MCPC for details).
- If external version fails or it is not advisable, proceed with cesarean section.*

* Arrange urgent referral/transfer of the mother to a higher level of care (see **Textbox 2**), if necessary.

STANDARDS

All patient assessment/care areas should have supplies, equipment, and drugs to provide care to women with malpositions and malpresentations (see **Tables 3–5**).

All midwives and doctors who provide care during labor and childbirth should have the skills¹⁵ to detect and manage malpositions and malpresentations.

Hypertensive Disorders in Pregnancy

Diastolic BP is a good indicator of prognosis for the management of hypertensive disorders in pregnancy:

- Diastolic BP is taken at the point at which the arterial sound disappears:
 - A falsely high reading is obtained if the cuff does not encircle at least three-fourths of the circumference of the arm;
 - A wider cuff should be used when the diameter of the upper arm is more than 30 cm.
- Diastolic BP measures peripheral resistance and does not vary with the mother's emotional state to the degree that systolic BP does.

Diastolic BP of 90 mmHg or more on two consecutive readings taken 4 hours or more apart is sufficient to diagnose **hypertension**. (If urgent delivery must take place or if the diastolic BP is 110 mmHg or more, a time interval of less than 4 hours is acceptable.)

- If hypertension occurs after 20 weeks of gestation, during labor, and/or within 48 hours of birth it is classified as **pregnancy-induced hypertension**;
- If hypertension occurs before 20 weeks of gestation, it is classified as **chronic hypertension**.

See **Table 11** for information on the variations of pregnancy-induced hypertension and diagnoses.

¹⁵ Surgical skills are the domain of doctors.

When possible and practical, all women in the antenatal setting should be checked for **proteinuria**, the presence of protein in the urine. Random urine sampling such as the dipstick test for protein is a useful screening tool. A change from negative to positive during pregnancy is a warning sign. If dipsticks are not available, a sample of urine can be heated to boiling in a clean test tube. Add a drop of 2% acetic acid to check for persistent precipitates that can be quantified as a percentage of protein to the volume of the total sample. Vaginal secretions or amniotic fluid may contaminate urine specimens. Only clean-catch mid-stream specimens should be used. Catheterization for this purpose is not justified due to the risk of urinary tract infection.

Hypertension after 20 weeks of gestation, during labor, and/or within 48 hours of childbirth, with proteinuria is classified as **pre-eclampsia**. Other conditions cause proteinuria, and false positive results are possible. Urinary infection, severe anemia, heart failure, and difficult labor may all cause proteinuria. Blood in the urine due to catheter trauma, schistosomiasis, and contamination from vaginal blood could give false positive results.

Table 11. Variations of Pregnancy-Induced Hypertension and Diagnoses

Diagnosis	Diagnostic Features	Diagnostic Notes
Chronic hypertension	Diastolic BP 90 mmHg or more <i>before</i> first 20 weeks of gestation	Determine if mother has previous history of chronic hypertension.
Chronic hypertension with superimposed mild pre-eclampsia	Diastolic BP 90–110 mmHg before 20 weeks of gestation <i>plus</i> Proteinuria up to 2+	
Pregnancy-induced hypertension	Two readings of diastolic BP 90–110 mmHg 4 hours apart after 20 weeks gestation <i>No</i> proteinuria	
Mild pre-eclampsia	Two readings of diastolic BP 90–110 mmHg 4 hours apart after 20 weeks gestation <i>plus</i> Proteinuria up to 2+	While peripheral edema may be present, it is not used to make the diagnosis of pre-eclampsia
Severe pre-eclampsia	Diastolic BP 90 mmHg or more after 20 weeks gestation <i>plus</i> Proteinuria 2+ <i>with one or more of the following:</i> <ul style="list-style-type: none"> • Diagnostic BP 110 mmHg or higher • Proteinuria 3+ or more • Hyperreflexia • Headache (increasing frequency, unrelieved by regular analgesics) • Clouding of vision • Oliguria (passing less than 400 mL urine in 24 hr) • Upper abdominal pain (epigastric pain or pain in right upper quadrant) • Pulmonary edema 	Severe pre-eclampsia is diagnosed when the mother has the minimum criteria for mild pre-eclampsia <i>plus</i> one or more features of severe pre-eclampsia. This may mean mild pre-eclampsia but very high diastolic BP; mild pre-eclampsia but large proteinuria; or mild pre-eclampsia with other organ system involvement (one or more symptoms listed at left).

Table 11. Variations of Pregnancy-Induced Hypertension and Diagnoses (cont.)

Diagnosis	Diagnostic Features	Diagnostic Notes
Eclampsia	Diastolic BP 90 mmHg or more after 20 weeks gestation <i>plus</i> Proteinuria 2+ or more <i>with</i> : <ul style="list-style-type: none"> • Convulsions, or • Coma (unconscious) 	Eclampsia should be suspected in any pregnant mother who has convulsions or coma, and the mother should be treated as such. A small proportion of women with eclampsia have normal BP. Later investigation or more time may show that the correct diagnosis is different, but eclampsia should be suspected until another diagnosis is confirmed.

STANDARDS

All women should have their BP measured at every antenatal visit and at the prescribed intervals throughout labor and after childbirth.

All women who have a diastolic BP of 90 mmHg or higher should have their urine tested for the presence of protein.

Severe pre-eclampsia and eclampsia are managed similarly with the exception that **delivery must occur within 12 hours of onset of convulsions in eclampsia**. All cases of severe pre-eclampsia should be managed actively. The management of severe pre-eclampsia and eclampsia is outlined in **Textbox 12**.

Textbox 12. Management of Severe Pre-Eclampsia/Eclampsia

If a pregnant woman or a mother who has recently given birth complains of severe headache or blurred vision, or is found having a convulsion, or if a pregnant woman has elevated BP, the following steps must be taken:

- Shout for help and mobilize all available personnel, if the mother is unconscious or convulsing.
- Rapidly assess the mother (see **Table 7**), simultaneously finding out the history of her present and past illnesses either from her or her family.
- Perform stabilization procedures, as needed.
- Start an IV infusion.
- Maintain a strict fluid balance chart of fluid administered and urine output.
- Give medication for hypertension (see MCPC for details).
- Give medication to prevent or treat convulsions (see MCPC for details).
- Never leave the mother alone.
- Monitor vital signs, reflexes, and fetal heart hourly.
- Auscultate lung bases hourly for rales.
- Assess clotting status using a bedside clotting test (see MCPC for details).
- Refer/transfer the mother to a higher level of care (see **Textbox 2**), if necessary.
- Record findings on Pre-Eclampsia/Eclampsia Flow Chart (see **Figure 1**).
- Deliver the mother who has severe pre-eclampsia within 24 hours of the onset of symptoms and the mother who has eclampsia within 12 hours of the onset of convulsions.
- If vaginal birth is not possible, cesarean section should be performed.

Fever During Pregnancy and Labor and After Childbirth

Fever (temperature 38°C or more) during pregnancy and labor or after childbirth is a sign of infection. The possible causes of **fever during pregnancy and labor** include:

- cystitis
- acute pyelonephritis
- septic abortion
- amnionitis
- pneumonia
- malaria
- typhoid
- hepatitis

In addition to these possible causes, the causes of **fever after childbirth** include:

- metritis
- pelvic abscess
- peritonitis
- breast engorgement
- mastitis
- breast abscess
- wound abscess, seroma, hematoma, and cellulitis

The symptoms and signs associated with these conditions (see MCPC for details) should be considered when assessing the mother who has a fever during pregnancy and labor or after childbirth.

Tests for Urinary Tract Infections. Dipstick, microscopy, and urine culture tests can be used to determine if a urinary tract infection is present, but will not differentiate between cystitis and acute pyelonephritis:

- A dipstick leukocyte esterase test can be used to detect white blood cells, and a nitrate reductase test can be used to detect nitrites.
- Microscopy of urine specimen may show white cells in clumps, bacteria, and sometimes red cells.
- Urine culture and sensitivity tests should be done, if available, to identify the organism and its antibiotic sensitivity.

Note: Urine examination requires a clean-catch mid-stream specimen to minimize the possibility of contamination.

Tests for Malaria. Two species of malaria parasites, *P. falciparum* and *P. vivax*, account for the majority of cases of malaria. Symptomatic falciparum malaria in pregnant women may cause severe disease and death if not recognized and treated early. When malaria presents as an acute illness with fever, it cannot be readily distinguished from many other causes of fever

on clinical grounds. Malaria should be considered the most likely diagnosis in a pregnant woman with fever who has been exposed to malaria. Where available, the following tests will confirm the diagnosis:

- Microscopy of a thick and thin blood film:
 - Thick blood film is more sensitive at detecting parasites (absence of parasites does not rule out malaria);
 - Thin blood film helps to identify the parasite species.
- Rapid antigen tests.

The management of fever during pregnancy and labor or after childbirth is outlined in **Textboxes 13 and 14.**

Textbox 13. Management of Fever During Pregnancy and Labor

General Management:

- Encourage increased fluid intake by mouth.
- Use a fan or tepid sponge to help decrease temperature.
- Start an IV infusion, if necessary.

Specific Management:

- Begin antibiotic therapy for acute pyelonephritis, septic abortion, amnionitis, pneumonia, or typhoid (see MCPC for details).
- Treat malaria according to national guidelines.

Textbox 14. Management of Fever after Childbirth

General Management:

- Encourage bed rest.
- Ensure adequate hydration by mouth or IV.
- Use a fan or tepid sponge to help decrease temperature.
- If shock is suspected, immediately begin treatment (see MCPC for details).

Metritis:

- Transfuse as necessary.
- Give a combination of antibiotics (see MCPC for details).
- Remove retained placental fragments, if suspected.
- Perform laparotomy to drain pus, if peritonitis is suspected.*
- Perform subtotal hysterectomy, if uterus is necrotic and septic.*

Pelvic Abscess:

- Give a combination of antibiotics (see MCPC for details).
- Drain pus (see MCPC for details).
- Perform laparotomy, if spiking fever continues.*

Peritonitis:

- Provide nasogastric suction.
- Infuse IV fluids.
- Give a combination of antibiotics (see MCPC for details).

Breast Engorgement:

- Encourage the mother to breastfeed more frequently, if the baby is able to suckle. If the baby is unable to suckle, encourage the mother to express milk by hand or with a pump.
- Apply relief measures before and after feeding.
- Follow up in 3 days.

Textbox 14. Management of Fever after Childbirth (cont.)

Breast Infection (mastitis and breast abscess):

- Give antibiotics (see MCPC for details).
- Encourage the mother to continue breastfeeding.
- Apply relief measures before and after feeding.
- Give paracetamol for pain as needed.
- Drain breast abscess (see MCPC for details).
- Follow up in 3 days.

Infection of Perineal and Abdominal Wounds:

- Open and drain the wound, if there is pus or fluid, and remove infected skin (see MCPC for details).
- Give antibiotics (see MCPC for details).
- Dress the wound.

*Refer/transfer the mother to a higher level of care (see **Textbox 2**), if necessary.

STANDARDS

All patient assessment/care areas should have supplies, equipment, and drugs to provide care to women with fever during pregnancy and labor and after childbirth (see **Tables 3–5**).

All midwives and doctors who provide care during labor and childbirth should have the skills¹⁷ to detect and manage fever during pregnancy and labor and after childbirth.

Shoulder Dystocia

Shoulder dystocia occurs when the fetal head has been delivered but the shoulders are stuck and cannot be delivered. It is a condition that cannot be predicted. The diagnostic characteristics are as follows:

- The fetal head is delivered but remains tightly applied to the vulva;
- The chin retracts and depresses the perineum; and
- Traction on the head fails to deliver the shoulder, which is caught behind the symphysis pubis.

The management of shoulder dystocia is outlined in **Textbox 15**.

Textbox 15. Management of Shoulder Dystocia

General Management:

- Be prepared for shoulder dystocia at all births, especially if a large baby is anticipated.
- Have several persons available to help.

Specific Management:

- Make an adequate episiotomy.
- Place the mother on her back with both thighs flexed, bringing her knees as far up as possible towards her chest.
- Deliver the shoulder by applying downward pressure on the fetal head to move the shoulder that is anterior under the symphysis pubis (see MCPC for details).
- If the shoulder is still not delivered, wearing HLD gloves, insert a hand into the vagina and apply pressure to the shoulder (see MCPC for details).
- If the shoulder is still not delivered, insert a hand into the vagina and grasp the humerus of the posterior arm (see MCPC for details).

¹⁷ Surgical skills are the domain of doctors.

STANDARD

All midwives and doctors who provide care during labor and childbirth should have the skills to detect and manage shoulder dystocia.

Prolapsed Cord

The cord is said to have prolapsed when it lies in the birth canal below the fetal presenting part or it is visible at the vagina following rupture of membranes. The management of prolapsed cord is outlined in **Textbox 16**.

Textbox 16. Management of Prolapsed Cord

General Management:

- Give oxygen at 4–6 L per minute by mask or nasal cannulae.

Specific Management:

- If the cord is pulsating and the fetus is alive, diagnose stage of labor by an immediate vaginal examination.
- If the mother is in the **first stage of labor**:
 - In all cases, wearing HLD gloves, insert a hand into the vagina and push the presenting part up to decrease pressure on the cord and dislodge the presenting part (see MCPC for details).
 - Perform an immediate cesarean section.*
- If the mother is in the **second stage of labor**, expedite delivery with episiotomy and vacuum extraction (see MCPC for details).
- If **breech presentation**, perform breech extraction and apply Piper or long forceps to after-coming head (see MCPC for details).
- Prepare to resuscitate the newborn.

* Arrange urgent referral/transfer of the mother to a higher level of care (see **Textbox 2**), if necessary.

STANDARDS

All patient assessment/care areas should have supplies, equipment, and drugs to provide care to women with prolapsed cord (see **Tables 3–5**).

All midwives and doctors who provide care during labor and childbirth should have the skills¹⁸ to detect and manage prolapsed cord.

Fetal Distress in Labor

Fetal distress in labor is characterized by abnormal fetal heart rate (less than 100 or more than 180 beats per minute) and thick meconium-stained amniotic fluid:

- A **normal fetal heart rate** may slow during a contraction but usually recovers to normal as soon as the uterus relaxes.
- A **very slow fetal heart rate** in the absence of contractions or persisting after contractions is suggestive of fetal distress.
- A **rapid fetal heart rate** may be a response to maternal fever, drugs causing rapid maternal heart rate (e.g., tocolytic drugs), hypertension, or amnionitis. In the absence of a rapid maternal heart rate, a rapid fetal heart rate should be considered a sign of fetal distress.

¹⁸ Surgical skills are the domain of doctors.

Meconium-stained amniotic fluid is seen frequently as the fetus matures and, by itself, is not an indicator of fetal distress:

- A **slight degree of meconium staining** without fetal heart rate abnormalities is a warning of the need for vigilance.
- **Thick meconium** suggests passage of meconium in reduced amniotic fluid and may indicate the need for expedited delivery and management of the newborn's upper airway at birth to prevent meconium aspiration.
- In breech presentation, meconium is passed in labor because of compression on the fetal abdomen during birth. This is not a sign of distress unless it occurs in early labor.

The management of fetal distress in labor is outlined in **Textbox 17**.

Textbox 17. Management of Fetal Distress in Labor

General Management:

- Prop up the mother or place her on her left side.
- Stop oxytocin if it is being administered.

Specific Management:

- If a **maternal cause is identified**, initiate appropriate management
- If a **maternal cause is not identified** and the **fetal heart rate remains abnormal** throughout at least three contractions, perform a vaginal examination to check for explanatory signs of distress.
- If there is bleeding with intermittent or constant pain, suspect abruptio placentae.
- If there are signs of infection, give antibiotics (see MCPC for details).
- If the cord is below the presenting part or in the vagina, manage as prolapsed cord (see **Textbox 16**).
- If **fetal heart abnormalities persist** or there are additional signs of distress (thick meconium-stained fluid), plan delivery by either vacuum extraction, forceps, or cesarean section* (see MCPC for details).

* Arrange urgent referral/transfer to a higher level of care (see **Textbox 2**), if necessary.

STANDARDS

All patient assessment/care areas should have supplies, equipment, and drugs to provide care to women with fetal distress in labor (see **Tables 3–5**).

All midwives and doctors who provide care during labor and childbirth should have the skills¹⁹ to detect and manage fetal distress in labor.

Prelabor Rupture of Membranes

Prelabor rupture of membranes (PROM) is rupture of the membranes before labor has begun. PROM can occur either when the fetus is immature (preterm or before 37 weeks) or when mature (term). The typical odor of amniotic fluid confirms the diagnosis of PROM. However, if membrane rupture is not recent or when leakage is gradual, confirming the diagnosis may be difficult. A pad can be placed over the vulva and examined an hour later visually and by odor. The management of PROM is outlined in **Textbox 18**.

¹⁹ Surgical skills are the domain of doctors.

Textbox 18. Management of Prelabor Rupture of Membranes

General Management:

- Confirm accuracy of calculated gestational age, if possible.
- Use a HLD speculum to assess vaginal discharge and exclude urinary incontinence.
- If the mother complains of vaginal bleeding in later pregnancy (after 22 weeks) **do not do a digital vaginal examination**.
- Confirm the diagnosis using, if available, a nitrazine test or a ferning test (see MCPC for details).

Specific Management:

- If there is vaginal bleeding with intermittent or constant abdominal pain, suspect abruptio placentae.
- If there are signs of infection, give antibiotics as for amnionitis (see MCPC for details).
- If there are no signs of infection and the pregnancy is less than 37 weeks, give antibiotics to reduce the risk of maternal and newborn infection and to delay delivery (see MCPC for details).
- If there are palpable contractions and blood-stained mucus discharge, suspect preterm labor.
- If there are no signs of infection and the pregnancy is 37 weeks or more and membranes have been ruptured for more than 18 hours, give prophylactic antibiotics to help reduce Group B streptococcus infection in the newborn (see MCPC for details).
- Assess the cervix and, if favorable, induce labor using oxytocin (see MCPC for details).
- If the cervix is unfavorable, ripen with prostaglandins and infuse oxytocin (see MCPC for details) or deliver by cesarean section.*

*Arrange referral/transfer to a higher level of care (see **Textbox 2**), if necessary.

STANDARDS

All patient assessment/care areas should have supplies, equipment, and drugs to provide care to women with vaginal bleeding after childbirth (see **Tables 3–5**).

All midwives and doctors who provide care during labor and childbirth should have the skills²⁰ to detect and manage prelabor rupture of membranes.

²⁰ Surgical skills are the domain of doctors.

REFERENCES

- American College of Obstetrics and Gynecology. ACOG Practice Bulletin: Induction of Labor. ACOG Practice Bulletin Number 10. Washington, D.C:ACOG, 1999.
- Egypt Ministry of Health and Population. Egypt: *National Maternal Mortality Study 2000. Report of Findings and Conclusions*. Egypt: Directorate of Maternal and Child Healthcare, Ministry of Health and Population, 2001.
- Goldberg AB, Greenberg MB, Darney PD. Misoprostol and pregnancy. *N Engl J Med* 2001;344: 38–60.
- Hofmeyr GJ, Nikodem VC, de Jager M, Gelbart BR. A randomised placebo controlled trial of oral misoprostol in the third stage of labor. *Br J Obstet Gynaecol* 1998;105: 971–975.
- JHPIEGO. *Preventing Post-partum Hemorrhage: A Community-Based Approach Proves Effective in Rural Indonesia*. Program Brief, Maternal & Neonatal Health Program. Baltimore, JHPIEGO, 2004.
- Karkanis SG, Caloia D, Salenieks ME, Kingdom J, Walker M, Meffe F, Windrim R. Randomized controlled trial of rectal misoprostol versus oxytocin in third stage management. *Obstet Gynaecol Can* 2002;24: 149–154.
- Kinzie B, Gomez P. *Basic Maternal and Newborn Care: A Guide for Skilled Providers*. Baltimore: JHPIEGO, 2004.
- Kwast BE. Maternity care in developing countries. In: Health matters. Public health in North-South perspective. Van der Velden K et al (eds). Houten, Bohn Stafleu, Van Loghum, 1995.
- O'Brien P, El-Refaey H, Gordon A, Geary M, Rodeck CH. Rectally administered misoprostol for the treatment of postpartum hemorrhage unresponsive to oxytocin and ergometrine: a descriptive study. *Obstet Gynecol* 1998;92: 212–214.
- Ryden G, Sjöholm I. The metabolism of oxytocin in pregnant and non-pregnant women. *Acta Obstet Gynecol Scand* 1971;50:37.
- Tietjen L, Bossemeyer D, McIntosh N. *Infection Prevention Guidelines for Healthcare Facilities with Limited Resources*. Baltimore: JHPIEGO, 2003.
- Transitional Islamic Government of Afghanistan, Ministry of Health. *Basic Package of Health Services for Afghanistan*. Kabul: Ministry of Health, 2003.
- Transitional Islamic Government of Afghanistan, Ministry of Health. Women's and Reproductive Health Directorate. *National Reproductive Health Strategy for Afghanistan (2003–2005)*. Kabul: Ministry of Health, 2004.
- UNFPA. Fact Sheet: Reproductive Health Indicators in Afghanistan. UNFPA. Available at: <http://www.unfpa.org/emergencies/afghanistan/factsheet.html>. Accessed: February 24, 2004.
- World Bank. Afghanistan: Country Profile Table. Available at: <http://devdata.worldbank.org/external/CPProfile.asp?SelectedCountry=AFG&CCODE=AFG&CNAME=Afghanistan&PTYPE=CP>. Accessed: February 3, 2004.
- World Health Organization, Department of Reproductive Health and Research. *Managing Complications in Pregnancy and Childbirth: A Guide for Midwives and Doctors*. Geneva: WHO, 2000.
- World Health Organization, Department of Reproductive Health and Research. *Surgical Care at the District Hospital*. Geneva: WHO, 2003.
- World Health Organization, *Fact Sheet 245, Essential Obstetric Care*. Geneva: WHO, 2000.
- World Health Organization, *Mother-Baby Package: Implementing Safe Motherhood in Countries*. WHO/FHE/MSM/94.11. Geneva: WHO, 1994.

APPENDIX 1. GLOSSARY OF TERMS

Term	Definition/Description
Abruptio placentae	The detachment of a normally located placenta from the uterus before the fetus is delivered, characterized by bleeding after 22 weeks gestation and intermittent or constant abdominal pain.
Basic EOC	Includes the management of normal pregnancy, labor, and childbirth; parenteral administration of antibiotics, uterotonics, and anticonvulsants; manual removal of placenta or retained products; and assisted vaginal childbirth.
Breech presentation	Occurs when the buttocks and/or the feet are the presenting parts. Complete (flexed) breech presentation occurs when both legs are flexed at the hips and knees. Frank (extended) breech presentation occurs when both legs are flexed at the hips and extended at the knees. Footling breech presentation occurs when a leg is extended at the hip and the knee.
Brow presentation	Partial extension of the fetal head so that the occiput is higher than the sinciput. In brow presentation, engagement is usually impossible and arrested labor is common.
Cephalopelvic disproportion	The fetus is too large or the maternal pelvis is too small to allow passage of the fetus through the birth canal.
Compound presentation	Occurs when an arm prolapses alongside the presenting part. Both the prolapsed arm and the presenting part present in the pelvis simultaneously.
Comprehensive EOC	Includes, in addition to the elements of basic EOC, blood transfusion, anesthesia, and surgical procedures such as cesarean section.
Ectopic pregnancy	A pregnancy in which implantation occurs outside the uterine cavity. The fallopian tube is the most common site of implantation.
Emergency obstetric care (EmOC)	EmOC is a subset of EOC and refers to the management of complications such as hemorrhage and obstructed labor.
Essential obstetric care (EOC)	The elements of obstetric care needed for the management of normal and complicated pregnancy, labor, and childbirth care.
Face presentation	Hyper-extension of the fetal head occurs so that neither the occiput nor the sinciput are palpable on vaginal examination. The chin serves as the reference point in describing the position of the head.
Fetal distress	Fetal distress in labor is characterized by abnormal fetal heart rate (less than 100 or more than 180 beats per minute) and thick meconium-stained amniotic fluid.
First stage of labor, active phase	Dilatation of the cervix is 4–10 cm (rate of approximately 1 cm per hour), contractions are regular with increasing frequency and duration, and fetal descent begins.
First stage of labor, latent phase	Dilatation of the cervix is 1–3 cm, contractions are irregular, and descent is not progressive.
Fourth stage of labor	The first two hours after childbirth.
Hypertension	Diastolic BP of 90 mmHg or more on two consecutive readings taken 4 hours or more apart. If hypertension occurs after 20 weeks of gestation, during labor, and/or within 48 hours of childbirth it is classified as pregnancy-induced hypertension. If hypertension occurs before 20 weeks of gestation, it is classified as chronic hypertension.
Induced abortion	A process by which pregnancy is terminated before fetal viability.
Malpositions	Abnormal positions of the vertex of the fetal head (with the occiput as the reference point) relative to the maternal pelvis.
Malpresentations	All presentations of the fetus other than vertex. The most common presentation is the vertex of the fetal head.

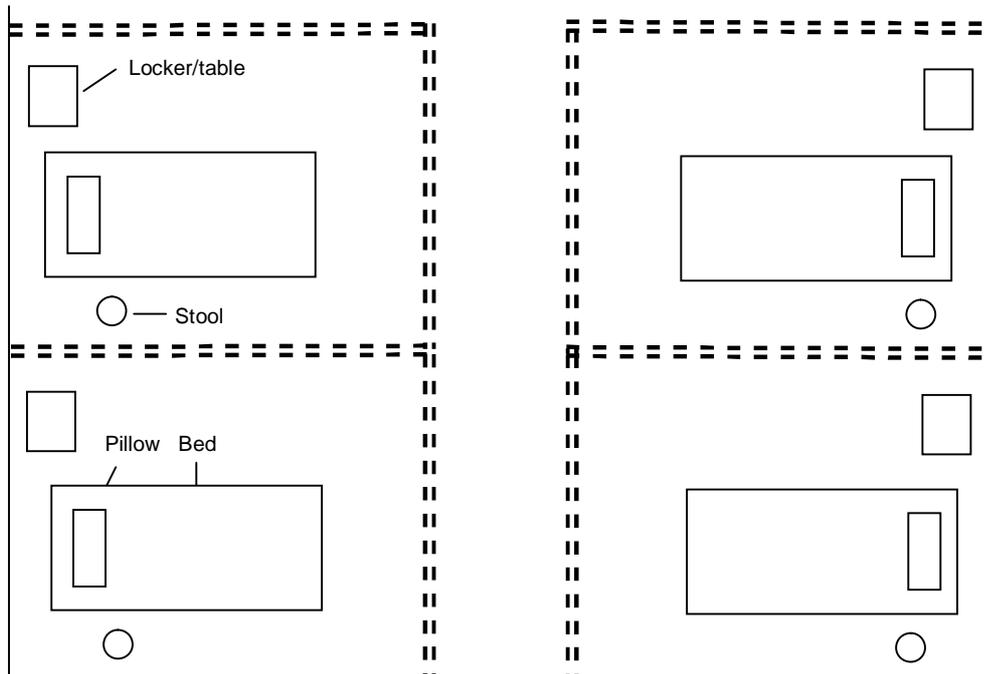
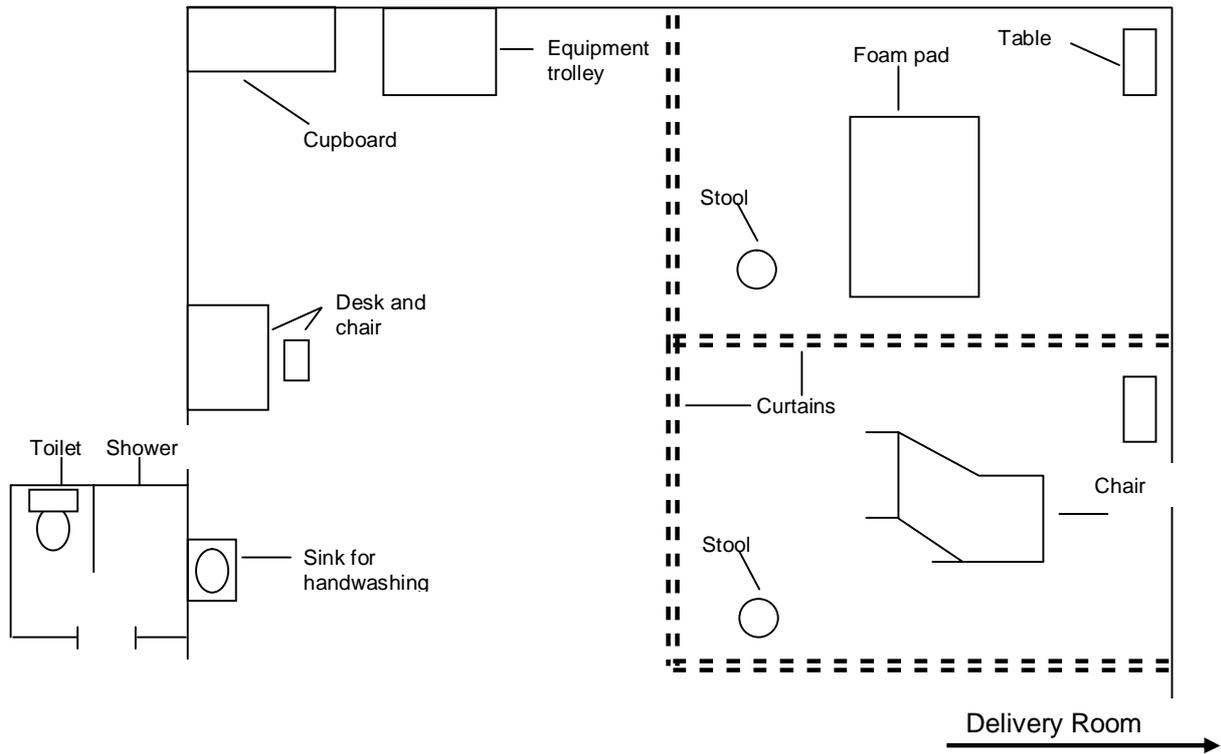
APPENDIX 1: GLOSSARY OF TERMS (CONT.)

Term	Definition/Description
Maternal death	A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. Maternal deaths should be divided into two groups: <ul style="list-style-type: none"> • Direct obstetric deaths are those resulting from obstetric complications of the pregnant state (pregnancy, labor, and the puerperium), from interventions, omissions, incorrect treatment, or from a chain of events resulting from any of the above. • Indirect maternal deaths are those resulting from previous existing disease or disease that developed during pregnancy and which was not due to direct obstetric causes, but was aggravated by physiologic effects of pregnancy.
Maternal mortality rate	The maternal mortality rate is the number of maternal deaths in a given period per 100,000 women of reproductive age during the same period. This reflects the frequency at which women are exposed to risk through fertility.
Maternal mortality ratio (MMR)	The maternal mortality ratio is the number of maternal deaths during a given time period per 100,000 live births during the same time period. This is a measure of the risk of death once the woman becomes pregnant.
Occiput posterior position	Occurs when the fetal occiput is posterior in relation to the maternal pelvis.
Occiput transverse position	Occurs when the fetal occiput is transverse to the maternal pelvis. If an occiput transverse position persists into the later part of the first stage of labor, it should be managed as an occiput posterior position.
Partograph	A chart for recording information about the progress of labor and the condition of the mother and fetus, which provides objective data on which to base clinical decisions during the 1 st stage/active phase of labor. Skilled management of labor using a partograph is key to the appropriate prevention and management of prolonged labor and its complications. The partograph should be used for all women during labor.
Placenta previa	Implantation of the placenta at or near the cervix, characterized by bleeding after 22 weeks gestation.
Postpartum hemorrhage (PPH)	Vaginal bleeding in excess of 500 mL after childbirth. PPH can be immediate (within the first 24 hours after childbirth) or delayed/ secondary (from days 2 to 42 postpartum).
Pre-eclampsia	Hypertension after 20 weeks of gestation, during labor, and/or within 48 hours of childbirth, with proteinuria.
Prelabor rupture of membranes (PROM)	Rupture of the membranes before labor has begun. PROM can occur either when the fetus is immature (preterm or before 37 weeks) or when mature (term).
Prolapsed cord	The cord is said to have prolapsed when it lies in the birth canal below the fetal presenting part or it is visible at the vagina following rupture of membranes.
Prolonged active phase	When cervical dilatation moves to the right of the alert line on the partograph.
Prolonged latent phase	The cervix has not dilated beyond 4 cm after 8 hours of regular contractions.
Ruptured uterus	Separation of the uterine wall with passage of intrauterine contents into the abdominal cavity. It is characterized by intra-abdominal and/or vaginal bleeding and severe abdominal pain that may decrease after rupture.
Second stage of labor	Dilatation of the cervix is 10 cm, the urge to push becomes progressively stronger with each contraction, and descent progresses until the presenting part reaches the pelvic floor.

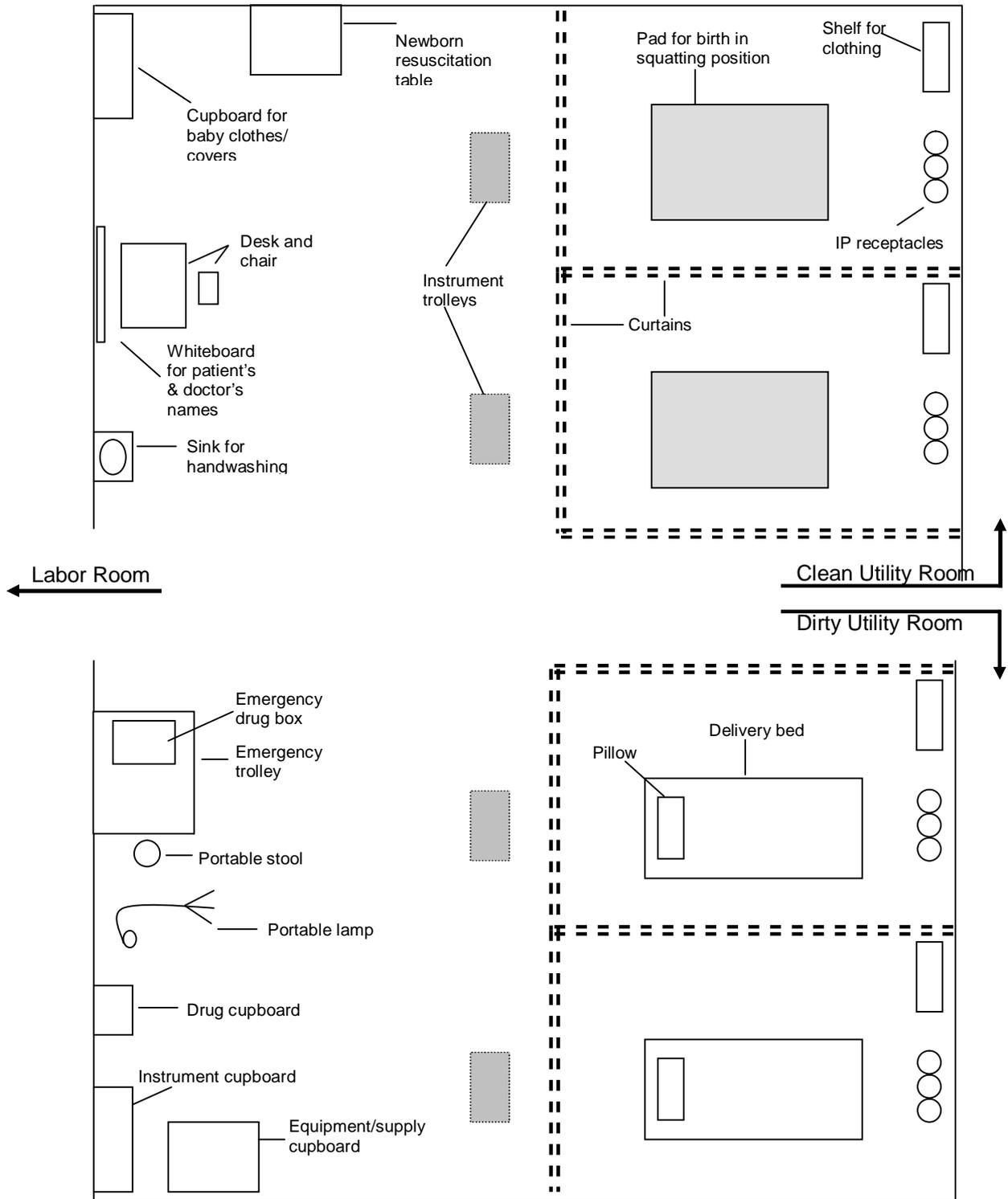
APPENDIX 1: GLOSSARY OF TERMS (CONT.)

Term	Definition/Description
Septic abortion	An abortion complicated by infection. Sepsis may result from infection if organisms rise from the lower genital tract following either spontaneous or unsafe abortion. Sepsis is more likely to occur if there are retained products of conception and evacuation has been delayed. Sepsis is a frequent complication of unsafe abortion involving instrumentation.
Shoulder dystocia	Occurs when the fetal head has been delivered but the shoulders are stuck and cannot be delivered. It is a condition that cannot be predicted. The diagnostic characteristics are: fetal head is delivered but remains tightly applied to the vulva; the chin retracts and depresses the perineum; and traction on head fails to deliver the shoulder, which is caught behind the symphysis pubis.
Skilled attendant	A healthcare provider (midwife, doctor, or nurse with midwifery and life-saving skills) who has the knowledge and skills necessary to give safe and effective care during pregnancy and childbirth to mothers and their newborns, in a variety of settings. Safe and effective care requires that the skilled attendant is able to manage normal pregnancy, labor, and childbirth; recognize the onset of complications; perform essential emergency interventions; and safely refer the mother and/or her baby, when necessary.
Spontaneous abortion	The loss of pregnancy before fetal viability (22 weeks gestation).
Third stage of labor	Begins with the birth of the baby and ends with the delivery of the placenta.
Transverse lie and shoulder presentation	Occur when the long axis of the fetus is transverse. The shoulder is typically the presenting part.
Unsafe abortion	A procedure performed either by persons lacking necessary skills or in an environment lacking minimal medical standards, or both.
Vaginal bleeding in early pregnancy	Bleeding that occurs during the first 22 weeks of pregnancy.
Vaginal bleeding in later pregnancy	Bleeding that occurs after 22 weeks of pregnancy. The probable causes are abruptio placentae, ruptured uterus, and placenta previa; all three of these conditions may be accompanied by shock.

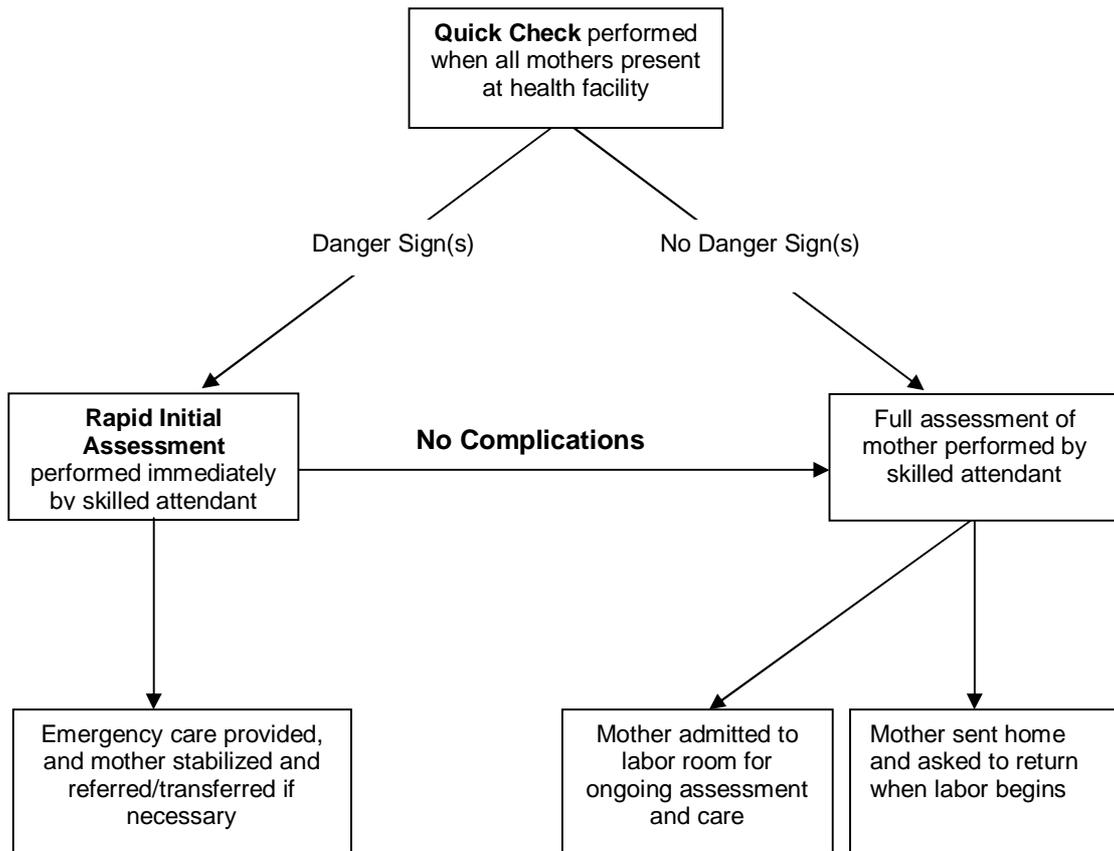
APPENDIX 2: LABOR ROOM FLOOR PLAN



APPENDIX 3: DELIVERY ROOM FLOOR PLAN



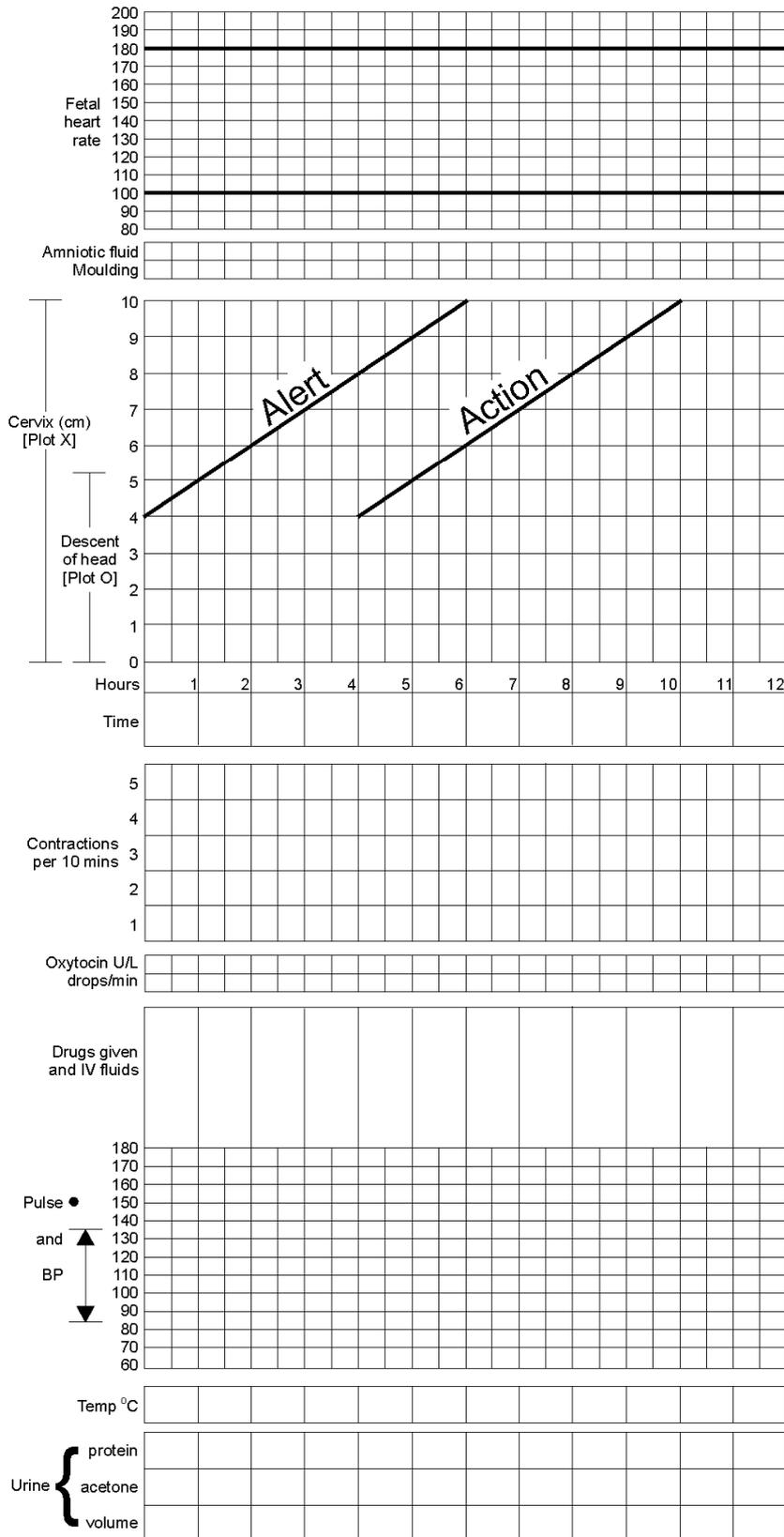
APPENDIX 4: TRIAGE FLOWCHART



APPENDIX 5: PARTOGRAPH

Name _____ Gravida _____ Para _____ Hospital number _____

Date of admission _____ Time of admission _____ Ruptured membranes _____ hours _____



DELIVERY NOTES MATERNITY UNIT

PERSONAL INFORMATION

Patient's Name: _____ Date of Delivery: _____

Age: _____ Time of Delivery: _____

Gestational Age: _____

METHOD OF DELIVERY (circle method of delivery. If Cesarean, fill in indication)

Normal Vaginal Breech Delivery Vacuum Extraction Forceps

Cesarean Section Indication for Cesarean Section: _____

PERINEUM

Intact yes no Laceration 1st 2nd 3rd 4th Episiotomy yes no

THIRD STAGE

Active Management yes no Manual Removal of Placenta yes no

Placenta Delivery Time _____ Placenta (circle): Complete Incomplete

ESTIMATED BLOOD LOSS (circle estimated amount)

Light (less than 250 mL) Moderate (250–500 mL) Heavy (more than 500 mL)

IMMEDIATE POSTPARTUM MONITORING

Time (after delivery)	Blood Pressure	Pulse	Uterine Tone (firm or soft)	Vaginal Bleeding (light, moderate, or heavy)
00:30				
01:00				
02:00				
06:00				

REMINDER!

- If pulse is > 110 or blood pressure is < 90/60, initiate **protocol for shock**.
- If uterine tone is soft or vaginal bleeding is moderate or heavy, assess for and initiate **protocol for PPH**.

BABY DETAILS

Baby's Weight _____ Weight less than 2.5 kg yes no

Sex (circle): female male

Condition: Apgar: 1^o ____ 5^o ____ Breathes spontaneously Requires Assistance

Describe resuscitation: _____

Stillbirth (circle): Fresh Macerated

General Condition (circle): Vigorous Pale and Limp Malformations (describe): _____

AT DISCHARGE

Mother Uterus Well Contracted yes no

Blood Loss (circle): Normal Heavy If heavy, action taken: _____

Baby Breastfeeding (circle): Well Poorly

Signature _____

APPENDIX 6: USE OF UTEROTONIC DRUGS IN PREGNANCY AND CHILD BIRTH CARE

Uterotonic drugs—particularly oxytocin, misoprostol, and ergometrine—are beneficial for certain obstetric indications. The indications, use, dose, availability, misuse, contraindications, side effects, storage, and cost for each of these uterotonic drugs are outlined below. This information should be used to guide the use of these drugs in Afghanistan.

Oxytocin

Indications	Oxytocin is used for labor induction, labor augmentation, active management of the third stage of labor, and management of PPH.
Use	Oxytocin should only be used for induction/augmentation of labor in a facility where cesarean section is available and only by skilled attendants (midwives, doctors, nurses with midwifery skills).
Dose	For active management of the third stage of labor the dose is 10 units IM.
Availability	Oxytocin should be available at health facilities providing labor and childbirth care. Oxytocin should also be available from pharmacies but only with a prescription from a doctor or a midwife.
Misuse	Oxytocin should not be used by unskilled persons to speed up labor and childbirth, as this may result in ruptured uterus. In countries where oxytocin is available to the general public, there have been maternal and fetal deaths associated with its use.
Contraindications	There are no contraindications to oxytocin use for active management of third stage and management of PPH. Labor induction/augmentation is contraindicated for fetal distress, placenta previa, transverse fetal lie, cord prolapse with live fetus, and obstetric hemorrhage.
Side effects	When used during labor, oxytocin may cause uterine hyperstimulation, which may result in fetal distress and possibly uterine rupture. However, in the postpartum period when used in the recommended dose, oxytocin has no known side effects. The total dose of oxytocin for the management of PPH should not exceed 60 units.
Storage	Oxytocin should be stored at 4–8°C but can be kept at room temperature for up to 48 hours before use.
Cost	Oxytocin is approximately 2–10 Afghanis per vial.

Misoprostol

Indications	Misoprostol is indicated for the following conditions: missed abortion; induction of labor following intrauterine fetal death; and prevention and treatment of PPH.
Use	For labor induction, misoprostol should only be used in facilities with the ability to provide cesarean section. In general, misoprostol should only be used by skilled attendants (midwives, doctors, nurses with midwifery skills); however, in programs that support birth planning and childbirth, it should be available at the community level through community health workers (CHWs).
Dose	For missed abortion the dose is 400–600 mcg by mouth every four hours for up to 24 hours. For induction of labor following intrauterine fetal death the dose is 50 mcg intravaginally every four hours until delivery. For prevention of PPH the dose is 600 mcg by mouth (one dose). For treatment of PPH the dose is 1,000 mcg rectally (one dose).
Availability	Misoprostol should be available at health facilities providing labor and childbirth care and through CHWs at the community level, as part of a program for birth planning and reduction of PPH at home births. Misoprostol should not be available to the general public.
Misuse	As misoprostol is a new drug in Afghanistan, efforts should be made by all healthcare providers and policy makers to limit its use to those described above. Widespread misuse of this drug will have a negative impact that may limit its availability and public health impact.
Contraindications	Induction of labor (in fetal death) with misoprostol is contraindicated for women with prior cesarean section or other uterine scars.
Side effects	Misoprostol may cause uterine hyperstimulation, which may result in fetal distress and possibly uterine rupture. For this reason its use in induction of labor is not recommended at this time. Side-effects of misoprostol are dose-dependant; doses used for labor induction are well-tolerated. Doses used for prevention and treatment of PPH have been associated with fever and shaking chills.
Storage	Misoprostol should be stored at room temperature in a dry area.
Cost	While the production costs of misoprostol are low (5–10 Afghanis per tablet), the market price ranges from 150–700 Afghanis per tablet.

Ergometrine

Indications	Ergometrine is used for the treatment of PPH.
Use	Ergometrine should only be used by skilled attendants (midwives, doctors, nurses with midwifery skills).
Availability	Ergometrine should be available at health facilities providing labor and childbirth care. Ergometrine should not be available to the general public and should not be sold in pharmacies.
Misuse	Prophylactic use of oral ergometrine after childbirth has no benefit and should be avoided.
Contraindications	Ergometrine is contraindicated in women with hypertensive disorders (pre-eclampsia, eclampsia, essential hypertension), ischemic cardiac disease, or history of a cerebrovascular accident or myocardial infarction, due to risk of vasoconstriction potentiating an ischemic event. Ergometrine should not be administered by rapid IV infusion due to risks of vasoconstriction.
Side effects	The common side effects of ergometrine include nausea, vomiting, increased BP, and headache. Other side effects, which are rare, include symptomatic myocardial and cerebral ischemia in patients with no contraindications. Patients should therefore be monitored closely after receiving this medication.
Storage	Ergometrine should be stored from 4–8°C and not exposed to light.
Cost	Ergometrine is approximately 4 Afghanis per vial.