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Obstetrical Nursing and Gynecology

Procedure Manual



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Obstetrical Nursing and Gynecology

Procedure Manual



• **Second Edition** •

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Dedicated to

my parents and my family for their
constant love and support

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Preface to the Second Edition

This book now in its second edition is more improved and useful for the students of nursing. This is the outcome of the collective effort of the midwifery nurse educators who have taught and practiced obstetrical nursing and gynecology in India. As an educator, I realized the need of formulating a practice manual to help the nursing students to improve their skill in midwifery and the success of first edition has proved that my efforts were in right direction.

The students and the practicing nurses easily can get first-hand information about the various procedures in obstetrics and gynecology from this edition. An earnest effort has been put to make the content of this book to be comprehensive, understandable and useful with necessary information, diagrams, tables and illustrations as per the new INC syllabus for BSc (N).

I sincerely look forward for this second edition to be of great help to the educator, practicing nurse and students of obstetrical nursing and gynecology as it was in its first edition.

Lily Podder

Preface to the First Edition

This book is the cumulative effort of the midwifery nurse educators who have taught and practiced obstetrical nursing and gynecology in India. As an educator, I felt that there is an increasing need to formulate a practice manual to help the nursing students to improve their skills in midwifery.

The students and the practicing nurses easily can get first-hand information about the various procedures in obstetrics and gynecology. An earnest effort has been put to make the content of this book to be comprehensive, understandable and useful with necessary information, diagrams, tables and illustrations.

I sincerely look forward for this book to be of great help to the educator, practicing nurse and students of obstetrical nursing and gynecology.

Lily Podder

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CBS Nursing Knowledge Tree



Extends its Tribute to

Florence Nightingale

*For glorifying the role of women as nurses,
For holding the title of "The Lady with the Lamp,"
For working tirelessly for humanity—
Florence Nightingale will always be
remembered for her
selfless and memorable services to the
human race.*



Florence Nightingale
(May 1820 – August 1910)



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*Coming together is a beginning. Keeping together is progress.
Working together is success.*

It gives us immense pleasure to share with you that Nursing Knowledge Tree—An initiative by CBS Nursing Division, has successfully established itself in the field of nursing as we have been standing as a strong contender by sharing approximately 50% of market share. This growth could not have been possible without your invaluable contribution as our reader, author, reviewer, contributor and recommender, and your outstanding support for the growth of our titles as a whole. Before I enunciate in detail, I would like to thank each and every Clinical Nurse, Academician and Nursing Student for the phenomenal support during the COVID-19 pandemic. It is all your support that instilled a sense of responsibility in us and provided us with strength and motivation to survive under the worst circumstances of the pandemic.



The last two years were the most crucial phase when the entire world stood still due to adversity of COVID-19. The normal life was in turmoil, and people had no idea what would be their next step and how long this crisis would persist. In the midst of all, a few things which nobody could stop is 'Change', which is inevitable. During the last two years, we have done a lot of innovations and put our best efforts in implementing those innovations to bring quality education and make sure that every person should have access to best possible education.

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3. NN Social
4. Phygital Books
5. Social Media Presence
6. Built Strong Community (Faculty/Student Ambassador Program)

As a publisher, we have been contributing to the field of Medical Sciences, Nursing and Allied Sciences and have many established titles in the market. Tradition is carrying forward the legacy of the old pattern and approach in the contemporary time. We broke the boundary of being a traditional publisher through innovations and changes. As far as publishing industry is concerned, we are the first to enter the **Nursing EdTech** with the Launch of **Nursing Next Live App**.

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We have also increased our **social media presence** through meaningful and innovative ideas and are committed to assist the nursing professionals in gaining and sharing the knowledge. We have taken the initiative to learn from the experience of the others and started **NNL Talks.** It is a platform where every nursing professional who has done exceptionally well in his/her career, toppers of any Nursing Exams and those who manage themselves in all the odds and stand firm and determined and succeed in his/her life, can share the success journey. We aim to motivate, educate and encourage the nursing professionals through various activities and posts on our social media platform.

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Today we can say this with confidence, we “CBS Publishers and NNL” have an edge over all other Indian and International Publishers. Our Approach, Vision, Mission, Concept, Content, Reach, Ideas all have a single goal that is better nursing education can lead to a better healthcare system.

Long way to go.... Together!

Looking forward to invite more young and experienced minds who can join us as Authors, Reviewers, Contributors, and Faculties and accomplish our mission of providing quality nursing education to all.

With Best Wishes

Mr Bhupesh Arora

Sr. Vice President – Publishing and Marketing
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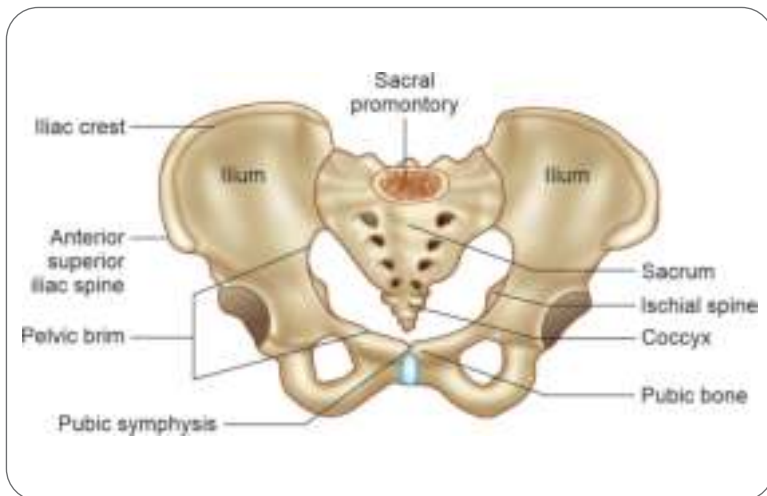
CHAPTER

1

Female Pelvis

INTRODUCTION

- Female pelvis is a bony part which is composed of four bones:
 - Sacrum
 - Coccyx
 - Two innominate bones
- Each innominate bone is formed by the fusion of three bones:
 1. Ilium
 2. Ischium
 3. Pubis



PREPARATION OF THE ARTICLE

Name of the Article	Purposes
<ul style="list-style-type: none">Female pelvis model	To describe the female pelvis
<ul style="list-style-type: none">Scale or pencil	To point out the landmarks

TYPES OF PELVIS

Traditional obstetrics have characterized four types of pelvises:

1. **Gynecoid:** Ideal shape, with round to slightly oval (obstetrical inlet slightly less transverse) inlet.
2. **Android:** Triangular inlet, and prominent ischial spines, more angulated pubic arch.
3. **Anthropoid:** The widest transverse diameter is less than the anteroposterior (obstetrical) diameter.
4. **Platypelloid:** Flat inlet with shortened obstetrical diameter.

ANATOMY OF FEMALE PELVIS

Innominate Bone

Ilium

- The major portion of the pelvis is composed of two bones; each called the ilium—one on either side of the backbone (or spinal column) and curving toward the front of the body.
- The iliac crest is the curved, upper margin of the ilium.
- The anterosuperior spine is a bony projection marking the limit of the iliac crest on the front.
- The anteroinferior spine is a bony projection running beneath the anterosuperior spine on the front side of the bone.
- The posterosuperior spine is the terminus of the iliac crest on the rear-facing side of the ilium.
- The posteroinferior spine is below the posterosuperior spine, and at the end of a larger, roughened region called the auricular surface.
- The auricular surface connects with the sacrum via ligaments to form the sacroiliac joint.

- The iliac fossa is a shallow depression on the internal surface of the upper part of the bone.
- The arcuate line is a ridge that forms the bottom border of the ilium, created by the change in curvature between the upper and lower portions of the bone.
- The greater sciatic arch is the larger U-shaped indentation at the rear margin of the lower ilium.

Ischium

- The ischium is the thick lower part of the pelvis, formed from two fused bones—one on either side.
- The ischial tuberosity is a large posteroinferior protuberance for several muscle attachments (e.g., hamstrings, adductor magnus, inferior gemellus muscles).
- The ischial spine is a posteromedial projection near the merge of the ramus and the body.
- The lesser sciatic notch is a notch on the ramus between the ischial spine and the ischial tuberosity.
- The greater sciatic notch is a larger concavity located between the posteroinferior iliac spine and the ischial spine.

Pubic Bone

- The pubic bones on either side form the front part of the pelvis. The two pubic bones meet in the middle at the **pubic symphysis**.
- **Pubic body:** This is the largest portion of the pubis. The body forms the wide, strong, middle, and flat part of the pubic bone.
- **Superior pubic ramus:** This is one of two sections of bone that branch off the pubic body. The superior pubic ramus is the upper section that connects to both the wing-shaped ilium and the upper portion of the L-shaped ischium.
- **Inferior pubic ramus:** This is the lower section of bone that branches off the pubic body. The inferior pubic ramus connects to the lower portion of the L-shaped ischium.

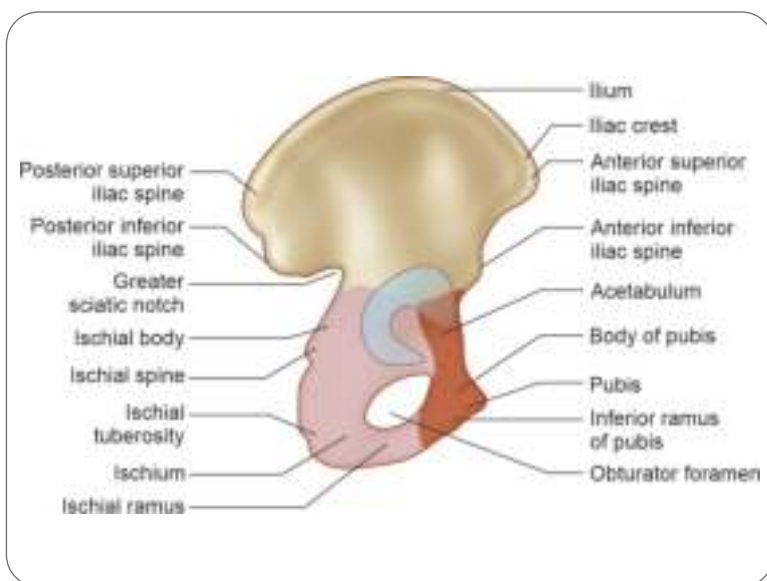
Sacrum

- The sacrum is a tapered, wedge-shaped bone at the back of the pelvis, consisting of five fused vertebrae (the small bones that make up the spinal column or backbone).

- The upper border of the first vertebra in the sacrum sticks out, and points toward the front of the body; this protuberance is the **sacral promontory**—an important landmark for labor and delivery.
- **Apex:** Directed downwards and articulates with the coccyx.
- **Pelvic surface:** It is concave, smooth, and directed forward and downward. It shows four pairs of ventral sacral foramina, for passage of ventral rami of sacral nerves.
- The anterior surface of the sacrum is concavely referred to as the hollow of the sacrum. Laterally extends into sacral ala or wing. Four pairs of holes or foramina pierce the sacrum through these nerves from cauda equina emerges to pelvis organ. The posterior surface is rough to receive an attachment of muscles.

Coccyx

At the bottom of the sacrum is a tail-like bony projection called the coccyx.



Pelvic Joints

There are four joints in the pelvis.

Joints	Types	Location
Symphysis pubis	Fibrocartilaginous joint	In-between two pubic bones
Sacroiliac joint (left and right)	Synovial joint	In-between sacrum and ilium bones
Sacrococcygeal joint	Synovial hinge joint	In-between sacrum and coccyx bones

Pelvic Ligaments

The pelvic girdle has great strength and stability in order to fulfill its functions of support.

Ligaments	Location
Sacroiliac ligaments	Pass in front of and behind each sacroiliac joint
Pubic ligaments	Pass in-between two pubic bones
Sacro tuberos ligaments	Pass from the sacrum to the ischial tuberosity
Sacrospinous ligament	Pass from sacrum to the ischial spine
Sacrococcygeal ligaments	Pass from the sacrum to coccyx

False Pelvis

The false pelvis is the portion above the pelvic brim and has no significance relevant to passage of the fetus through the pelvis. The pelvis is divided by the linea terminalis into the false pelvis above and true pelvis below it.

The Pelvic Canal

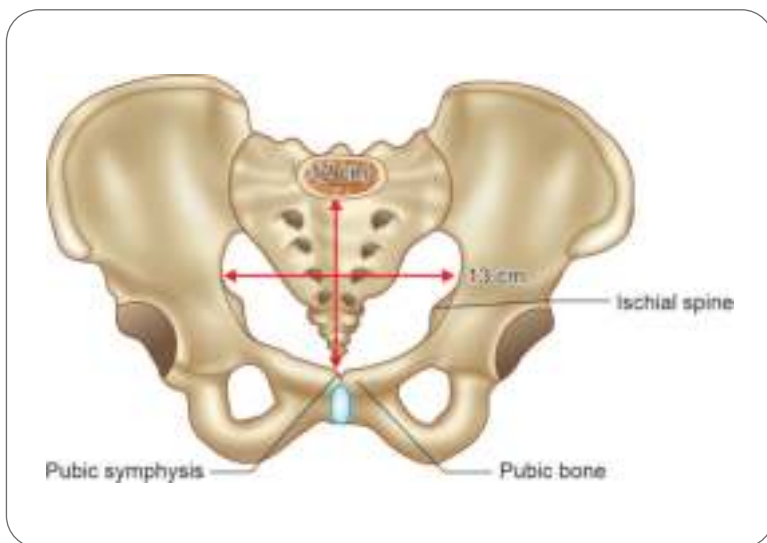
The roughly circular space enclosed by the pubic bones at the front, and the ischium on either side at the back, is called the pelvic canal—the bony passage through which the baby must pass. This canal has a curved shape because of the difference in size between the anterior (front) and posterior (back) borders of the space created by the pelvic bones.

True Pelvis

The true pelvis is the area between the pelvic inlet, and the pelvic outlet which contains the urinary bladder, the colon and the internal reproductive organs.

The Pelvic Inlet

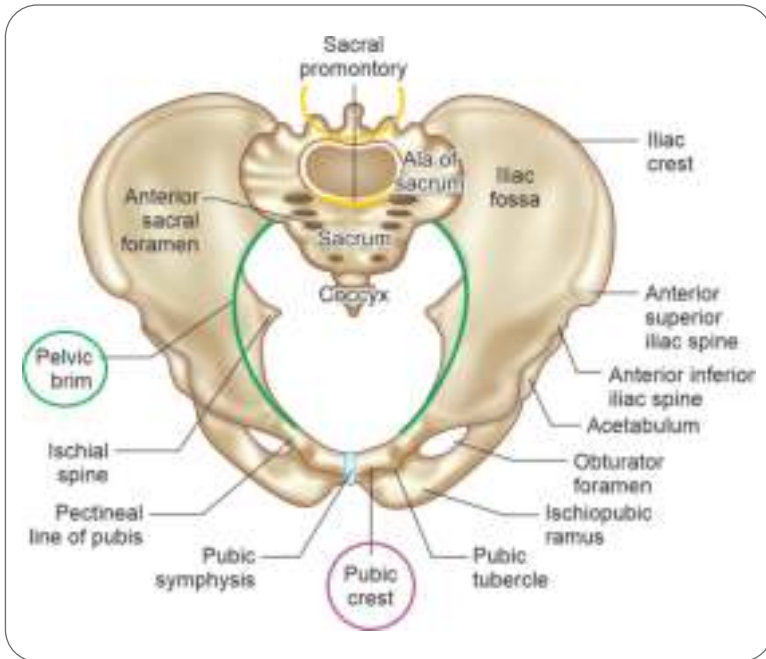
The pelvic inlet is formed by the pelvic brim, it is rounded, except where the sacral promontory and the ischial spines project into it.



The Landmarks of the Inlet

These are the fixed anatomical points on the brim—from posterior to anterior:

1. Sacral promontory
2. Sacral ala or sacral wings
3. Sacroiliac joints
4. Iliopectineal eminence
5. Iliopectineal line
6. Pectineal line
7. Pubic tubercle
8. Pubic crest
9. Upper border of symphysis pubis



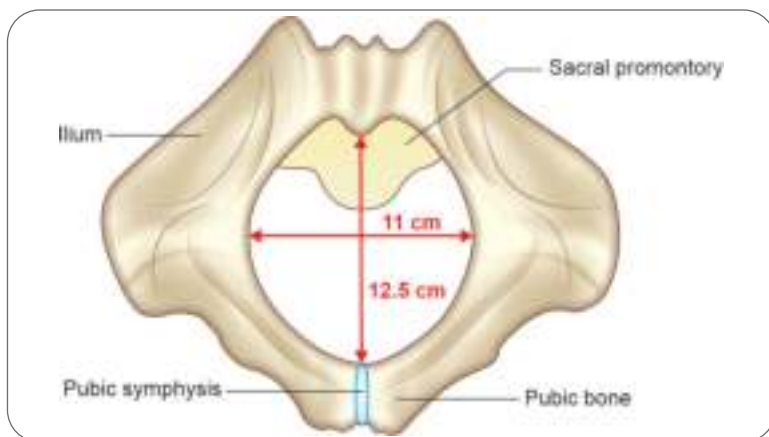
The Pelvic Cavity

The cavity extends from the brim above to the outlets below. It is short and curved with the posterior wall being considerably longer than the anterior wall resulting in a J-shaped axis with the curve directed forward called curve of Carus.

The Pelvic Outlet

The pelvic outlet is formed by the lower border of the pubic bones at the front, and the lower border of the sacrum at the back. The ischial spines point into this space on both sides.

It is further classified as anatomical and obstetrical outlet.



Pelvis diameters in centimeters are shown here:

Pelvis diameters			Extension	Measurement
Inlet	Antero-posterior diameter	Anatomical Conjugate	Distance between mid-point of sacral promontory to inner margin of upper border of symphysis pubis.	It measures about 11 cm.
		Obstetric conjugate	<ul style="list-style-type: none"> Distance between mid-point of sacral promontory to prominent bony projection in midline of inner surface of symphysis pubis. 	Shortest diameter of inlet, measures about 10–10.5 cm
		Diagonal conjugate	Distance between lower border of symphysis pubis to mid-point of sacral promontory.	It measures about 12 cm

Contd...

Pelvis diameters			Extension	Measure- ment
	Transverse diameter	Distance between two farthest points on pelvic brim over ilio-pectineal lines.		It measures about 13 cm
	Oblique diameter	There are two oblique diameters right and left. Each extends from one sacroiliac joint to opposite ilio-pectineal eminence		It measures about 12 cm
Cavity				
	<ul style="list-style-type: none">• Anterior wall formed by pubic bone and symphysis pubis, measures 4 cm. The posterior wall formed by curve of sacrum and coccyx, measures 12 cm.• Shape: Almost round.• Anteroposterior diameter extended from midpoint of posterior surface of symphysis pubis to junction of 2nd and 3rd sacral vertebrae.• Transverse and oblique diameter cannot measure exactly as it overlies soft tissues, so roughly we can say overall diameter 12 cm.			
Outlet				
1. Anatomical outlet	Anteroposterior diameter	It extends from lower border of symphysis pubis to tip of coccyx,		It measures about 13 cm.
	Transverse diameter	It is distance between tip of two ischial tuberosity		It measures about 11 cm
2. Obstetrical outlet	Anteroposterior diameter	It extends from the lower border of symphysis pubis to tip of sacrum		It measures about 11 cm.
	Transverse diameter	It is bispinous diameter, it is distance between tip of two ischial spine		It measures about 10.5 cm.

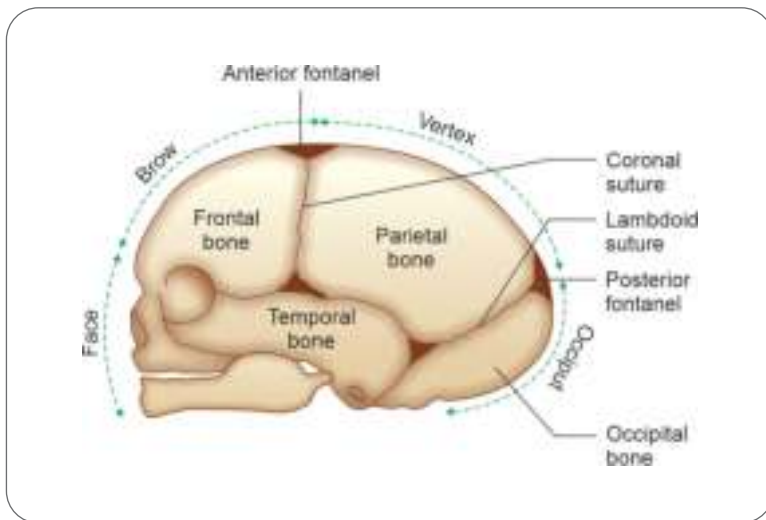
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Pelvic canal	Anteroposterior diameter (cm)	Oblique diameter (cm)	Transverse diameter (cm)
Brim	11	12	13
Cavity	12	12	12
Outlet	13	12	11

Fetal Skull

INTRODUCTION

The fetal skull is a complex structure consisting of 29 irregular flat bones with 22 of these paired symmetrically.



OBJECTIVE

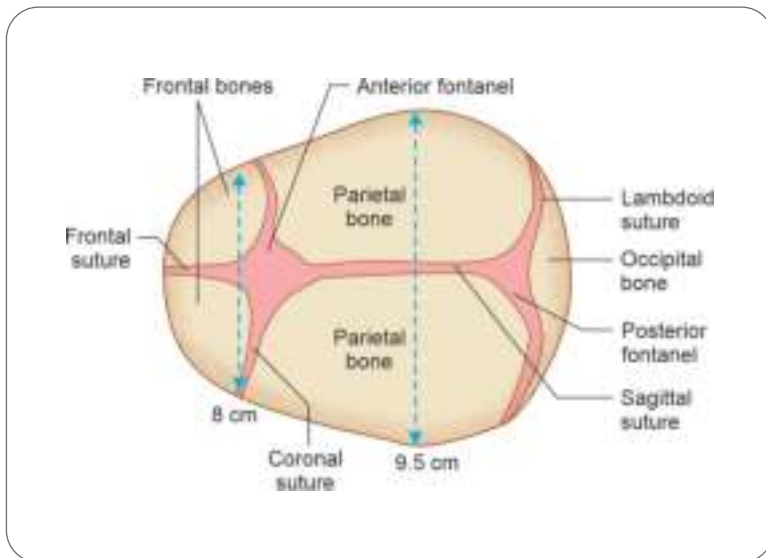
To learn the parts of fetal skull as basics of obstetrics and gynecology.

PREPARATION OF THE ARTICLE

Name of the article	Purposes
Fetal skull model	To describe the fetal skull
Scale or pencil	To point out the landmarks

Bones: The fetal skull bones are as follows:

- The **frontal bone**, which forms the forehead. In the fetus, the frontal bone is in two halves, which fuse (join) into a single bone after the age of eight years.
- The two **parietal bones**, which lie on either side of the skull and occupy most of the skull.
- The **occipital bone**, which forms the back of the skull and part of its base. It joins with the cervical vertebrae (neck bones in the spinal column, or backbone).
- The two **temporal bones**, one on each side of the head, closest to the ear.



Sutures: Sutures are joints between the bones of the skull.

- The **lambdoid suture** forms the junction between the occipital and the parietal bone.
- The **sagittal suture** joins the two parietal bones together.
- The **coronal suture** joins the frontal bone to the two parietal bones.
- The **frontal suture** joins the two frontal bones together.

Fontanel: Wide gap in the suture line is called fontanel. It is covered by thick membranes and the skin on the baby's head, protecting the brain underneath the fontanel from contact with the outside world.

- The **anterior fontanel** (also known as the bregma) is a diamond-shaped space toward the front of the baby's head, at the junction of the sagittal, coronal and frontal sutures. It is very soft and pulsation can be felt by placing fingers gently over the fontanelle. The skin over the fontanel can be seen 'pulsing' in a newborn or young baby. It closes at 18 months of age.
- The **posterior fontanel** (or lambda) has a triangular shape, and is found toward the back of the fetal skull. It is formed by the junction of the lambdoid and sagittal sutures. It closes at 6 weeks of age.

Presenting Parts of the Fetal Skull

Vertex: This is a quadrangular area bounded anteriorly by bregma and coronal sutures; and posteriorly by lambda and lambdoid sutures and laterally by arbitrary line passing through the parietal eminence.

Brow: This is an area bounded on one side by root of nose and supraorbital ridge and other side by the bregma and coronal sutures.

Face: This is an area bounded on one side by the root of the nose along with the supraorbital ridges and other side by the junction of the chin or floor of mouth with the neck.

Sinciput: It is an area in front of the anterior fontanelle corresponding to the forehead.

Occiput: It is an area limited to occipital bone.

Mentum: Chin of the fetus.

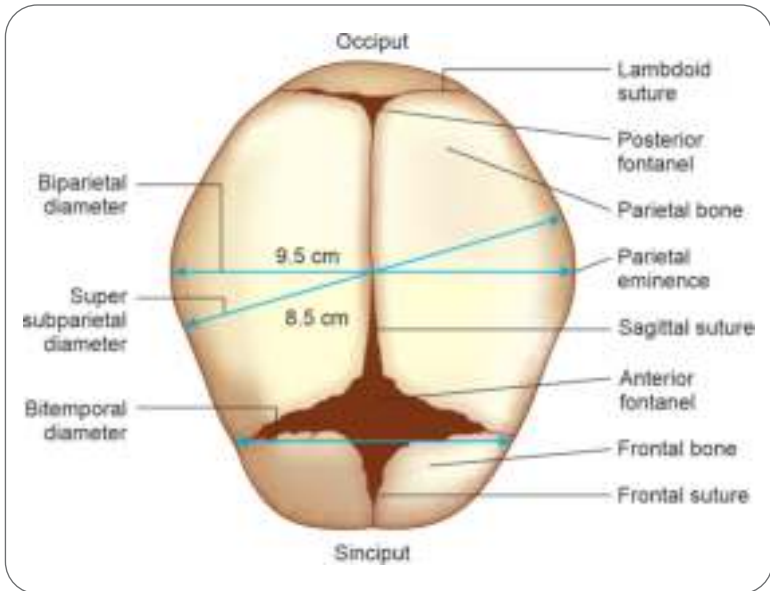
Parietal eminences: Prominent eminences on each of the parietal bones.

Subocciput: This is the junction of fetal neck and occiput, sometimes also known as the nape of the neck.

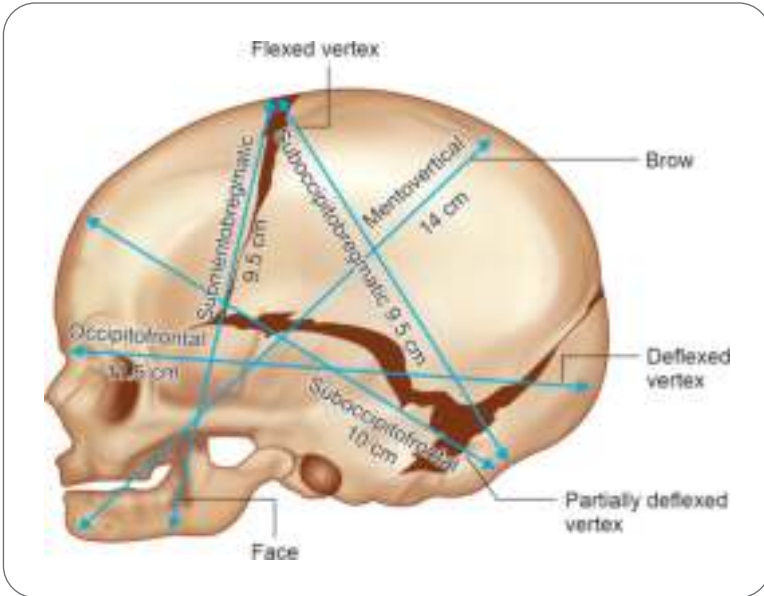
Submentum: This is the junction between the neck and chin.

Important Diameters of Fetal Skull

Diameters		Extension	Measurements
Anteroposterior diameters			
	Sub occipitobregmatic	The diameter from below the occipital protuberance to the center of the anterior fontanel.	9.5 cm
	Sub occipitofrontal	The diameter from below the occipital protuberance to the center of the frontal suture.	10 cm
	Occipitofrontal	The diameter from the occipital protuberance to the glabella.	11.5 cm
	Mentovertical	The diameter from the point of the chin to the highest point on the vertex, slightly nearer to the posterior than to the anterior fontanel.	13.5 cm
	Submentovertical	The diameter from the point where the chin joins the neck to the highest point on the vertex.	11.5 cm
	Submentobregmatic	The diameter from the point where the chin joins the neck to the center of bregma.	9.5 cm
Transverse diameters			
	Biparietal diameter	It is between the two-parietal eminence.	9.5 cm
	Supersubparietal diameter	The distance from above the parietal eminence to below the opposite parietal eminence.	8.5 cm
	Bitemporal diameter	The diameter between the two furthest points of the coronal suture at the temples.	8 cm
	Bimastoid diameter	Between the tips of the mastoid processes.	7.5 cm



Presenting part	Engaging AP diameter	Measurement in cms
Vertex (completely flexed head)	Suboccipitobregmatic	9.5
Vertex (incompletely flexed head, slight deflexion)	Suboccipitofrontal	10
Extended vertex (in marked deflexion)	Occipitofrontal	11.5
Brow (partial extension)	Mentovertical	14
Face	Submentobregmatic	9.5



Pelvimetry

INTRODUCTION

Pelvimetry is the measurement of the female pelvis. Clinical pelvimetry attempts to assess the pelvis by clinical examination. Pelvimetry can also be done by radiography and MRI.

OBJECTIVE

To assess the adequacy of pelvis for delivery of fetus.

INDICATION

Primigravida mother at 37 weeks and multigravida mother at the onset of labor.

PURPOSE

Identification of any cephalopelvic disproportion.

PREPARATION

Preparation of Environment

Maintain privacy.

Preparation of Mother/Patient

Explain the procedure to the mother and how to cooperate during procedure.

Preparation of the Article

Name of the article	Purposes
Sterile gloves	For examination
Lubricant jelly	
Pelvimeter	



Pelvimeter

PROCEDURE

Low-dose 3D-rendered CT scans can be used for estimating the main pelvimetry parameters.

Internal Pelvimetry

- Through vaginal examination.
- At first, prenatal visit screen for obvious contractions.
- In late pregnancy (preferred)—After 37 weeks GA or at the onset of labor—the soft tissues are more distensible—more accurate—less uncomfortable.

Pelvic Inlet

Palpation of pelvic brim:

- The index and middle fingers are moved along the pelvic brim.
- Note whether round or angulated, causing the fingers to dip into a V-shaped depression behind the symphysis.

Diagonal conjugate:

- Measured from the lower border of the pubis to the sacral promontory using the tip of the second finger and the point where the index finger of the other hand meets the pubis
- Normally 12.5 cm and cannot be reached.
- If it is felt the pelvis is contracted
- True conjugate = diagonal conjugate – 1.5
- Not done if the head is engaged.

The Mid-Pelvis

- **Symphysis:** Height, thickness and curvature
- **Sacrum:** Shape and curvature—Concave usually. Flat or convex shape may indicate AP constriction throughout the pelvis.
- **Side walls:** Straight, convergent or divergent starting from the pelvic brim down to the base of ischial spines. Normally almost parallel or divergent.
- **Ischial spines prominence:** The ischial spines can be located by following the sacrospinous ligament to its lateral end. Blunt (difficult to identify at all),—Prominent (easily felt but not large) or—very prominent (large and encroaching on the mid-plane).
- **Interspinous diameter:** If both spines can be touched simultaneously, the interspinous diameter is 9.5 cm, i.e., inadequate for an average-sized baby.
- **Sacrospinous ligament:** Its length is assessed by placing one finger on the ischial spine and one finger on the sacrum in the midline. The average length is 3 fingerbreadths.
- **Sacrosciatic notch:** If the sacrospinous ligament is 2.5 fingers, the sacrosciatic notch is considered adequate. Short ligament suggests forward curvature of the sacrum and narrowed sacrosciatic notch.

Pelvic Outlet

- **Subpubic angle:** Assessed by placing a thumb next to each inferior pubic ramus and then estimating the angle at which they meet.

Normally, it admits 2 fingers. (90) – Angle $\leq 90^\circ$ suggests contracted transverse diameter in the midplane and outlet.

- **Mobility of the coccyx:** By pressing firmly on it while an external hand on it can determine its mobility.
- **Anteroposterior diameter of the outlet:** From the tip of the sacrum to the inferior edge of the symphysis. (>11 cm)
- **Bituberous diameter:** Done by first placing a fist between the ischial tuberosities. An 8.5 cm distance (4 knuckles) is considered to indicate an adequate transverse diameter.

Adequate Pelvis Data Finding

- Forepelvis (pelvic brim) Round
- Diagonal conjugate ≥ 11.5 cm
- Symphysis Average thickness, parallel to sacrum
- Sacrum: Hollow, average inclination
- Side walls: Straight
- Ischial spines: Blunt
- Interspinous diameter ≥ 10.0 cm
- Sacrosciatic notch 2.5–3 finger: Breadths
- Subpubic angle: 2 fingerbreadths (90°)
- Bituberous diameter –4 knuckles (>8.0 cm)
- Coccyx: Mobile
- Anteroposterior diameter of outlet ≥ 11.0 cm

Radiological Pelvimetry

- **X-ray:** Limited value. No role in guiding management.
- **CT:** Ease of performance, interpretation, and 10% less radiation exposure to the fetus. Can evaluate fetal lie and position.
- **MRI (method of choice):** Lack of ionizing radiation, higher resolution and contrast but also higher cost.

Parameter		Maximum intensity projections	Thin slices	End points	Normal measures
Pelvic inlet	Transverse diameter of the pelvic inlet		Coronal plane	The iliopectineal lines , at widest transverse distance.	13–14.5 cm.
	Obstetric conjugate	Median plane, 20 mm thick	Same, but may require minor side-to-side scrolling to visualize both end points.	The line between the closest bony points of the sacral promontory and the pubic bone next to the symphysis.	10–12 cm.
Interspinous distance			Axial plane	The line between the closest bony points of the ischial spines .	9.5–11.5 cm
Pelvic outlet	Sagittal pelvic outlet diameter		Same, but may require minor side-to-side scrolling to visualize both end points.	The closest bony points of the sacrococcygeal joint and the pubic bone next to the symphysis. This is also called the <i>obstetric anteroposterior diameter of the pelvic outlet</i> , to distinguish from the <i>anatomic</i> one which includes the coccyx. However, the coccyx is normally pushed away during childbirth by laxity in the sacrococcygeal joint.	9.5–11.5 cm
	Intertuberous diameter		Axial plane	The closest bony points of the ischial tuberosities.	10–12 cm

Aftercare of the Patient and the Article

- Clean the female genital area.
- Provide the comfortable position to the patient.
- Clarify doubts, if any.
- Replace the articles to the utility room.
- Discard the gloves and used items in respective dustbins following guidelines.
- Wash the hands

Recording and Reporting

Document the findings in the notebook.

Preconception Counseling

INTRODUCTION

Preconception counseling is a visit with health care provider where health care provider discusses many aspects of pregnancy and guides to plan for a healthy pregnancy. This appointment should happen at least 3 months before planning a pregnancy.

It's a set of interventions that aims to identify and modify biomedical, behavioral and social risks to a woman's health or pregnancy outcome through prevention and management.

PURPOSES

- To have a safe, healthy and happy pregnancy.
- To plan for a future pregnancy.
- To discuss family history, risk factors, medical conditions and lifestyle.
- An important part of a planned and healthy pregnancy.

Key points: This appointment should happen at least 3 months before planning a pregnancy.

GOALS OF PRECONCEPTIONAL CARE

- Screening for high risk factors
- Medical and surgical history
- Previous obstetric history

- Personal history
- Family history
- Physical examination
- Laboratory screening

PROCEDURE

The following aspects should be assessed during preconception counseling:

- **Family history:** Both spouse family history—can provide insight about any genetic conditions or disorders that may be passed on to a child. This information may also tell health care provider if they need to perform extra tests or watch for the development of certain conditions during pregnancy. Specific parts of family health history to share with doctor could include a history of:
 - Hypertension (high blood pressure)
 - Diabetes
 - Mental disorders
 - Blindness
 - Deafness
 - Birth defects (congenital conditions)
 - Ethnic-related diseases (Tay-Sachs, sickle trait/sickle cell disease)
 - Twins or multiples
- **General medical history:** It is important for health care provider to see the whole picture of health before pregnancy to discuss:
 - Surgeries, hospitalizations or transfusions you may have had in the past.
 - Any pre-existing medical conditions.
 - Any allergies.
 - Any medications you may currently be taking.
- **OBG/GYN history:** Some STDs and vaginal infections can affect a woman's ability to conceive. Specific topics the health care provider may discuss include:
 - Any previous pregnancies.
 - Menstrual history.

- Contraceptive use.
- Any sexually-transmitted diseases (STDs).
- Any history of known uterine abnormalities.
- Pap smears.
- Vaginal infections.
- **Lifestyle:** A healthy lifestyle is very important during pregnancy. This includes a balanced and nutritious diet, exercise, and stopping any drug use and smoking, as well as exposure to any environmental hazards.
- **Vaccination:** Health care provider may need to update or give additional vaccinations before you become pregnant.

Process During Preconception Counseling Appointment

During preconception counseling, health care provider may do several tests. These tests may include:

- **A physical exam:** health care provider may do a physical exam during preconception appointment. This exam may involve:
 - Checking heart, lungs, breasts, thyroid, and abdomen.
 - Doing a pelvic exam.
 - Checking blood pressure.
 - Recording weight.
- **Lab tests:** These tests are used to check for various diseases and conditions. Lab tests may include:
 - Testing for rubella
 - Testing for hepatitis
 - Complete blood count (CBC)
 - A pap smear
 - Diabetes screening
 - Testing for thyroid issues
 - Testing for HIV

The health care provider may discuss how to chart the menstrual cycles and also she could advise a prenatal vitamin with 400 to 800 micrograms of folic acid.

After Preconception Counseling Appointment

These could be a mix of lifestyle changes and health care suggestions, including:

Lifestyle advice	Dietary advice
Losing weight in case of overweight	Women should take 400 µg of folic acid daily, for at least 3 months' preconception.
Quitting smoking or drinking.	400 IU should be prophylactically offered to all women pre- and during pregnancy, 1,000 IU to obese women (BMI >30) and 20,000 IU weekly for four to 6 weeks for women who are vitamin D deficient
Not taking medications that could be harmful to the pregnancy (always speak to your doctor before starting or stopping a medication).	30 mg Iron should be started preconceptionally.
Updating immunizations.	
Taking recommended vitamins (including prenatal vitamins).	
Regular exercise	

BARRIERS TO PRECONCEPTIONAL COUNSELING

- Unplanned pregnancy –33–50% of pregnancies are unplanned.
- Nonmodifiable risk factors.
- Financial issues.
- Unprepared health care providers.

Overcoming Barriers to Preconceptional Care

- Educating women of reproductive age about pregnancy.
- Schedule a preconception visit for women interested.
- Incorporate into routine health maintenance visits.
- Early recognition of high risk women through routine screening and examination.

Pregnancy Test

INTRODUCTION

All tests that are in current use detect the presence of human chorionic gonadotropin (hCG). Early detection of pregnancy allows early initiation of care.

PREGNANCY TESTING METHODS

There are two types of pregnancy tests:

A urine sample and a sample of blood. Both tests detect the presence of a hormone called hCG. This hormone is produced by the placenta shortly after the embryo attaches to the uterine lining and builds up rapidly in the body in the first few days of pregnancy.

The Pregnancy Test Kit

- An oval-shaped test card.
- A plastic dropper—to be disposed of after the test.
- A drying agent in a sachet—this keeps the pouch moisture proof and is not required for the test.

Procedure for Performing the Test

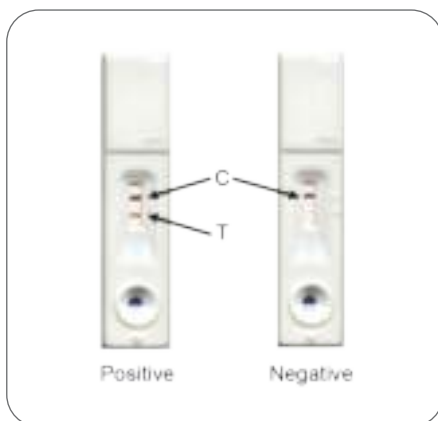
The test is to be performed in the morning for optimal results, although this is not mandatory.

- Store pregnancy tests kit in the refrigerator. Make sure to bring the test kit to room temperature before using it.

- Collect urine in a clean, dry glass or plastic container. Ensure that there is no detergent residue in the container.
- Take out the pregcolor card and place it on a flat surface.
- Draw out a little urine with a dropper (provided with the kit) and put just two drops in the circular test well that is usually marked “S”. Do not spill urine on the reading strip.
- Wait for 3–5 minutes (depending on manufacturer’s instructions) and then read the test results. Trying to read the results before the stipulated time or waiting too long, can both lead to inaccurate readings.

Interpretation of the Results

- Look at the regions marked “C” and “T” on the test card. “C” indicates a control. This band must always appear because this is the comparison band. “T” indicates the test sample.
- If only one pink/purple band appears, in the region marked “C”, it means that the test is negative for pregnancy.
- If two pink/purple bands appear, one in the region marked “C” and the other in the region marked “T”, it means that the test is positive for pregnancy.
- In case no bands appear, then the test is invalid. Repeat the test with a new pack after 72 hours.
- If the line formed in region “T” is faint, this could be due to low levels of hCG hormone. In case of a faint band, repeat the test with a new pack after 72 hours.



For Positive Test

If the test is positive, visit obstetrician to confirm the pregnancy.

For Negative Test

If the test is negative, you're probably not pregnant. But you may be pregnant if:

- The test is past its expiration date.
- You took the test the wrong way.
- You tested too soon.
- Your urine is too diluted because you drank a lot of fluids right before the test.
- You're taking certain medications, such as diuretics or antihistamines.

CHAPTER

6

Antenatal History Taking and Antenatal Assessment

INTRODUCTION

The prenatal period is the preparatory one, both physically, in terms of fetal growth and maternal adaptations, and psychologically, in terms of anticipation of parenthood. Regular prenatal visits, ideally beginning soon after the first missed menstrual period, offer opportunities to ensure the health of the expectant mother and her infant.

DEFINITION AND MEANING

History and assessment are an integral part to the clinical reasoning process. Diagnosis, goals and interventions evolve from history and assessment required for the nurse to make clinical decisions. Antenatal history taking and assessment is one of the important components of the antenatal care.



OBJECTIVES

Overall objective:

It is to ensure a normal pregnancy with delivery of a healthy baby from a healthy mother.

Specific objectives:

- To assess the health status of the mother and the fetus, to formulate the plan of subsequent management.
- To monitor the growth and development of the fetus.
- To calculate the estimated date of birth.
- To obtain baseline information against which the subsequent changes are assessed and which are of importance in the determination of the gestational age.
- To screen the “high risk” cases.
- To prevent or to detect and treat at the earliest any untoward complications.
- To ensure continued medical surveillance and prophylaxis.

**PREREQUISITES (PRINCIPLES)**

- Wash hands before and after the procedure to prevent cross infection.
- Proper explanation of the procedure should be given to the mother to gain cooperation.
- Ask the mother to evacuate her bladder.
- Mother should be placed in comfortable position (dorsal position with slightly flexed knees) and should be convenient for the nurse.
- Maintain privacy by providing screen or conduct in a private room, if available.
- Abdomen should be fully exposed.
- Warm hands by rubbing it with each other before touching the abdomen and hands should not be removed until the procedure is over.

- Provide good source of light.
- Collect required articles at bed side and stand on the right side of the mother.
- Recording and reporting to be done.

ARTICLES REQUIRED

Articles	Purposes
Bed linen	To cover the mother
Vital signs tray	To measure vital signs
Measuring tape and scale	To measure abdominal girth fundal height and the height of the mother
Weighing machine	To take weight of the mother
Fetoscope/stethoscope	To auscultate fetal heart sound
Cotton swab	To clean the secretion
Paper bag	To collect the soiled cotton swab
Watch	For pulse rate and fetal heart rate

HISTORY TAKING

I. Identification Data for the Mother and Husband

Data for mother and husband identification			
a. Name	:	a. Age	:
b. Age in years	:	b. Education	:
c. Address	:	c. Occupation	:
d. Education	:	d. Monthly income	:
e. Occupation	:	e. Blood group	:
f. Monthly income	:		
g. Religion	:		
h. Marital status	:		
i. Duration of marriage	:		
j. Blood group	:		

II. Presenting Complaints

The geneses of the complaints are to be noted stating the mode of onset, progress and duration. Even if there is no complaint, enquiry is to be made about the sleep, appetite, bowel habit and urination.

III. Gynecologic History

- **Menstrual history**
Age of menarche :
Duration of menstrual cycle :
Duration of cycles in days :
Regularity :
Amount of flow :
Associated symptoms :
- **Contraceptive history** (knowledge, practice, type, onset and time of withdrawal, complication/side effects of various temporary and permanent methods of contraception).
- **Any history of infertility** (type, duration and treatment).
- **Gynecologic anomalies** (type and treatment).
- **History of any sexually transmitted diseases** (type, duration and treatment).
- Sexual history.

IV. Obstetric History

Gravida: Para:
Abortion: Living:
Stillbirth:

- **History of previous pregnancies/deliveries**

Sl. no.	Type of delivery				Nature of labor and delivery	Age (in years) sex of child (Boy/Girl)		Birth Wt.	Postnatal care (PNC) condition		Remarks
	Year	PT	FT	Abortion		Age	Sex		Mother	Baby	
											Mention about the breast-feeding and immunization status of the child

- **Present pregnancy**

LMP:

EDD:

Period of gestation:

Date of booking:

No. of ANC visits:

- **Any history of minor ailments**

Minor ailments	Yes	No	Do not know
Morning sickness/nausea/vomiting			
Backache			
Acidity/heart burn			
Constipation			
Leg cramps			
Varicose veins			
Ankle edema			
Vaginal discharge			
Any other (specify)			

- **Date of quickening:**

- **H/O drugs/radiation:** Yes/No

If yes specify:

- **Weight:**

- Prepregnant weight : kg

- Present weight : kg

- Total weight gain : kg

- **No. of TT injection:** TT₁ TT₂

(Tick in the specific box with date)

V. Past Medical/Surgical History

Medical conditions	Yes	No	Do not know
Heart disease			
Hypertension			
Tuberculosis			
Diabetes mellitus			
Urinary tract infection			

Contd...

Medical conditions	Yes	No	Do not know
Drug sensitivity			
Allergy			
Any other			
Surgery: (Specify if any and mention the year)			
Pelvic			
Abdominal			

VI. Family History and Social History

Conditions	Yes	No	Do not know
Twins			
Congenital malformation			
Hypertension			
Diabetes mellitus			
Cardiac diseases			
Any other conditions			

VII. Dietetic History

Vegetarian/nonvegetarian :

Frequency of meal per day :

Pattern of meal : (Write about the type of food in details)

VII. Drug History

- Antihypertensive
- Hypoglycemic
- Antidepressant
- Corticosteroid
- Anticoagulant

OBSTETRICAL EXAMINATION

I. General Head to Toe Examination

1. General Examination

- a. Height : _____ cm. Weight : _____ kg.
- b. Temperature : _____ °F Pulse : _____/min.
- c. Respiration : _____ /min. BP : _____ mm Hg
- Built : Average/thin/obese
- Gait : Normal/lordosis/scoliosis/pregnancy walk
- Nutritional status : Good/average/poor
- Head and scalp :
- Face : Chloasma present/not present
- Eyes : Palpebral conjunctiva:
- Pallor present Yes/No
- Ears :
- Nose :
- Mouth : Halitosis Yes/No
- Dental caries Yes/No
- Gums : Healthy/bleeding Yes/No
- Lips : Pallor present Yes/No
- Neck : Glands enlarged/not enlarged
- Breast : Soft/engorged
- : Primary areola Yes/No
- : Secondary areola Yes/No
- : Visible vein Yes/No
- : Montgomery's tubercle Yes/No
- Nipples : Well formed Yes/No
- Normal/cracked/retracted
- Secretion present Yes/No
- Heart :
- Lungs :
- Liver and spleen :
- Perineum :
- Limbs : Pedal edema present Yes/No
- Type :

General Appearance

2. Abdominal Examination

- **Inspection**

- Shape
- Size
- Presence of any incision scar or herniation
- Skin condition : Striae gravidarum Present/Absent
: Striae albicans Present/Absent
: Linea nigra Present/Absent
: Any infection Yes/No, If yes, specify.....
- Flanks : Full/not full
- Umbilicus : Everted/not everted/flat
- Active fetal movements : Seen/not seen

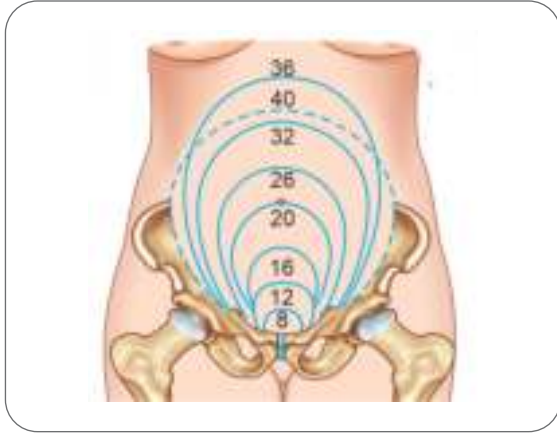


- **Measurements**

- Abdominal girth (in cm and inches) : ____ cm; ____ inches
- Fundal height (in cm and weeks) : ____ cm; ____ weeks

- **Palpation**

- Fundal palpation :
- Right lateral :
- Left lateral :
- Pelvic grip :
- Pawlick grip :



- **Auscultation**

- Location of FHS :
- FHR : ____/min/regular



- **Conclusion**

- Lie : Longitudinal/transverse/oblique
- Presentation : Cephalic/breech/shoulder
- Position : LOA/ROA/LOT/ROT/LSA/RSA
- Attitude : Flexion/deflexion/extension
- Presenting part : Engaged/not engaged

Procedure

Preliminaries:

- Provide privacy
- Stand at the right side of the patient
- Hands should be warm
- Verbal consent
- Evacuate bladder
- Lie in the dorsal recumbent position
- Thighs slightly flexed
- Abdomen fully exposed

1. Inspection

Inspect for size, shape, contour, flank, skin, bladder, fetal movements

2. Palpation

Fundal grip (fetal poles):

- Both hands placed over the fundus and the contents of the fundus determined.
- A hard smooth, round pole indicates a fetal head.
- A softer triangular pole continuous with the fetal body is the fetal buttocks (breech).

Lateral grip (fetal lie):

- Move both hands in a downward direction from the fundus along the sides of the uterus to determine the “lie” of the fetus.
- Can also determine which side the fetal back is situated by feeling the firm regular surface of the fetal back on one side and the irregular, lumpy surface/knob like structures as the fetal limbs on the other side.

Pawlik's grip/second pelvic grip:

- The thumb and middle fingers of the right hand are placed wide apart over the suprapubic area to determine the presenting part.
- Presenting part of fetus is the lowest most part of the fetus at the inlet of the pelvis (the lower fetal pole as opposed to the fetal pole in the fundus).

Pelvic grip:**a. The attitude of the fetal head:**

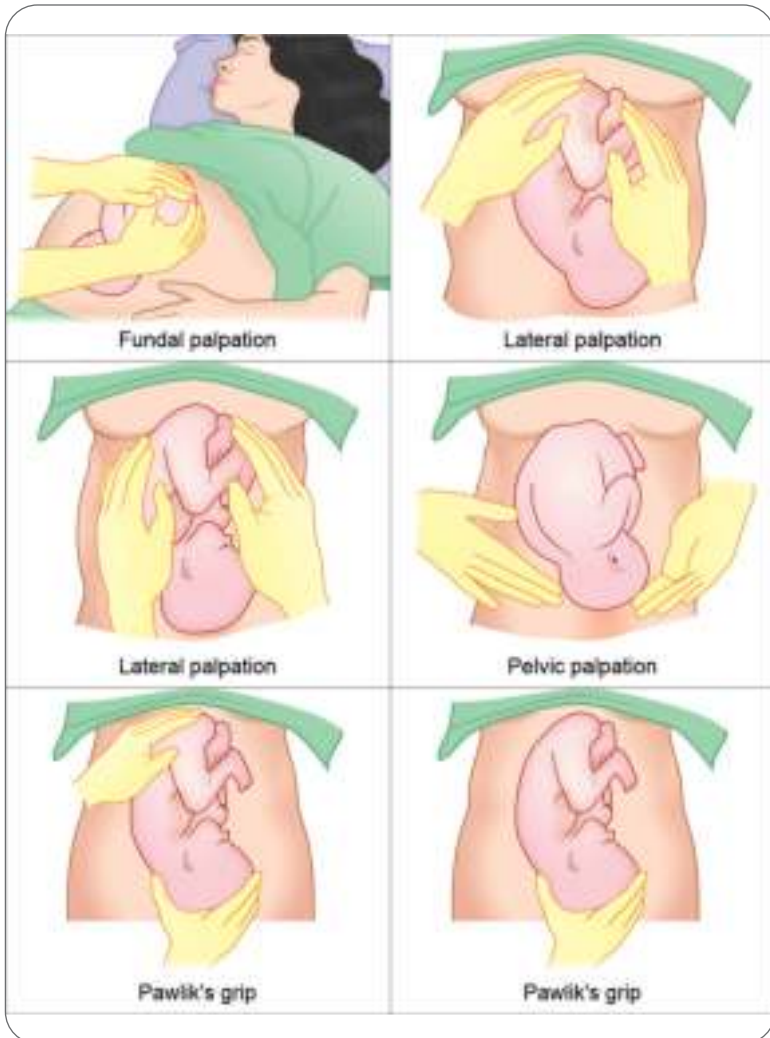
- The examiner turns around to face patients' feet.
- Each hand placed on either side of the fetal trunk lower down along with the border of iliac crest and anterior superior iliac spine. The hands moved downward toward the fetal head.
- Note the point to which hands first touches the fetal head (This point called cephalic prominence and occipital prominence).
- Cephalic prominence helps to determine the attitude (i.e., flexion, deflexed or extended) of fetal head.
- If cephalic prominence is lower than the occipital prominence then the fetal head is well flexed.
- If cephalic prominence is on the same line of occipital prominence then the fetal head is deflexed.
- If cephalic prominence is above than the occipital prominence then the fetal head is extended.

b. Engagement of the fetal head:

The engagement of the fetal head is determined by noting the presence or absence of occipital and sincipital pole while moving the hand downwards. It also may be determined by convergence or divergence of the finger tips over the symphysis pubis. When the fingers are divergent then the fetal head is engaged and when the fingers are convergent then the fetal head is not engaged.

3. Auscultation of the Fetal Heart

- The fetal heart sound may be auscultated with a stethoscope/Pinard's fetoscope/Doppler machine
 - Best place to listen is over the fetal back, closer to the cephalic pole which may form by making an imaginary line over the fetal back position from umbilicus to the anterior superior iliac spine in cephalic presentation. Place the stethoscope/Pinard's fetoscope/Doppler machine on the midpoint of the imaginary line drawn. Listen to the fetal heartbeat for full 1 minute once it is clearly audible and count.
- The normal fetal heart rate is 110–160 beats/min.



Aftercare of the Patient and Articles

- Make the mother comfortable.
- Inform her about findings of examination.

- Ask for any discomfort and record it.
- Replace all the articles properly.

Recording and Reporting

- Record all the findings in the history taking and assessment file.
- Inform any abnormalities to the superior and take prompt action.
- Record any other information that mother has given.

Calculation of Gestational Age, Estimated Due Date

INTRODUCTION

The estimated due date (EDD or EDC) is the date that spontaneous onset of labor is expected to occur. The due date may be estimated by adding 280 days (9 months and 7 days) to the first day of the last menstrual period (LMP). This is the method used by “pregnancy wheels”.

The accuracy of the EDD derived by this method depends on accurate recall by the mother, assumes regular 28-day cycles, and that ovulation and conception occurs on day 14 of the cycle. Use of the LMP to establish the due date may overestimate the duration of the pregnancy, and can be subject to an error of more than 2 weeks.

In cases where the date of conception is known precisely, such as with in vitro fertilization, the EDD is calculated by adding 266 days to the date of conception. Ultrasound uses the size of the fetus to determine the gestational age (the time elapsed since the first day of the last menstrual period). The accuracy of the ultrasound estimate of the gestational age varies according to the gestational age. Ultrasound measurement of the embryo or fetus in the first trimester (up to and including 13th weeks of gestation) is the most accurate method to establish or confirm gestational age.

Determining gestational age is one of the most critical aspects of providing quality prenatal care. Knowing the gestational age allows the obstetrician to provide care to the mother without compromising maternal or fetal status. It allows for the correct timing of management, such as administering steroids for fetal lung maturity, starting ASA therapy with a history of preeclampsia in previous pregnancies, starting hydroxyprogesterone caproate (Makena) for previous preterm deliveries.

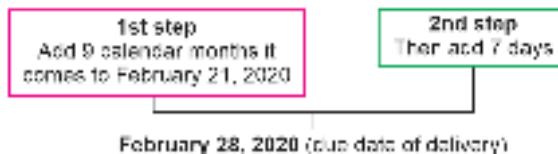


METHODS FOR ESTIMATING THE GESTATIONAL AGE

Naegele's Formula

Due date of delivery = First day of last menstrual period (LMP) + 9 months + 7 days

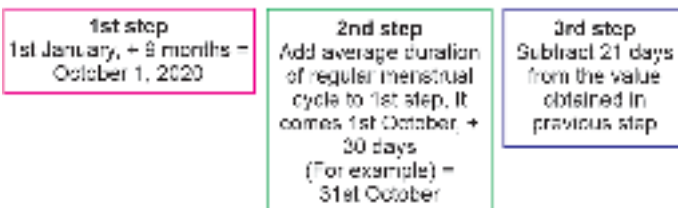
Example → Day of the last period: May 21, 2019



Parikh's Formula

It calculates EDD by adding nine months to the start of the last menstrual period, subtracting 21 days, then add the duration of the previous cycle.

For example = LMP is January 1st, 2020



31st October, - 21 days = 10 October 10

Therefore EDD will be - October 10, 2020

Over-the-Curve Technique

It involves using a measuring tape in centimeters from the superior aspect of the pubic symphysis to over the top of the uterine fundus. The over-the-curve technique is most practical from 16 to 38 weeks with a ± 3 cm margin of error.

Clinical Examination

A pelvic examination supported by good menstrual records in the first trimester has been reported to be a reliable method for dating of pregnancy.

Doppler Ultrasonography

The fetal heart can be heard using Doppler ultrasound by 10–12 weeks in most patients. The gestational age should, therefore, be at least 10–12 weeks if fetal heart tone is heard.

Human Chorionic Gonadotropin Pregnancy Test

Human chorionic gonadotropin first becomes detectable in the mother's blood and urine between 6 and 14 days after fertilization (3–4 weeks gestational age). The gestational age would, therefore, be at least 3–4 weeks at the time of a reliable hCG pregnancy test.

Twins

When a twin pregnancy is the result of *in vitro* fertilization, determination of gestational age should be made from the date of embryo transfer. Otherwise “to avoid missing a situation of early intrauterine growth restriction in one twin, most experts agree that the clinician may consider dating pregnancy using the larger fetus.”

Assessment of High-Risk Pregnancy

INTRODUCTION

A “high-risk” pregnancy is any pregnancy that carries increased health risks for the pregnant woman, fetus or both. Risk assessment in pregnancy helps to predict which women are most likely to experience adverse health events and enables providers to administer risk-appropriate perinatal care. In India about 20–30% pregnancies belong to high-risk category, which is responsible for 75% of perinatal morbidity and mortality.

OBJECTIVE

Early detection and effective management of high-risk pregnancy can contribute substantially in reduction of maternal and fetal adverse outcomes.

PURPOSE

Women with high-risk pregnancies may need extra care before, during and after pregnancy. This helps to reduce the possibility of complications.

KEY POINTS

Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) is an initiative of Ministry of Health and Family Welfare (MoHFW) Government of India to identify high-risk pregnancies early and follow them so that they can

be referred to health care centers with proper facilities so that women with high-risk pregnancies may have healthy pregnancies and deliveries without complications.

Factors that make a pregnancy high-risk include:

- Preexisting health conditions.
- Pregnancy-related health conditions.
- Lifestyle factors (including smoking, drug addiction, alcohol abuse and exposure to certain toxins).
- Age (being over 35 or under 17 when pregnant).

Specific factors that might contribute to a high-risk pregnancy include:

- **Advanced maternal age:** Pregnancy risks are higher for mothers older than age 35.
- **Lifestyle choices:** Smoking cigarettes, drinking alcohol and using illegal drugs can put a pregnancy at risk.
- **Maternal health problems:** High blood pressure, obesity, diabetes, epilepsy, thyroid disease, heart or blood disorders, poorly controlled asthma, and infections can increase pregnancy risks.
- **Pregnancy complications:** Various complications that develop during pregnancy can pose risks. Examples include an unusual placenta position, fetal growth less than the 10th percentile for gestational age (fetal growth restriction) and rhesus (Rh) sensitization—a potentially serious condition that can occur when your blood group is Rh negative and your baby's blood group is Rh positive.
- **Multiple pregnancy:** Pregnancy risks are higher for women carrying more than one fetus.
- **Pregnancy history:** A history of pregnancy-related hypertension disorders, such as preeclampsia, increases the risk of having this diagnosis during the next pregnancy. If you gave birth prematurely in your last pregnancy or you have had multiple premature births, you're at increased risk of an early delivery in your next pregnancy. Talk to your health care provider about your complete obstetric history.

CATEGORIES OF HIGH-RISK FACTORS

1. Biophysical Factors

- **Genetic considerations:** Genetic factors may interfere with normal fetal or neonatal development, result in congenital anomalies, or

create difficulties for the mother. These factors include defective genes, transmissible inherited disorders and chromosomal anomalies, multiple pregnancy, large fetal size, and ABO incompatibility.

- **Nutritional status:** Adequate nutrition, without which fetal growth and development cannot proceed normally, is one of the most important determinants of pregnancy outcome. Conditions that influence nutritional status include the following: young age; three pregnancies in the previous 2 years; tobacco, alcohol, or drug use; inadequate dietary intake.
- **Medical and obstetric disorders:** Complications of current and past pregnancies, obstetric illnesses, and pregnancy losses put the woman at risk.

2. Psychosocial Factors

- **Smoking:** Risks include low-birth-weight infants, higher neonatal mortality rates, increased rates of miscarriage, and increased incidence of premature rupture of membranes.
- **Caffeine:** Birth defects in humans have not been related to caffeine consumption. However, pregnant women who consume more than 200 mg of caffeine daily may be at increased risk for miscarriage or giving birth to infants with intrauterine growth restriction.
- **Alcohol:** Although the exact effects of alcohol in pregnancy have not been quantified, it exerts adverse effects on the fetus, resulting in fetal alcohol syndrome, fetal alcohol effects, learning disabilities, and hyperactivity.
- **Drugs:** The developing fetus may be affected adversely by drugs through several mechanisms. They can be teratogenic, cause metabolic disturbances, produce chemical effects, or cause depression or alteration of central nervous system function.
- **Psychologic status:** Childbearing triggers profound and complex physiologic, psychologic, and social changes, with evidence to suggest a relationship between emotional distress and birth complications. This risk factor includes conditions such as specific intrapsychic disturbances and addictive lifestyles; a history of child or spouse abuse; inadequate support systems; family disruption or dissolution; maternal role changes or conflicts; noncompliance with cultural norms; unsafe cultural, ethnic, or religious practices; and situational crises.

3. Sociodemographic Factors

- **Low income:** Poverty underlies many other risk factors and leads to inadequate financial resources for food and prenatal care, poor general health, increased risk of medical complications of pregnancy.
- **Lack of prenatal care:** Failure to diagnose and treat complications early is a major risk factor arising from financial barriers or lack of access to care; depersonalization of the system resulting in long waits, routine visits, variability in health care personnel, and unpleasant physical surroundings.
- **Age:** Women at both ends of the childbearing age spectrum have an increased incidence of poor outcomes; however, age may not be a risk factor in all cases. Physiologic and psychologic risks should be evaluated.
- **Adolescents:** More complications are seen in young mothers (younger than 15 years), who have a 60% higher mortality rate than those older than 20 years. Complications include anemia, preeclampsia, prolonged labor, and contracted pelvis and cephalopelvic disproportion.
- **Parity:** The number of previous pregnancies is a risk factor associated with age especially a first pregnancy at either end of the childbearing age continuum. The incidence of preeclampsia and dystocia is increased with a first birth.
- **Marital status:** The increased mortality and morbidity rates of unmarried women, including an increased risk for preeclampsia, are often related to inadequate prenatal care and a young childbearing age.
- **Residence:** The availability and quality of prenatal care vary widely with geographic residence. Women in metropolitan areas have more prenatal visits than those in rural areas who have fewer opportunities for specialized care and consequently a higher incidence of maternal mortality.
- **Ethnicity:** Although ethnicity by itself is not a major risk, race is associated with some poor pregnancy outcomes. Non-Caucasian women have three time more risk for dying with pregnancy related causes as compare to Caucasian women and the infant mortality rate among African-Americans is double than that among Caucasian.

4. Environmental Factors

Various environmental substances can affect fertility and fetal development, the chance of a live birth, and the child's subsequent mental and physical development. Environmental influences include infections, radiation, chemicals such as mercury and lead, therapeutic drugs, illicit drugs, industrial pollutants, cigarette smoke, stress, and diet. Paternal exposure to mutagenic agents in the workplace has been associated with an increased risk of miscarriage.

SCORING OF HIGH-RISK PREGNANCY

Risk in pregnancy relates to events which lead to perinatal morbidity and mortality. Numerous risk scoring systems have been devised to bring attention to risk factors so that problems can be prevented, identified and treated. Appropriate perinatal management of the very premature fetus/neonate (less than 34 weeks' gestation) is a critical factor which will influence outcome.

The following are the scoring system for assessment of high-risk pregnancy:

- Dutta and Das Scoring
- Modified Coopland Scoring

Dutta and Das Scoring

Risk factors		No.	%
Reproductive history factors	Age <16	0	0
	Age >35	0	0
	Nulliparity	16	48.5
	Multiparity	0	0
Past obstetrical factors	Abortion	13	39.0
	Postpartum hemorrhage	1	3.0
	Baby wt >4.5 kg	0	0
	Baby wt. <2.5 kg	6	18.2
	Pregnancy induced hypertension	3	9.1
	Infertility	4	12.1
	Previous cesarean section	10	30.3
	Previous stillbirth/neonatal death	5	15.2
	Prolonged/difficult labor	1	3.0
	Bleeding <20 weeks	1	3.0

Contd...

Risk factors		No.	%
	Bleeding >20 weeks	0	0
	Anemia	9	27.3
	Hypertension	1	3.0
Present pregnancy factors	Edema	0	0
	Albuminuria	1	3.0
	Multiple pregnancy	0	0
	Breech	3	9.1
	Rh isoimmunization	3	9.1
	Polyhydramnios	2	6.1
	Small fetus	0	0
	Diabetes mellitus (pre-existing)	1	3.0
	Cardiac disease	0	0
Associated disease factors	Previous gynecological surgery	1	3.0
	Chronic renal disease	0	0
	Infective hepatitis	2	6.1
	Pulmonary tuberculosis	0	0
	Other diseases	6	18.2
	Undernutrition	19	57.6

Coopland's High-risk Evaluation Form

Name-----Age-----Para-----Gravida-----EDM-----	
Reproductive history	Medical/surgical conditions
Age <16 years. = 1	Previous gynec. = 1
16–35 = 0	surgery = 1
>35 = 2	Chronic renal = 1
Parity 0 = 1	disease = 1
1–4 = 0	Gestational = 1
>5 = 2	diabetes(A) = 1
Two or more abortions/	Class (B)/greater = 3
history of infertility = 1	diabetes = 3
Postpartum bleeding/manual	Heart disease = 3
removal of placenta = 1	
Prior child wt <5 lb) > lb. = 1	Other significant
Toxemia or hypertension = 2	medical disorders
Previous cesarean section = 2	(score 1 to 3
Abnormal/difficult labor = 2	according to
COLUMN TOTALS	severity)
Total Score -----	
Low risk 0–2	High-risk 3–6

Present pregnancy
Bleeding
<20 weeks = 1
>20 weeks = 3
Anemia
<10 g% = 1
Postmaturity = 1
Hypertension = 2
Premature rupture
of membranes = 2
Polyhydramnios = 2
IUGR = 3
Multi. pregnancy = 3
Malpresentation = 3
Rh mismatch = 3
Severe risk ≥3

Assessment of Fetal Well-Being

INTRODUCTION

Assessment of fetal well-being is designed to identify fetuses at risk for *in utero* death or asphyxia-mediated damage and affect expeditious and safe delivery. Using the biophysical profile score, a 60–70% reduction in stillbirth rates has been shown in tested populations.

OBJECTIVES

- To ensure satisfactory growth and well-being of the fetus throughout pregnancy.
- To screen out the high-risk factors that affect the growth of the fetus.
- To detect congenital abnormalities or inborn metabolic disorders during early pregnancy.

INDICATIONS

Maternal Indications

- Hyperthyroidism
- Hemoglobinopathies
- Cyanotic heart diseases
- Systemic lupus erythematosus
- Chronic renal disease
- Diabetes mellitus

Pregnancy-Related Indications

- Pregnancy-induced hypertension
- Decreased fetal movement
- Oligohydramnios
- Polyhydramnios
- Intrauterine growth restriction

PURPOSES

The assessment of fetal well-being is a critical tool in ensuring optimal neonatal outcomes for both pregnancy and labor.

ANTEPARTUM EVALUATION OF THE FETUS AND FETAL WELL-BEING

Primary goal of antenatal evaluation is to identify fetuses at risk for intrauterine injury and death so that intervention and timely delivery can prevent progression to stillbirth. Ideally, antenatal tests would decrease fetal death without putting a large number of healthy fetuses at risk for premature delivery and the associated morbidity and mortality.

Biochemical

- **Maternal serum alpha fetoprotein (MSAFP):**
 - **AFP is a oncofetal protein:** It is produced by yolk sac and fetal liver. Highest level of AFP in fetal serum and amniotic fluid is reached around 13 weeks and thereafter it decreases. Maternal serum level reaches a peak around 32 weeks.
 - **MSAFP level is elevated in a number of conditions:**
 1. Incorrect calculated gestational age;
 2. Open neural tube defects (NTDs);
 3. Multiple pregnancy;
 4. Intrauterine fetal death (IUFD);
 5. Anterior abdominal wall defects;
 6. Renal anomalieslow levels are found in trisomy (Down's syndrome) and gestational trophoblastic disease.
- **Triple test:**
 - It is a combined biochemical test which includes MSAFP, hCG and UE3 (unconjugated estriol).
 - It is used for detection of Down's syndrome. In an affected pregnancy level of MSAFP and UE3 tend to be low while that of hCG is high. It is performed at 15–18 weeks.


- **Acetylcholinesterase:**
 - Amniotic fluid Acetylcholinestrace (AChE) level is elevated mostly in cases of open neural tube defects. It has got better diagnostic value than AFP.
- **Amniocentesis:**
 - Aspiration of amniotic fluid from the pregnant uterus for examination. Typically scheduled between the 14–16 weeks of pregnancy.
- **Chorionic villus sampling:**
 - CVS is performed for prenatal diagnosis of genetic disorders.
 - It is carried out transcervically between 10–12 weeks and transabdominally from 10 weeks to term.
 - A few villi are collected from the chorion frondosum under ultrasonic guidance. While it provides earlier diagnosis than amniotic fluid studies, complications like fetal loss (1–2%), oromandibular limb deformities or vaginal bleeding are higher.
- **Fetal blood sampling (cordocentesis):**
 - Cordocentesis is used to take sample of fetal umbilical cord blood in order to screen for chromosomal abnormalities, hemoglobinopathies and other disorders affecting blood or cells.
 - It is performed under local anesthetic usually after 18 weeks gestation.

Biophysical

- Ultrasonographic examination of the fetus in the early (10–14 weeks) pregnancy can detect fetal anomalies.
- Crown-rump length (CRL) smaller than the gestational age is associated with the risk of chromosomal anomalies (trisomy or triploidy).
- Increased nuchal translucency (soft tissue marker) at 10–14 weeks is associated with many chromosomal abnormalities (trisomy, monosomy, triploidy).
- **Fetal movement count:**
 - A healthy fetus moves with a degree of consistency, or at least 10 times a day.
 - In contrast, a fetus not receiving enough nutrients because of placental insufficiency has greatly decreased movements.

- Based on this, asking a woman to observe and record the number of movements the fetus is making offers a gross assessment of fetal well-being.
- **Cardiff count 10 formula:**
 - ◆ A way to assess intrauterine well-being in which the expectant woman records fetal movement during her usual activities.
 - ◆ There should be at least 10 movements within a 12-hour period.
 - ◆ If fewer than 10 movements are perceived, further medical evaluation is needed.
- **Daily fetal movement count (DFMC):**
 - ◆ The DFMC requires pregnant women to begin a fetal movement count at a selected time each day, count 10 movements and record the elapsed time from the first to the tenth movement throughout the day as per the mother's convenience.
 - ◆ Findings which would indicate possible danger to the fetus, and which should be reported immediately, include less than 10 movements in 12 hours; no perception of movement in an eight-hour period; a change in the usual pattern of fetal movement; or a sudden increase in violent fetal movements followed by complete cessation of movement.
- Mothers perceive 88% of the fetal movements detected by Doppler imaging.
- Loss of fetal movements is commonly followed by disappearance of FHR within next 24 hours.
- **Nonstress test (NST):**
 - In nonstress test, a continuous electronic monitoring of the fetal heart rate along with the recording of fetal movements (cardiotocography) is undertaken.
 - There is an observed association of FHR acceleration with fetal movements, which when present, indicates a healthy fetus.
 - **Reactive (reassuring):** When two or more accelerations of more than 15 beats/min above the baseline and longer than 15 seconds in duration are present in a 20 minutes observation in association with movement of fetus.
 - **Nonreactive (nonreassuring):** Absence of any fetal reactivity.

- **Vibroacoustic stimulation:**
 - A specially designed acoustic stimulator is applied to the mother's abdomen to produce a sharp sound of approximately 80 decibels at a frequency of 80 Hz, startling and waking the fetus. During a standard nonstress test, if a spontaneous acceleration has not occurred within 5 minutes, apply a single 1–2 second sound stimulation to the lower abdomen.
 - This can be repeated again at the end of 10 minutes if no further spontaneous movement occurs, so that two movements within the 20-minute window can be evaluated.
- **Biophysical profile (BPP):**
 - The BPP is a composite test that collects five indicators of fetal well-being, including fetal heart rate reactivity, breathing movements, gross body movements, muscular tone, and quantitative estimation of amniotic fluid volume.
 - Modified BPP. This test consists of a combination of a nonstress test as well as an ultrasound to estimate the amniotic fluid index (AFI).



Biophysical profile
Choice for follow-up fetal evaluations

1. Fetal breathing movements - one episode of 30 seconds in 30 minutes
2. Fetal tone - at least one episode of extremity extension and flexion
3. Body movement - three episodes over 30 minutes
4. Amniotic fluid volume - More than one pocket > 1 cm in two planes
5. Non-stress test - Reactive - FHR ↑ with activity

Each has a possible score of two

A • Amniocentesis
L • L/S ratio (2:1)
O • Oxytocin test
N • Non-stress test
E • Estriol level

Assessment of Fetal Well-Being

Fetal doppler ultrasound: Fetal Doppler evaluation uses ultrasound to measure blood flow velocities in the fetal vessels, most commonly the umbilical artery.

Diet Guide in Antenatal and Postnatal Period

INTRODUCTION

A healthy and balanced diet includes a wide variety of nutritious foods from the five food groups. It's also advisable to drink plenty of water to stay hydrated.








1. Wholegrains and cereals.
2. Vegetables and legumes/beans.
3. Lean meats and poultry, fish, eggs, tofu, nuts and seeds as well as legumes/beans.
4. Fruit.
5. Dairy foods including mostly reduced fat milk, cheese and yoghurt.

Requirement	Pregnancy	Lactation	Food sources	Sources
Calories	2200–2500 kcal/day	2500–2700 kcal/day		
Iron	38 mg/day	45 mg/day	Fortified cereals, beef, shellfish, dried fruit, beans, lentils, dark leafy greens, dark chocolate, quinoa, mushrooms, and squash seeds.	<div></div> <div></div> <div></div>








Contd...

Requirement	Pregnancy	Lactation	Food sources	Sources
Calcium	1000 mg/day	1200 mg/day	Dairy products, such as milk, yogurt, and cheese are high in calcium. Certain green vegetables and other foods contain calcium in smaller amounts.	 

Contd...

Requirement	Pregnancy	Lactation	Food sources	Sources
Protein	65 g/day	75 g/day	Lean chicken, lean pork, fish, lean beef, tofu, beans, lentils, low-fat yogurt, milk, cheese, seeds, nuts.	
Folic acid	400 mcg/day	500 mcg/day	Cabbages, spinach, broccoli, and the leaves of root vegetables.	<div></div> <div></div>

Contd...

Requirement	Pregnancy	Lactation	Food sources	Sources
				 <div>Watermelon</div> <div>Orange juice</div> <div>Bananas</div> <div>Lemon</div> <div>Cereal</div> <div>Toast</div>

Points to remember while taking iron supplements		Avoid while taking iron supplements
With a glass of orange, lime or lemon juice.		Caffeine-containing drinks like coffee or tea.
As prescribed by your doctor in the appropriate dosages.		Milk or milk products and antacids.
With a small amount of food or at bedtime, if they upset your stomach		High-fiber foods such as whole grains, raw vegetables, etc.

PREPARING FOOD SAFELY

- Wash fruit, vegetables and salads to remove all traces of soil, which may contain toxoplasma (a parasite that can cause toxoplasmosis) which can harm your unborn baby.
- Wash all surfaces and utensils, and your hands, after preparing raw foods (poultry, meat, eggs, fish, shellfish and raw vegetables) to help you avoid food poisoning.
- Make sure that raw foods are stored separately from ready-to-eat foods, otherwise there's a risk of contamination.
- Use a separate knife and chopping board for raw meats.
- Heat ready meals until they are steaming hot all the way through—this is especially important for meals containing poultry.

You also need to make sure that some foods, such as eggs, poultry, burgers, sausages and whole cuts of meat like lamb, beef and pork, are cooked very thoroughly until steaming all the way through.



Sunday	
Breakfast (8:00–8:30 AM)	Egg sandwich (4 slice bread) + ½ cup skimmed milk.
Mid-Meal (11:00–11:30 AM)	Green gram sprouts 1 cup.
Lunch (2:00–2:30 PM)	Veg pulav rice 1.5 cup + 1 cup soya Chunk curry + ½ cup Low fat curd.
Evening (4:00–4:30 PM)	Almond milk shake 1 cup.
Dinner (8:00–8:30 PM)	3 roti/chapati + lady finger sabji ½ cup.
Monday	
Breakfast (8:00–8:30 AM)	chappati-4 + paneer sabji ½ cup.
Mid-Meal (11:00–11:30 AM)	1 portion fruit salad (Don't stick with particular type. Include all different colored fruits.
Lunch (2:00–2:30 PM)	4 Roti + ½ cup salad + fish curry 1 cup (150 g fish).
Evening (4:00–4:30 PM)	1 portion fruit + cottage cheese.
Dinner (8:00–8:30 PM)	3 roti/chapati + tomato sabji ½ cup.
Tuesday	
Breakfast (8:00–8:30 AM)	Fermented ragidosa 3 + Tomato/ green chutney.
Mid-Meal (11:00–11:30 AM)	1 portion fruit salad (Don't stick with particular type. Include all different color.
Lunch (2:00–2:30 PM)	1.5 cup rice kidney beans curry 1 cup + ½ cup cucumber salad + ladies finger sabji ½ cup.
Evening (4:00–4:30 PM)	1 glass lemon juice + brown rice flakes poha with nuts 1 cup.
Dinner (8:00–8:30 PM)	Wheat dosa 3 + spinach subji ½ cup.
Wednesday	
Breakfast (8:00–8:30 AM)	Rice dosa 3 + 1 tbs green chutney + 2 boiled egg.
Mid-Meal (11:00–11:30 AM)	1 cup boiled chana
Lunch (2:00–2:30 PM)	4 chapati + chicken curry 1 cup (150 g chicken) + cucumber salad ½ cup +

Contd...

Evening (4:00–4:30 PM)	1 cup blue berry milk shake
Dinner (8:00–8:30 PM)	Broken wheat upma 1 cup + ½ cup green beans sabji
Thursday	
Breakfast (8:00–8:30 AM)	Mushroom paratha 2 + tomato chutney
Mid-Meal (11:00–11:30 AM)	Plain yoghurt with raw vegetables/ grilled vegetables–1 cup
Lunch (2:00–2:30 PM)	½ cup rice + 3 medium chapati + chick peas spinach curry ½ cup + snake guard sabji ½ cup.
Evening (4:00–4:30 PM)	1 cup milk
Dinner (8:00–8:30 PM)	3 Roti/chapati + ½ cup mix veg curry
Friday	
Breakfast (8:00–8:30 AM)	Moong dal cheela with paneer filling–2.
Mid-Meal (11:00–11:30 AM)	Almond milk shake 1 glass.
Lunch (2:00–2:30 PM)	1 cup rice+ Soya chunk curry ½ cup + ladies finger sabji ½ cup + small cup low fat curd.
Evening (4:00–4:30 PM)	1 portion fruit salad (don't stick with particular type). Include all different color.
Dinner (8:00–8:30 PM)	3 roti/chapati + ridge guard sabji ½ cup.
Saturday	
Breakfast (8:00–8:30 AM)	Wheat dosa-4 + Egg roast ½ cup (2 egg).
Mid-Meal (11:00–11:30 AM)	1 portion fruit salad + cottage cheese.
Lunch (2:00–2:30 PM)	1.5 cup rice + Fish curry 1 cup (Salmon 80 g) + Palak sabji ½ cup + ½ cup low fat curd.
Evening (4:00–4:30 PM)	1 glass milk.
Dinner (8:00–8:30 PM)	Broken wheat upma 1 cup + ½ cup green beans sabji.

FOOD ITEMS TO LIMIT

- Chocolate
- Spices (cinnamon, garlic, curry, chili pepper)
- Citrus fruits and their juices, like oranges, lemons, limes, and grapefruit
- Strawberries
- Kiwifruit
- Pineapple
- The “gassy” veggies (onion, cabbage, garlic, cauliflower, broccoli, cucumbers, and peppers)
- Fruits with a laxative effect, such as cherries and prunes.

Do's and Don'ts

- Get plenty of rest. Get as much sleep as possible to cope with tiredness and fatigue.
- Seek help. Don't hesitate to accept help from family and friends during the postpartum period, as well as after this period.
- Eat healthy meals. Maintain a healthy diet to promote healing. Increase intake of whole grains, vegetables, fruits, and protein.
- Eat high-fiber foods to stimulate bowel activity, and drink plenty of water.

Food Items: Can Easily Consume

- **Low-fat dairy products:** Milk delivers a boost of bone-strengthening vitamin D. In addition to providing protein and B vitamins, dairy products are one of the best sources of calcium.
- **Legumes:** Iron-rich beans, particularly dark-colored ones like black beans and kidney beans, are a great breastfeeding food, especially for vegetarians.
- **Blueberries:** These berries are filled vitamins and minerals, and they give a healthy dose of carbohydrates to keep energy levels high.
- **Brown rice:** Mix healthy, whole-grain carbs like brown rice into diet to keep energy levels up.
- **Oranges:** Oranges and other citrus fruits are excellent breastfeeding foods, since nursing women need more vitamin C than pregnant women.
- **Whole-wheat bread:** Folic acid is an important nutrient in breast milk that baby needs for good health. Enriched whole-grain breads and pastas are fortified with it, and also give a healthy dose of fiber and iron.

Antenatal Exercise

INTRODUCTION

Exercise during pregnancy is something many women think about but hardly do. But the fact remains that exercising during pregnancy has a positive impact on both the baby and the mother. Exercises can help the pregnant women to adapt to the physical changes in her body during pregnancy. These will help to ease the minor aches and pains during pregnancy and may also help to prevent long-term postpartum problems.

Antenatal exercises are those exercises performed by women during pregnancy, which stimulate circulation and gives a feeling of well-being to the clients.

ADVANTAGES

- Improves the circulation for mother and baby.
- Reduces aches and pains of pregnancy, e.g., backache, cramps, etc.
- Improves the stamina, gives the mother more energy to cope with growing demands of pregnancy.
- Improves the posture and body awareness.
- Controls weight gain.
- Improves the sleeping patterns.
- **Reduces minor ailments of pregnancy such as:** Stiffness, tension, constipation, sleeplessness.

DO'S AND DON'TS DURING EXERCISE



Do's	Don'ts
Consult doctor midwife before beginning the exercise.	Avoid exercise by lying flat in the later 2nd and 3rd trimester because of the danger of supine hypotension and decreased placental/fetal circulation. Instead, a half lying position with the back raised to an angle of approximately 35° can be used.
Perform exercises regularly plan a regular schedule that is at least thrice a week.	Never exercise to a point of fatigue.
Dress comfortably: wear loose fitting clothes.	Don't go for activities, like surfing, mountain climbing and sky diving.
Void before exercising	Don't do activities that require holding breath and bearing down.
Use movements that are slow and deliberate; avoid jerking and bouncing movements jogging and running.	Do not continue the exercise if you experience shortness of breath, pain, numbness, undue cramping, vaginal bleeding or nausea. Report to the doctor/midwife if it happens.
Exercise on a firm surface.	Don't become over heated for extended periods.
Drink fluid whenever feel the need during the exercise and after the exercise. This prevents dehydration.	
Wear supportive shoes when needed.	
Limit activities to shorter intervals. Exercise for 10–15 minutes, rest for 2–3 minutes, then exercise for another 10–15 minutes.	
Decrease exercise level as pregnancy progresses.	
Take your pulse every 10–15 minutes. If it is more than 140 beats/min slow down until it reaches to the maximum of 90.	
Rest in left-lateral position for 10 minutes after the exercise.	
Take an increase in calories to replace those burned during exercises.	
Always rise slowly from lying to sitting position to prevent orthostatic hypotension.	

PREPARATION OF THE ENVIRONMENT



Arrange the area, i.e., a hard, firm bed or a mat spread on the floor.

- Ensure privacy.
- Ensure that there is adequate light and ventilation.



TYPES OF EXERCISES

Exercise	Technique	Purposes	
Breathing exercise	<ul style="list-style-type: none">• Sit/lie comfortably with eyes closed and concentrate on breathing.• Breathe in through the nose and out through the mouth, repeat it five times.	<ul style="list-style-type: none">• To strengthen muscles of respiration.• To increase maternal and fetoplacental oxygenation.	
Circulatory exercises	<p>Leg exercise:</p> <ul style="list-style-type: none">• Sit on a chair with back straight, move feet up and down. Repeat it 10 times.• Sitting on a chair, move feet inward and outward. Repeat it 10 times.• Sitting on a chair, make a circle with both feet at anticlockwise direction and vice versa. Repeat it 10 times.	<ul style="list-style-type: none">• To improve circulation and venous return.• To stretch and strengthen calf muscles.• To decrease calf muscles cramps.	

Contd...

Exercise	Technique	Purposes	
	<p>Shoulder circling exercise: Shoulder rolls: The fingers tips are placed on shoulder, then brought forward and up during inhalation, back and down during exhalation or rolling each shoulder forward five times, then back five time. Repeat it 10 times.</p> <p>Stand straight with legs apart and stretch arms out to the sides and rotate arms (make a large circle) clockwise and anticlockwise. Repeat it 10 times.</p>		
Stretching exercises	<p>Leg exercises:</p> <ul style="list-style-type: none"> • Stand with feet apart, squat down hold for as long as you are comfortable and back to standing position. Repeat it five times. • Stand with facing a wall with feet apart, far enough to keep arm straight, move body toward the wall and holds it for 2 seconds. Repeat it five times. • Stand with facing a wall with feet apart, far enough to keep arm straight, bend one leg forward, move body toward the wall as you lean forward, and keep spine straight and the other foot on the floor throughout. Repeat it five times. • Lie in supine position and bend one knee alternatively. Hold for 5–6 seconds and then release it (do not arch your back while lying). Repeat it 10 times. 	<ul style="list-style-type: none"> • Improve circulation of legs. • Decreases swelling. • Decreases calf muscles cramps. 	

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Exercise	Technique	Purposes	
	<p>Arm exercise:</p> <p>Sit up straight with head slightly raised, shoulder back, stretch arms out to the sides, keep the palms facing up make small circles at anti-clockwise and vice versa. Repeat it 10 times.</p>		
	<p>Neck exercises:</p> <ul style="list-style-type: none">• Sit on a chair with straight back, look upward, and bring back head to neutral position. Repeat it five times• Sitting: Head to left and then to right. Repeat it five times.• Sitting: Bring ear toward left shoulder and then right ear toward right shoulder. Repeat it five times.		

Contd...





Exercise	Technique	Purposes	
Abdominal exercise	<ul style="list-style-type: none"> • Lie on back with knees bent and arms by the side (use 1 pillow to support head). • Lift head and shoulders off floor, bring arms to touch knees. Repeat it five times. • Lift head and shoulders off floor, bring hand to touch opposite knee. Repeat it five times 	Helps to stretch muscles and ligaments in the abdomen.	
Pelvic tilting and back stretching	<p>Pelvic tilting or rocking:</p> <ul style="list-style-type: none"> • Lie well supported with pillows, knee bend and feet flats. • Place one hand under the small of back and the other on top of the abdomen. • Tighten the abdomen and buttocks, and press the small of the back down onto the underneath hand. Repeat five times. • This exercise can be done in standing, supine and on all four positions. <p>Back stretching:</p> <ul style="list-style-type: none"> • Lie on your back with knees bent and feet on the floor, tighten your abdomen and press down until your low back flattens against the floor. • Hold each position for five seconds. Repeat five times. 	<p>Helps to stretch muscles and ligaments in the back preventing or alleviating backache or strain.</p> <ul style="list-style-type: none"> • Improves posture. • Makes abdominal muscles firm. 	

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Exercise	Technique	Purposes	
Kegel's exercise	<ul style="list-style-type: none">• Empty the bladder.• Adopt any comfortable position with legs slightly apart (lying, sitting or standing).• Squeeze pelvic floor muscle as though you are preventing the flow of urine and bowel action, then feel it being lift up.• Try to hold for 4 seconds and rest in between 10 sec.• After a woman has located the correct muscle, Kegel exercise can be done in the following ways:<ul style="list-style-type: none">■ Slow: Tighten the muscle, hold it for the count of three, and relax it.■ Quick: Tighten the muscle, and relax it as rapidly as possible.■ Push out-pulls in: Pull up the entire pelvic floor as though trying to suck up water into the vagina. Then bear down as if trying to push the imaginary water out. This uses abdominal muscle also.■ Take a deep breath in through nose and out through the mouth while doing this.■ Repeat the above exercise slowly as many times as possible, up to a maximum of 10 seconds hold.■ Remember: Do breathing exercise in between. Repeat three times.	<ul style="list-style-type: none">• To strengthen pelvic floor muscles and provide support to the uterus and pelvic organs.• Strengthening of the pelvic floor helps to relax the perineal area for speed delivery of the baby and also prevent perineal tear.	

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Exercise	Technique	Purposes	
Trasversus exercise	<ul style="list-style-type: none"> • Kneel down on feet and arm with back straight. • Imagine that you are balancing a tray on your back. • Then tip the tray off by contracting abdominal muscles, tucking in your bottom, and pushing the small of back again upward. • Flatten your back again and repeat 6–8 times. 	This is simple exercises to relieve backache during pregnancy.	
Tailor sitting exercise	<p>The pregnant mother should assume a cross legged sitting position whenever possible. The tailor sit stretches the muscles of inner thigh.</p>	To prepare for labor and delivery.	

Contd...

Exercise	Technique	Purposes	
Knee rolling exercise	<ul style="list-style-type: none">• Lie flat on supine position, knees bend and feet flat.• Roll both knees alternatively in opposite direction and try to touch the bed while keeping back straight.• Hold for five seconds and repeat five times.	<ul style="list-style-type: none">• To stretch and strengthen the muscles of back and thighs.• To relieve back pain.	
Hip hitching exercise	<ul style="list-style-type: none">• It is also called leg shortening exercise.• It is performed with one knee bend and other knee straight.• Slide the heel of straight leg downwards thus lengthening of leg.• Shorten the same leg by drawing the hip up towards the rib on same side.• Keep the abdomen pulled in while doing this.• Repeat it 6–10 times	<ul style="list-style-type: none">• To prepare for labor and delivery.	

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EXERCISES TO AVOID

Not everything is ideal for pregnancy and woman is advised to avoid several forms of exercises, including the following:

- Diving
- Water skiing
- Gymnastics
- Netball
- Hockey
- Horse riding
- Cycling
- Rock climbing
- Scuba diving, etc.

GUIDELINES FOR GOOD POSTURE

1. Standing

- Relax with upright posture.
- Straightening your spine by tucking in your abdomen and buttocks; relax your shoulders.

2. Sitting

- Upright with spine well supported.
- Use a small pillow to support your back.
- Sit in a high-backed chair that well supports your back.
- Thighs should be supported by the chair, and the feet resting flat on the floor.
- If you are in sitting position for longer time, roll your shoulder in one-way and then the opposite to release tension.

3. Side Lying

Side lying with a pillow under the head and one under the knee and thigh prevent strain on the sacroiliac joint. This is a good position for women in late pregnancy.

CONCLUSION

In pregnancy, exercises help strengthen muscle tone in preparation for delivery and promote rapid restoration of muscle tone after delivery. The goal of any exercise program should be safety and improved well-being of the mother and fetus. Promoting adequate oxygenation, placental perfusion, venous return and a positive emotional state are important elements of a well-rounded exercise program. To gain all the advantages of exercise, mother should perform these exercises daily.

Assisting and Monitoring for Induction/Augmentation of Labor

INTRODUCTION

Prolonged labor is an important cause of maternal and perinatal mortality and morbidity. Augmentation of labor is the process of stimulating the uterus to increase the frequency, duration and intensity of contractions after the onset of spontaneous labor. It has commonly been used to treat delayed labor when poor uterine contractions are assessed to be the underlying cause.

AIMS

- To expedite delivery within 12 hours without increasing maternal morbidity and perinatal hazards.
- Early detection of any delay in labor.
- Diagnose its cause.
- Initiate management.

SUMMARY OF WHO RECOMMENDATIONS FOR AUGMENTATION OF LABOR

This table contains specific recommendations as formulated and approved by participants at the WHO technical consultation on augmentation of labor.

Context	Recommendation	Quality of evidence	Strength of recommendation
Diagnosis of delay in the first stage of labor	<ul style="list-style-type: none"> Active phase in partograph with a four-hour action line is recommended for monitoring the progress of labor. 	Very low	Strong
	<ul style="list-style-type: none"> Digital vaginal examination at intervals of 4 hours is recommended for routine assessment and identification of delay in active labor. 	Very low	Weak
Prevention of delay in the first stage of labor	<ul style="list-style-type: none"> A package of care for active management of labor for prevention of delay in labor is not recommended. 	Low	Weak
	<ul style="list-style-type: none"> The use of early amniotomy with early oxytocin augmentation for prevention of delay in labor is not recommended. 	Very low	Weak
	<ul style="list-style-type: none"> The use of oxytocin for prevention of delay in labor in women receiving epidural analgesia is not recommended. 	Low	Weak
	<ul style="list-style-type: none"> The use of amniotomy alone for prevention of delay in labor is not recommended. 	Very low	Weak
	<ul style="list-style-type: none"> The use of antispasmodic agents for prevention of delay in labor is not recommended. 	Very low	Weak
	<ul style="list-style-type: none"> Pain relief for preventing delay and reducing the use of augmentation in labor is not recommended. 	Very low	Weak
	<ul style="list-style-type: none"> The use of intravenous fluids with the aim of shortening the duration of labor is not recommended. 	Very low	Strong
	<ul style="list-style-type: none"> For women at low risk, oral fluid and food intake during labor is recommended. 	Very low	Weak

Contd...

Context	Recommendation	Quality of evidence	Strength of recommendation
Treatment of delay in the first stage of labor with augmentation	<ul style="list-style-type: none"> Encouraging the adoption of mobility and upright position during labor in women at low risk is recommended. 	Very low	Strong
	<ul style="list-style-type: none"> Continuous companionship during labor is recommended for improving labor outcomes. 	Moderate	Strong
	<ul style="list-style-type: none"> Administration of enema for reducing the use of labor augmentation is not recommended. 	Very low	Strong
	<ul style="list-style-type: none"> The use of oxytocin alone for treatment of delay in labor is recommended. 	Very low	Weak
	<ul style="list-style-type: none"> Augmentation with intravenous oxytocin prior to confirmation of delay in labor is not recommended. 	Very low	Weak
	<ul style="list-style-type: none"> High starting and increment dosage regimen of oxytocin is not recommended for labor augmentation. 	Very low	Weak
	<ul style="list-style-type: none"> The use of oral misoprostol for labor augmentation is not recommended. 	Very low	Strong
	<ul style="list-style-type: none"> The use of amniotomy alone for treatment of delay in labor is not recommended. 	Very low	Weak
	<ul style="list-style-type: none"> The use of amniotomy and oxytocin for treatment of confirmed delay in labor is recommended. 	Very low	Weak
Care during labor augmentation	<ul style="list-style-type: none"> The use of internal tocodynamometry, compared with external tocodynamometry, with the aim of improving outcomes for augmented labor is not recommended. 	Very low	Weak

PARAMETERS TO ASSESS PRIOR TO INDUCTION OF LABOR

- To confirm the indication for induction of labor.
- Exclude the contraindication of induction of labor.
- Assess BISHOP SCORE (Score >6 favorable).
- Perform clinical pelvimetry to assess pelvic adequacy.
- Adequate counseling about the risks, benefits and alternatives of IOL with the woman and the family members.
- To ensure fetal gestational age.
- To estimate fetal weight.
- Ensure fetal lung maturation status.
- Ensure fetal presentation and lie.
- Confirm fetal well-being.

FACTORS FOR SUCCESSFUL INDUCTION OF LABOR

- Parity
- Period of gestation
- Preinduction score
- **Sensitivity of uterus:** Positive oxytocin sensitivity test is favorable for IOL.
- Cervical ripening
- Presence of fetal fibronectin vaginal swab (>50 ng/mL)
- Bishop's score

AUGMENTATION OF LABOR

- Introduced by O'Driscoll and his colleagues in 1968.
- The term 'ACTIVE' refers to the active involvement of the consultant-obstetrician in the management of primigravid labor.
- When to augment? Dilatation does not increase @ 1 cm/hr.
- How is Augmentation Done? A standard concentration of 10 u of oxytocin is used in all circumstances. Rate of infusion begins @ 10 drops and increases by 10 drops at interval of 15 minutes to a maximum of 60 drops.

- Conditions to be fulfilled before augmentation—Mothers must be nulliparous, Vertex presentation, fetus must be single, membranes must be ruptured, no evidence of fetal distress must be seen, the progress of labor charted on a partograph, every mother not close to an easy vaginal delivery after 12 hours to be delivered by cesarean section.

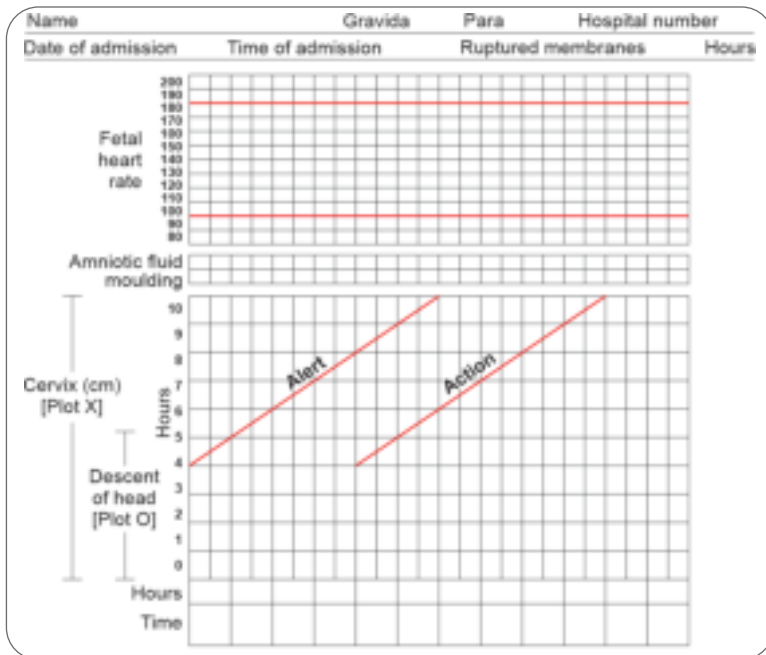
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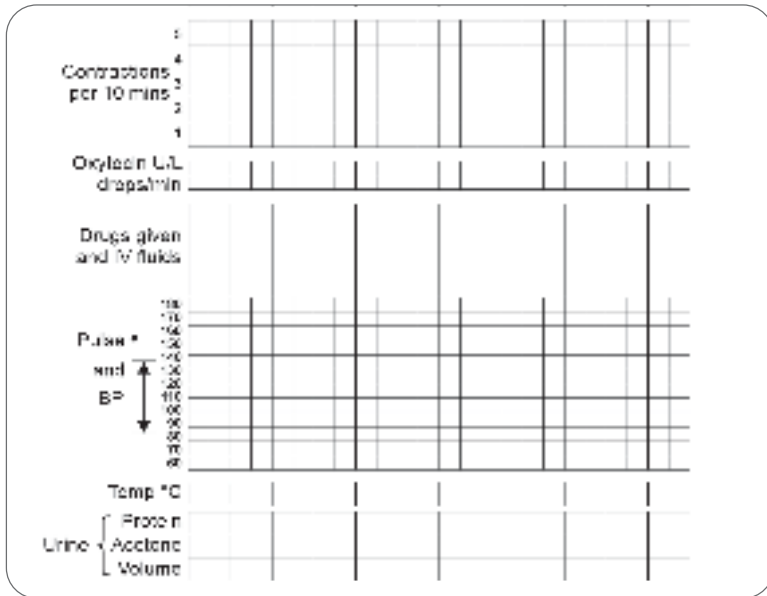
Maintaining Partograph

INTRODUCTION

The partograph serves as an “early warning system” and assists in early decision on transfer, augmentation and termination of labor. It also increases the quality and regularity of all observations on the fetus and the mother in labor, and aids early recognition of problems with either.



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- Partograph is basically a graphic representation of the events of labor plotted against times in hour (By WHO).
- It is a composite graphical recording of cervical dilatation and descent of head against duration of labor in hours.
- It also gives information about fetal and maternal condition that are all recorded on single sheet of paper.
- Freidman in 1954 provide a foundation basis for development of partograph on the basis of observation of a large number of woman in labor.
- After that, the composite picture of labor was reported by Philpott in 1972, who combined details of progress of labor together with information about fetal and maternal conditions.

OBJECTIVES

- To provide details of necessary information at a glance.

- To predict deviation from normal duration of labor so appropriate steps could be taken in time.
- To facilitate handover procedure.
- Introduction of partograph in the management of prolonged labor and cesarean section. Thus improvement in maternal mortality and morbidity rate, fetal morbidity and mortality.

PRINCIPLES OF PARTOGRAPH

- The active phase of labor commences at 4 cm cervical dilatation.
- The latent phase of labor should last no longer than 8 hours.
- A lag time of 4 hours between a slowing of labor and the need for intervention is likely to compromise the fetus or the mother and avoids unnecessary intervention.
- Vaginal examinations should be performed as is compatible with safe practice (once every 4 hours is recommended).
- It is better to use a partograph with preset lines, although too many lines may add further confusion.

COMPONENTS OF PARTOGRAPH

1. The Progress of Labor

This part of the partograph has its central feature of a graph of cervical dilatation against time.

The active phase: Once 4 cm dilatation is reached, labor enters the active phase. In about 90% of primigravida, the cervix dilates at a rate of 1 cm/hr or faster in the active phase.

Alert line: The alert line drawn from 4 cm to 10 cm represents the rate of dilatation moves to the right of the alert line, it is slow and an indication of delay labor. If the woman is in a health center, she should be transferred to the hospital. She should be observed more frequently.

Action line: The action line is drawn 4 hours to the right of the alert line. It is suggested that if cervical dilatation reaches this line, there should be a critical assessment of delay and a decision about the appropriate management to overcome this delay.

Cervical dilatation: The latent phase (slow period of cervical dilatation) is from 0–3 cm with a gradual shortening of the cervix. The active phase

(faster period of cervical dilatation) is from 4 cm to 10 cm (full cervical dilatation). It is recorded as "X".



Points to Remember

- The active phase rate is at least 1 cm/hr.
- When labor progresses well, dilatation should not move to the right of the alert line.
- "0" hour is the admission time if the mother admitted in the labor room in active phase, or else.
- "0" hour is the time when cervical dilatation is 4 cm and when there are at least two or more contractions in 10 minutes, each lasting for more than 20 seconds in case the mother is already in the hospital.
- Recording must be beneath the correct time entry on the partograph.

Uterine Contractions

Frequency: How often they are felt?

Duration: How long do they last?

Duration	Grade	Shading pattern
Less than 20 seconds	Mild	
Between 21 seconds and 40 seconds	Moderate	
More than 40 seconds	Severe	

Check no. of contraction in 10 minutes and record.

Three ways of shading duration of contractions:

2. The Fetal Condition

- The lines for 110 and 160 are darker.
- Check fetal heart rate every 30 mins and mark with a dot (•).
- If an abnormal heart rate is heard, listen every 15 minutes for at least 1 minute immediately after contractions.
- If the heart rate remains abnormal over three observations, action should be taken unless delivery is very close.
- A heartbeat of 100 or lower indicates very severe distress and action should be taken at once.

Membranes and Liquor

- "I" for intact membrane

- “C” for clear liquor
- “M” for meconium stained liquor
- B” blood stained liquor
- “A” for absent membrane
- Thick meconium at any time or absent liquor at any time of membrane rupture, listen to the fetal heart more frequently, as these may be signs of fetal distress.
- If membranes have been ruptured for 12 hours or more, antibiotics should be administered prophylactically.

Molding of the Fetal Skull Bones

Molding is an important indication of how adequately the pelvis can accommodate the fetal head. Increasing molding with the head high in the pelvis is an ominous sign of cephalopelvic disproportion.

Different Ways to Record Molding

- **If bones are separated and the sutures can be felt easily:** Record as the letter “O”.
- **If the bones are touching each other not overlapping:** Record as “+”.
- **If bones are overlapping but easily separated:** Record as “++”.
- **If there is fixed overlapping of bones:** Record as “+++”.

3. The Maternal Condition

- **Pulse:** Record every 30 minutes and mark with a dot (•).
- **Blood pressure:** Record every 4 hours and mark with arrows (b).
- **Temperature:** Record every 2 hours.
- **Check for presence of protein, acetone and measure volume:** Record every time urine is passed.

The color code to be used to fill up the partograph:

Fetal heart rate	:	Red
Mild uterine contraction	:	Yellow
Moderate uterine contraction	:	Green
Severe uterine contraction	:	Red
Mother's pulse rate	:	Green

Other everything is in blue ball pen

ADVANTAGES OF USING PARTOGRAPH

- A single sheet of paper can provide details of necessary information at a glance.
- No need to record labor events repeatedly
- Gives clear picture of normality and abnormality in labor.
- It can predict deviation from duration of labor. So appropriate steps could be taken in time.
- It facilitates handover procedure of staffs.
- Save working time of staff against writing labor notes in long hand.
- Educational value for all staff.

Modified WHO partograph	WHO labor care guide
Similarities Graphical representation of the progress of labor in terms of women's cervical dilatation and descent of the fetal presenting part, against time Formal regular recording of important clinical parameters describing the well-being of the woman and baby.	
Differences	
Active phase defined as starting from 4 cm of cervical dilatation	Active phase defined as starting from 5 cm of cervical dilatation
Fixed 1 cm/hr 'alert' line and 'action' lines	Evidence-based time limits at each centimetre of cervical dilatation
No second-stage section	Intensified monitoring in second stage
No recording of supportive care interventions	Explicit recording of labor companionship, pain relief, oral fluid intake and posture
Records strength, duration and frequency of uterine contractions	Records duration and frequency of uterine contractions
No explicit requirement to respond to deviations from expected observations of any labor parameter, other than cervical dilatation alert and action lines	Requires deviations to be highlighted and the corresponding response to be recorded by the provider

WHO Labor Care Guide

Name: _____ Facility: _____ Laborer name: _____ Active labor diagnosis (Date): _____

Expected number of babies (Date): _____ Time: _____ Risk factors: _____

		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	
Time																	
Hour																	
Min																	
Active stage																	
Supervision	Contraction	10															
	Pain level	10															
	Contraction	10															
	Pain level	10															
Fetal	Station	10															
	HR	10															
	HR	10															
	HR	10															
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Normal	HR	10															
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Perineal Care

INTRODUCTION

The perineum is the diamond-shaped area between the thighs and the buttocks of both males and females. In female it is bounded anteriorly by the symphysis pubis, laterally by the ischial tuberosity, and posteriorly by coccyx. A transverse line between the ischial tuberosity divides the perineum into an anterior urogenital triangle that contains the external genitalia and posterior anal triangle that contains the anus.

PURPOSES

- To clean the perineum
- To relieve inflammation
- To relieve pain
- To stimulate circulation
- To prevent the spread of infection and bacterial growth
- To promote healing
- To apply medication over episiotomy wound and any other perineal wound
- To promote a sense of well-being and comfort.

INDICATIONS

- Patients who are unable to do self-care
- Patients with genitourinary tract infection

- Postnatal mothers
- Patients with excessive vaginal discharge
- Before during any procedure like P/V examination and catheterization
- Patients after surgery on the genitourinary system
- Gynecological conditions, like vaginitis, prolapse of uterus, etc.

STEPS OF THE PROCEDURE

Before Procedure

Preparation of the Patient

- Explain the procedure to the patient and make her comfortable on the bed/examination table.
- Provide privacy by screen.
- Drape the patient as per for vaginal examination—fanfold the top linen.
- Spread out the mackintosh.
- Offer the bed pan to the mother place the bed pan in position and adjust it comfortable for the mother.
- Ensure that there is adequate light and put off the fan.

Preparation of the Article

Articles required	Rationale
A sterile tray containing	
• A bowl with sterile 9–11 cotton swabs soaked in Savlon solution of 1:20 ratio	• To clean the perineum
• A bowl with sterile 9–11 cotton swabs soaked in NS or boiled and cool cotton swabs	• To clean the perineum
• Artery forceps/sponge holding forceps—1	• To hold the swabs for cleaning
• Dissecting forceps—1	• To pick the cotton swab from the bowl

Contd...

Articles required	Rationale
• Bowl with sterile gauze pieces (9–11)	• To dry the perineum
• One pair of gloves	• To maintain sterility and self-protection
• One to three sanitary pads	• To apply over the perineum
• Beta dine ointment	• To apply over the episiotomy wound
A clean tray containing	
• A bowl with warm water or normal saline.	• To flush the perineum
• Mackintosh (medium)—1	• To prevent the soiling of the bed
• Bed sheet—1	• To drape the patient
• BP apparatus with stethoscope	• To check the blood pressure
• Measuring tape	• To check the fundal height
• Three or four cotton pads	• For examination of the breast and to clean the buttocks
• Kidney tray medium—1	• To squeeze the cotton swabs
• Paper bag (big)—1	• To receive the waste
• Piece of paper	• To remove the soiled pad
• “T” binder	• To tie the pad
• Scissors	• To cut the extra binder
• Screen	• To provide privacy
• Bed pan	• To collect the flushed water

INTRAPROCEDURAL STEPS

- Collect all the articles
- Wash hands
- Be on the right side of the patient
- Perform postnatal examination
 - Head to foot examination
 - Breast examination

- Abdominal examination—locate the fundus, give gentle fundal massage and check fundal height.
- Loosen the soiled pad—take it out holding it with the paper and then observe the type, color, amount and odor of lochia.
- Wrap the soiled pad with the paper and discard it in the designated dustbin.
- Spread the mackintosh to protect the soiling of bed.
- Put the bed pan and make the mother comfortable on it.
- Pour lukewarm water over the perineum.
- Wash hands.
- Wear gloves.
- Clean the perineum using wet Savlon swabs with forceps from above downwards in the following order in a single stroke manner.
 - The vulva
 - Labia minora—farthest side
 - Labia minora—nearest side
 - Inner side of the labia majora—farthest side
 - Inner side of the labia majora—nearest side
 - Outer side of the labia majora—farthest side
 - Outer side of the labia majora—nearest side
- Clean the episiotomy wound in one stroke.
- Clean the anus thoroughly in a circular motion.
- Clean the perineum with normal saline swab in the same order.
- Dry the perineum in the same order.
- Apply the Soframycin ointment or Betadine ointment/solution over the wound.
- Apply the pad over the perineum.
- Remove the bedpan.
- Secure the pad with “T” binder.
- Turn the mother to her left side and clean the buttocks in upward direction.

Aftercare of the Patient and Article

- Make the mother comfortable.
- Remove the bedpan and mackintosh and replace all the articles after washing for sterilizing.

- Inform the mother about the nature of lochia and condition of the perineal wound.
- Tidy the unit.

Recording and Reporting

Record and report the observation made in the nurse's notes and mother's clinical chart.

Comfortable/Alternative Birth Position

INTRODUCTION

- The key component of implementing respectful maternity care is protecting the woman's right to assume the position of her choice during labor and birth.
- Giving a woman the freedom to choose labor and birth positions has benefits for the woman, the baby, and the health system.
- A woman's lack of choice in birthing position is recognized as a barrier to some women's use of facility-based childbirth care. Building providers' competence and confidence to support a range of birth positions can help to create more client-centered maternity services that may be associated with better satisfaction and utilization.

INDICATIONS



- Accelerating the progress of labor
- Alleviating maternal pain
- Reducing perineal trauma
- Decreasing blood loss
- Promoting fetal and newborn well-being
- Treating certain obstetrics complications

PURPOSES

Alternative positions also have psychological advantages. When encouraged to find the most comfortable position, the woman has a better sense of participation in her labor.

KEY POINTS



A most significant recent finding has been the concept of the ability of the birth canal to alter in shape and size during labor, especially if the mother assumes a squatting position.

Positions	Technique	Advantages	Images
Semi-reclining	The woman is partially raised with her shoulders above the pelvis, and her legs are held abducted either by means of foot rests or by labor staff members, who help abduct during a contraction. In between contractions, the woman can put her legs down, to deal with cramps that often occur and are difficult to manage in the conventional position.	It promotes relaxation by reducing labor pain.	
Sitting	The sitting position is a modification of semi-reclining, but the backrest of the bed is raised higher.	To relieve pain in the lower back, especially in occiput posterior presentations, and it certainly makes maximum use of gravity.	

Contd...

Positions	Technique	Advantages	Images
Squatting	Squatting is a second stage position that maximizes use of gravity and forcible abduction of the legs. It also appears to promote good pushing technique, in that it is similar to the position assumed for defecation.	It helps in opening the pelvis to create more room for the baby to move down.	
Side-lying	For pushing, the woman draws her legs up, while an assistant holds her upper leg both elevated and abducted. She can grasp the backs of her knees, as well, and then relax her arms and legs after each push. The accoucheur positions her/himself to the side of the bed as shown, and has excellent access to the perineum to do massage, and to guide the baby's head out as atraumatically as possible.	This position is effective because it will not compromise with blood flow and you can do it if you are tired with sitting.	

Contd...

Positions	Technique	Advantages	Images
Kneeling positions	Kneeling with one's trunk upright or palms on ground/cushion.	It helps in releasing tension by relaxing the muscles. It eases back pressure and it relieves the pain of contractions.	
Lithotomy position	Lying flat on one's back with legs raised.	It reduces the chances of having a cesarean delivery.	

Preparation for Childbirth

INTRODUCTION

A woman's childbirth experience is vitally important, and her birthing memories endure. Major factors that influence the quality of this experience include personal expectations, the quality and amount of support she receives, the quality of the caregiver-patient relationship (e.g., communication, continuity of care, empathy, respect), her involvement in decision making, her clinical risk, and pregnancy outcome.

WAYS TO PREPARE FOR CHILDBIRTH

- **Take birthing classes:** Birthing classes can answer a lot of your questions about what will happen during labor and delivery. You will learn how to work through contractions and stay in control, and you will practice these strategies so you're ready for delivery.
- **Take breastfeeding classes:** If you have never breastfed before, breastfeeding classes are an important part of preparing for a baby.
- **Take parenting classes:** Parenting classes can help you understand the different stages your baby will go through, how to keep your baby safe, how to dress and change your baby, and how to tell when your baby is having a medical emergency.
- **Make a birth plan:** A birth plan is an outline of what you want for your delivery. This plan helps your doctor or midwife, nurses, and support people understand your personal wishes.

- **Visit the hospital:** Knowing what to expect and what to do can help you feel more comfortable on the day of the birth. Set up an appointment for a tour of the hospital.

PREPARATION

Parents learn by trial and error, commit the same mistakes that have been committed by countless other parents, they somehow manage to accomplish the task, becoming more skilled with each additional child.

Physical Preparedness

- Thorough physical check-up is necessary.
- To ensure that the reproductive organs and their functions are healthy.
- To diagnose any deviation or any abnormalities which may lead to infertility or congenital defects or abortions, e.g., hormonal insufficiency, etc.
- To follow healthy habits.
- To educate the couple about the effects and influence of bad habits like smoking, alcoholism, drug abuse and faulty food practices.

Psychological Preparation

- To prepare the women for childbirth.
- A couple should develop a favorable attitude about child bearing and child rearing to react positively and to adjust well.
- Certain favorable attitudes, feelings and experiences which have to include by the couple are; wanting a child, wanting a normal healthy child, satisfied with gender.

Financial Preparation

- Having a baby is an added expense in the family.
- Couple has to save money regularly from income in preparation for the baby.
- Financial security by medical insurance can be enrolled by couple.

CHILDBIRTH PREPARATION KIT

- Three front open loose nighties/loose track pants and shirts
- Sanitary pads
- Disposable panties
- Feeding bras
- Socks and slippers
- Clothing
- Your regular medication (if any) such as inhalers, diabetic medication, etc.
- Baby dress
- Blankets

BIRTH PLAN

Once you have determined that, you will also need to decide:

- Where you plan to give birth
- Who you wish to be in the room with you
- The atmosphere of your delivery room, such as lighting and music
- Whether you want photos or video taken during delivery
- Your labor preferences, such as whether you will use birthing props
- What medication you wish to take
- What medical steps you are comfortable with (for example, an episiotomy, epidural, emergency C-section preferences)
- Whether you wish to bottle feed or breastfeed after delivery
- Where you want your baby to stay after delivery (for example, in your room 24/7 or some of the time in the nursery)
- Which medical treatments you wish to have performed on your child, (i.e., delayed cord clamping, circumcision, etc.)

Per Vaginal Examination in Labor and Interpretation

INTRODUCTION

A per vaginal examination is a procedure which is preceded by an abdominal examination and the women's bladder must be empty. With the combination of external and internal findings the skilled midwife will have a very detailed picture of the progress of labor.

INDICATIONS

- To make a positive diagnosis of labor.
- To make a positive identification of presentation.
- To determine whether the head is engaged in case of doubt.
- To ascertain whether the fore-waters have ruptured or to rupture them artificially.
- To exclude, especially if there is an ill-fitting presenting part.
- To assess progress or delay in labor.
- To apply a fetal monitoring.
- To confirm dilation of the cervix.
- In multiple pregnancies to confirm the lie and presentation of the second twin and in order to puncture the second amniotic sac.

OBJECTIVES

- To perform a complete vaginal examination during labor.
- To assess the state of the cervix.
- To assess the presenting part.
- To assess the size of the pelvis.

PURPOSES OF A PELVIC EXAMINATION

- Assess the pelvic adequacy.
- Confirm the onset of labor.
- Assess the progress of labor.
- Descent of the presenting part.
- Effacement and dilation of cervix.
- Presentation and position of the fetus.
- Detect cord prolapse following rupture of membrane in case of malpresentation.
- Confirm the onset of second stage of labor.
- Assess the cause of delay in prolonged second stage of labor.



Points to Remember

- The vaginal examination is to be carried out at least once every 4 hours during the first stage of labor and after rupture of the membranes and findings recorded in the partograph.
- The internal examination should be gentle, thorough and methodical using the aseptic technique.
- Once the sterilized gloved fingers are taken out after vaginal examination, they must not be reintroduced under any circumstances.

STEPS OF PROCEDURES

Preparation of Environment

- Maintain privacy
- Comfortable bed or examination table
- Good source of light
- Maintain sterile field.

Preparation of the Mother

Physical Preparation

- Shave the perineum/trim the hair as per the policy of the hospital during the first stage of labor.
- Provide privacy and drape the woman for vaginal examination.

- Give extra pillows to raise the head and place the mackintosh under the buttocks.
- Ask the woman to flex the knees.
- Pelvic examination is done with the woman in dorsal position taking aseptic precaution.
- Keep the mother in lithotomy or dorsal position with thigh flexed and separated.

Psychological Preparation

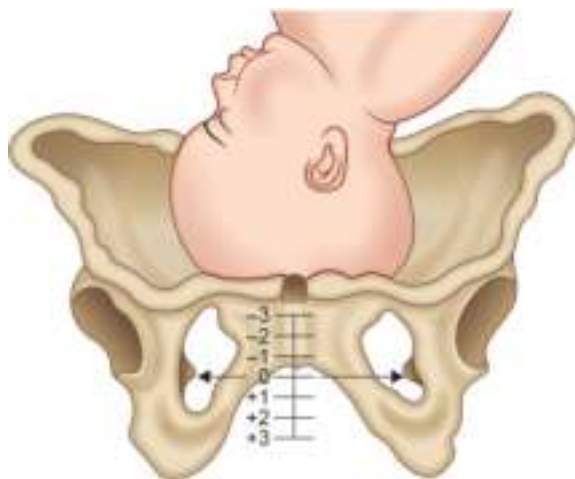
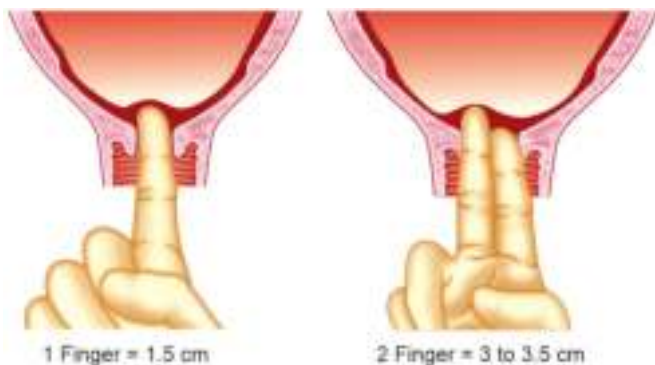
Explain the procedure and its uses to the mother to win the confidence, encourage and reassure during the procedure.

Articles required	
Articles	Purposes
Clean linen	To provide privacy
A mackintosh	To prevent the soiling of the bed
A bowl with warm water	To flush the perineum
Antiseptic lotion	To clean the perineum
Cotton swabs, gauze or rag pieces in a sterile container	To clean the perineum
Long artery forceps	To hold the swabs for cleaning sterile tray
Paper bag	To receive the waste
A pair of sterile gloves	To maintain the sterility and self-precaution
Sterile pad	To put over the perineum if needed

Steps of procedure	
Steps	Rationale
Wash hands thoroughly. Wear sterile gloves	To prevent infection
Pour water or antiseptic lotion over the area.	To wash off any discharge from the perineal perineum by squeezing the swabs
Clean the perineum using the wet swabs.	To prevent the entrance of bacteria

Contd...

Steps of procedure	
Steps	Rationale
Hold the swabs with forceps and clean from above, downward toward the anal canal.	
Use one swab for one stroke.	
Clean the perineum from the midline outward in the following order: The vulva Labia minora—farthest side Labia minora—nearest side Innerside labia majora—farthest side Innerside labia majora—nearest side Outerside labia majora—farthest side Outerside labia majora—nearest side Clean the anus thoroughly in a circular motion	To prevent recontamination To ensure thorough cleaning
Separate the labia minora with the left hand wet two gloved fingers of the right hand and insert into vagina. The following features should be noted simultaneously:	To note the progress of labor
State of the cervix-cervical dilatation and effacement	
Presentation and position	
Feel the sagittal sutures to ascertain position and station of presenting part and condition of membrane	
Station of the presenting part in relation to ischial spines	
Cephalopelvic disproportion in nonengaged head	
Elasticity of the perineal muscles	
Character of the discharge, if any	
Pelvic adequacy	
Do not remove fingers until examination is completed	
Keep the woman dry	To make the woman feel comfortable



Station of head

Aftercare of the Patient

- Make the patient comfortable.
- Explanation of findings in simple way to the patient.
- Reassurance for further management.

Recording the Findings of Pelvic Examination

After every vaginal examination it is important to maintain a record of the findings. These findings will be different for each woman and in each examination, which is done for the same woman. The findings of vaginal examination to be recorded are:

- Condition of external genitalia and vagina.
- Cervix-consistency, effacement and dilatation.
- Status of the membranes—intact, leaking or ruptured.
- If ruptured, color of the amniotic fluid.
- Presentation and position of the fetus.
- Presence of caput, station of fetal head.
- Ischial spines and ischial tuberosities not prominent/prominent.

FINDINGS

Through correlation of findings and observations of abdominal and pelvic examinations, the midwife obtains the information from the woman about her present pregnancy and onset of labor, completes the abdominal and vaginal examinations, and records the observations.

For example:

- General physical and emotional condition of the woman
- Vital signs—temperature, pulse, blood pressure (BP)
- Time of onset of labor and nature of uterine contractions—frequency, intensity duration
- Membranes—intact/ruptured
- Vaginal discharges—show, bleeding, amniotic fluid
- Abdominal examination/palpation—fundal height, presentation, position, descent of the fetus
- Auscultation—fetal heart
- Vaginal examination for progressive effacement and dilatation of cervix
- Pelvic adequacy—ischial spines not prominent/prominent
- Presentation and position of the fetus—left occiput anterior (LOA), right occiput anterior (ROA), left occiput posterior (LOP), right occiput posterior (ROP)
- Progressive descent of the fetus—station.

CONCLUSION

The accurate assessment of progress of labor is based on the correlation of the above findings by plotting on the partograph. By doing this, the midwife will be able to judge how the labor is likely to proceed and the likelihood of any complications. Continuous assessment and monitoring throughout the period of labor and delivery is a very important responsibility of the midwife.

Conducting Normal Delivery

INTRODUCTION

Labor is called normal if it fulfills the following criteria:

- Spontaneous in onset and at term
- With vertex presentation
- Without undue prolongation
- Natural termination with minimal aids
- Without having any complication affecting the health of the mother and or the baby.

OBJECTIVES

It is to provide efficient care and to cope with such emergencies as may arise. Hence a good midwife will try to:

- Give comfort, relieve pain conserve strength, and prevent exhaustion, injury and blood loss.
- Maintain cleanliness, antisepsis and asepsis throughout labor.
- Carry out careful observation. Here, it is very essential that the nurse has sufficient knowledge and experience to recognize normal progress.
- Detect deviations from the natural course.
- Prevent complications where possible.
- Recognize, complications early and relieve promptly and competently until the arrival of the doctor.

PREPARATION OF THE ARTICLE

Name of the article	Purposes
A sterile tray containing	
Sponge holding forceps—1	Cleaning the perineum
Gauze pieces	To clean the perineum
Draping sheets and leggings	To drape the patient and provide privacy
Cotton pads	To mop the area
Sanitary pads—2	To provide perineal support: 1 and the other to apply over the meatus
Artery forceps—2	To clamp the umbilical cord
Cord cutting scissors	To cut the cord
Cord clamp	To clamp cord
Small bowl containing betadine	

Note: In case of episiotomy, refer the procedure of episiotomy giving and repairing.

PROCEDURE


Steps	Rationale
As soon as the signs and symptoms of the approaching second stage of labor are observed put the mother on the delivery table.	To observe the progress of labor
Provide dorsal position with legs flexed and abducted.	To enhance the natural process of delivery
Give perineal care with 2% Dettol or Savlon.	To clean the perineal area
Scrub hands and arms thoroughly with soap and running water. Put on sterile gloves.	To prevent the cross infection
Arrange the required articles	For conducting delivery in order of use on the trolley.

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Steps	Rationale
When the mother gets contraction, encourage her to hold the thighs, take deep breath, close the mouth, hold the breath and bear down or push. When the uterine contraction passes off advise the mother to open the mouth and take several deep breaths.	To maintain the continue pressure on the presenting part.
Provide sips of cold/warm water to drink. Wipe off the sweat from the face with a wet sponge.	To maintain the hydration status
When presenting part becomes visible during contraction, put leggings and drape with sterile towel over the abdomen and perineal area.	To prevent the cross infection
Support the perineum with the outstretched right palm with a perineal pad in it; push the occipital region of the head downward and backward by the thumb and index finger of the left hand.	Because if the head progresses slowly, it is allowed to distend the perineum tilt it is crowned, i.e., the parietal eminence distends the vaginal outlet without retracting in between contractions.
Perform an episiotomy under 1% xylocaine infiltration just prior to crowning	To prevent threatened injury to the perineum.



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Steps	Rationale
The sinciput is allowed to glide slowly over the perineum at the end of a contraction.	To maintain the certain amount of restraint, i.e., manual pressure, may have to be applied to the baby's head during the height of this contraction. This pressure should be gentle and evenly distributed to avoid intracranial injury.
In between contractions extend it by the left palm, while the perineum is pressed back on the face of the baby by the right palm.	For delivery of the head by extension.
Allow the head to be born with pains till the occiput comes free under the symphysis pubis.	To prevent sudden extension of the head at the vaginal orifice during strong pains by maintenance of flexion of the head.
<p>Once the head is delivered:</p> <ul style="list-style-type: none"> • Wash hands by dipping in the bowl with boiled and cold water • Clean the eyes using sterile swabs separately for each eye • Suck the throat, mouth and nostrils with a sterile mucus sucker or extractor • Check for cord around the neck. If present, see whether loose or tight; the loose loop of the cord can be slipped over the head, if it is tight, apply two clamps and cut in between. 	<p>For maintaining patent airway of the baby.</p> 
By the time, eyes, mouth and cord are "taken care", the next pains bring the anterior shoulder under the pubic arch.	For delivery of the shoulders
To deliver the posterior shoulder hold the head of the fetus between two hands and lift the head toward mother's abdomen. Usually, delivery of posterior shoulder occurs first.	

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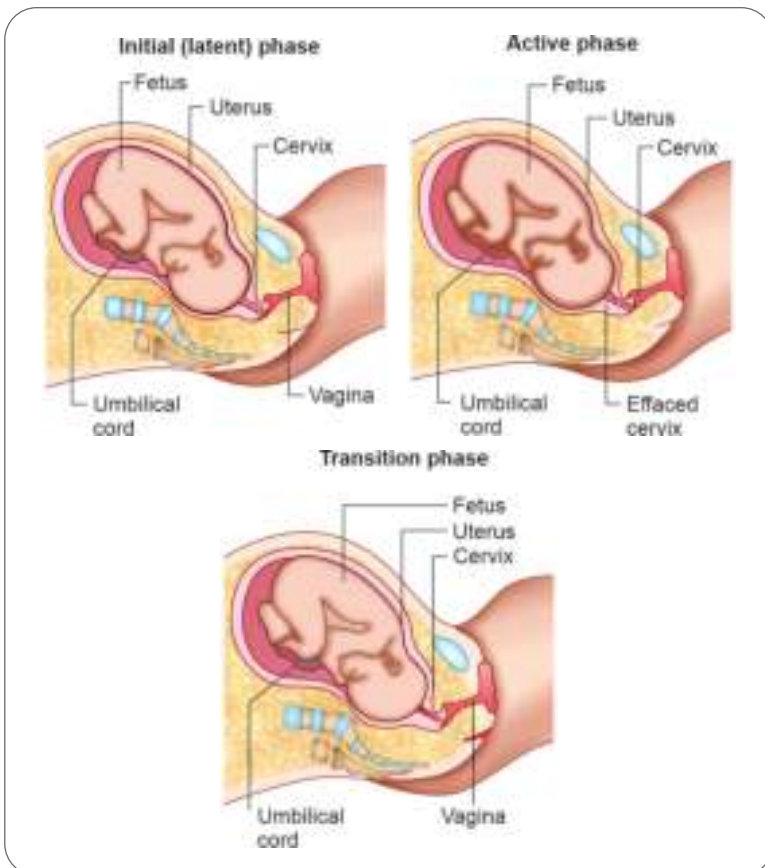
Steps	Rationale
In case of undue delay in the birth of anterior shoulder under the symphysis pubis, the anterior shoulder is brought down under the pubic arch by depressing the head toward the perineum.	
The rest of the trunk is delivered by lateral flexion. While the body is being delivered, advise the mother to resist pushing and to take deliberate breaths.	<p>To facilitate the delivery of the trunk.</p> 
Receive the baby in a tray covered with prewarmed sterile towel.	To prevent cardiac overload in newborn.
After the baby is completely born and is pink and crying, wait for the pulsations of the cord to stop as baby obtains about 40–60 mL of blood from placenta during this time.	
If the baby seems to be asphyxiated or in case of Rh-negative mother, the baby should be separated as early as possible.	
To separate the baby, clamp the cord at two places: 1. Vaginal introitus	Apply first clamp near the vaginal introitus (5 cm away from the introitus)
2. 2nd clamp between the first clamp and the baby. Before applying the second clamp milking of the cord should be done toward the fetus.	2.5 cm away from the 1st clamp

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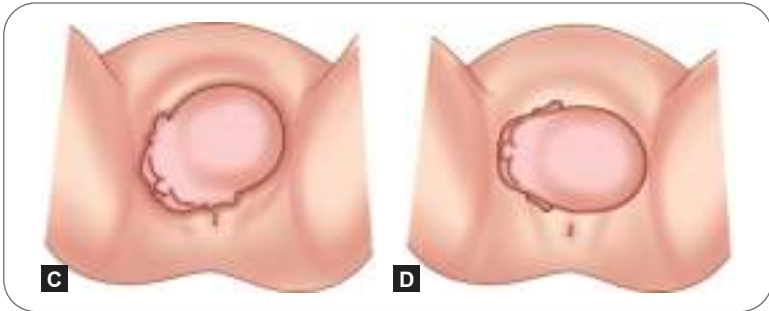
Steps	Rationale
<p>Wrap the baby in the sterile towel.</p> <p>Let the assistant write the identification cards for the mother and the baby. If the baby seems to be normal, do not remove the baby from the delivery table till the baby is shown to the mother after the expulsion of the placenta.</p>	For warmth
<p>Check the signs of separation of placenta. Deliver the placenta by controlled cord traction and counter-traction which is also called Brands-Andrews method. In this method, controlled cord traction is applied as follows:</p> <ul style="list-style-type: none"> Place the palm of the left hand over suprapubic region and gently push the uterus upward. Twist the cord around the index finger of the right hand and pull gently. When placenta becomes visible at the vaginal introitus, let the fetal surface be outermost, support the placenta with left hand and gently rotate the placenta with right hand. 	<p>For delivery placenta</p> <p>This way placenta and membranes will be expelled completely.</p>
Administer injection oxytocin 10 IU-IV in RL and 5 IU IM after the delivery of the fetus as per the hospital policy.	To control the bleeding.
Show the sex of the baby to the mother.	As psychological reaction may lead to complications of third stage like retained placenta and postpartum hemorrhage (PPH) if sex of the baby is not according to her.
The mother is not to be shown the sex of the baby till expulsion of placenta expectation.	To prevent PPH

Contd...

Steps	Rationale
Examine placenta and membranes for completeness and abnormalities.	
Measure cord length, measure blood loss and weigh placenta	
Inspect vagina and perineum	For any tears and lacerations.
Give perineal care with 2% Dettol or Savlon. Apply sterile perineal pads, dry the mother thoroughly and provide lateral position.	To provide comfort to the mother.



**A****B****C****D****E****A****B***Contd...*



Place a clean pad over the back passage (anus). If a bowel movement occurs wipe it from front to back to avoid soiling the birth canal.



Gently support the baby's head as it emerges and steady it to prevent it "shooting" out

AFTERCARE OF THE MOTHER AND NEWBORN

Care of the Mother

Recording and charting of the following:

- Blood pressure, pulse rate and respiration to check the homodynamic status
- Consistency of the uterus (should be hard like cricket ball) to check the uterine tonicity
- Vaginal bleeding should be checked immediately after delivery and again after 1 hour before shifting the mother from labor room to the ward.

Care of the Baby

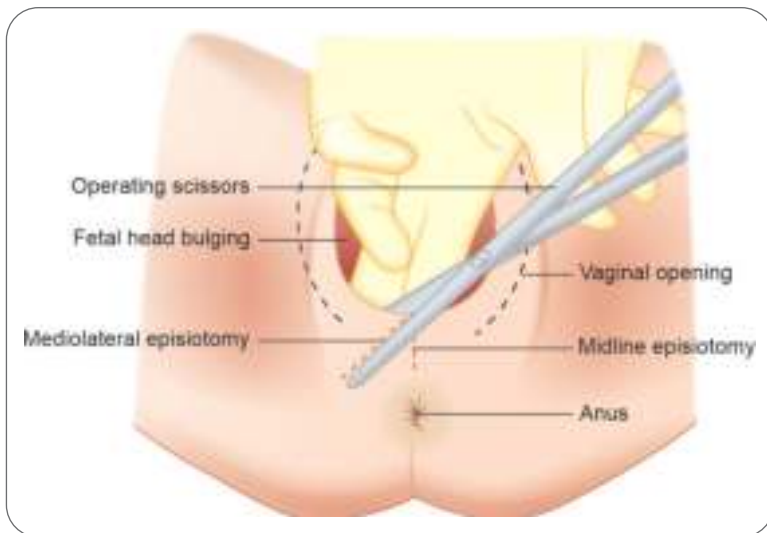
- Check baby's condition, i.e., respirations, color, cry, movements of the limbs and any congenital defects.
- Check baby's weight, length, circumference of the head, chest and abdomen.
- Carryout newborn assessment and record the findings.
- Leave the baby with the mother and initiate breastfeeding within half an hour.

Episiotomy Giving and Repairing

INTRODUCTION

Episiotomy is one of the most common obstetric operations given during the second stage of labor for specific indications.

A surgically planned incision on the perineum and the posterior vaginal wall during the second stage of labor is called episiotomy.



OBJECTIVES

- To enlarge the vaginal introitus so as to facilitate easy and safe delivery of the fetus spontaneous or manipulative.
- To minimize overstretching and rupture of the perineal muscles and fascia to reduce the stress and strain on the fetal head.
- Reduces duration of the second stage, which may be important for maternal or fetal reasons.
- Prevents tearing of the perineum. The clean and properly placed incisions are more properly heals than those a ragged one.

INDICATIONS

Anticipatory Perineal Tear

- Widely indicated in primigravida.
- Other indications are face to pubis or face delivery, big baby, and narrow pubic arch.

Inelastic Perineums

Failure of advancement of the presenting part because of perineal rigidity as in elderly primigravida, old perineal scar of episiotomy or periniorrhaphy.

Manipulative Delivery

To get more space for manipulative delivery such as forceps, breech or internal version especially in primigravida.

To Cut Short the Second Stage

Indicated in cases where each bearing down effort even to overcome the soft tissue resistance entails risks to the mother and/or to the baby. These are heart disease, severe preeclampsia or eclampsia, postcesarean cases, postmaturity, etc.

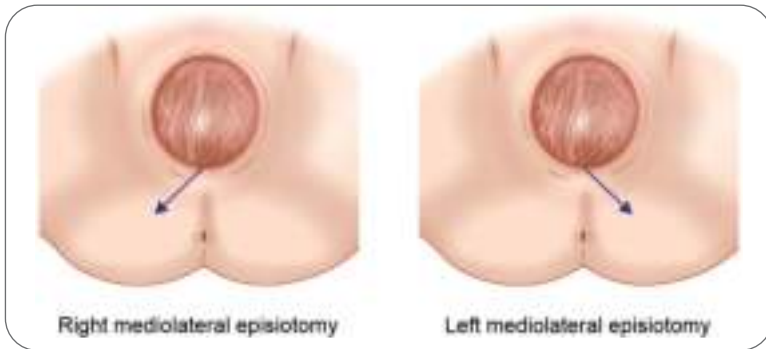
Fetal Interest

- Fetal distress

- Premature baby—to minimize compression of the soft and pliable skull bones thereby preventing intracranial damage.
- Breech delivery—to minimize compression of the after-coming—head and to facilitate manipulation if required.

TYPES

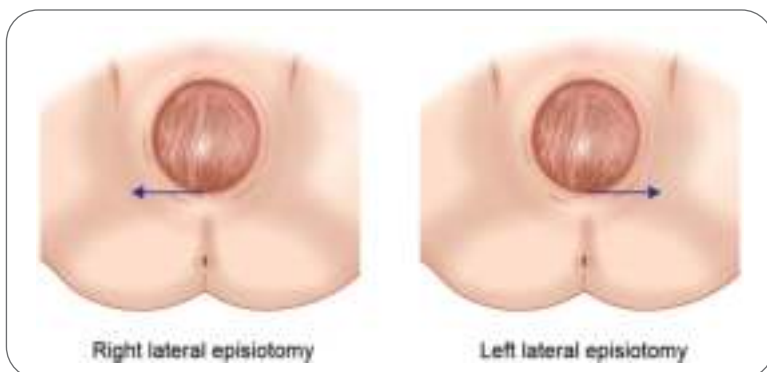
- **Mediolateral:** Incision is made diagonally in a straight line from the midpoint of the fourchette either to the right or left about 2.5 cm away from the anus. It is most preferable type of episiotomy.



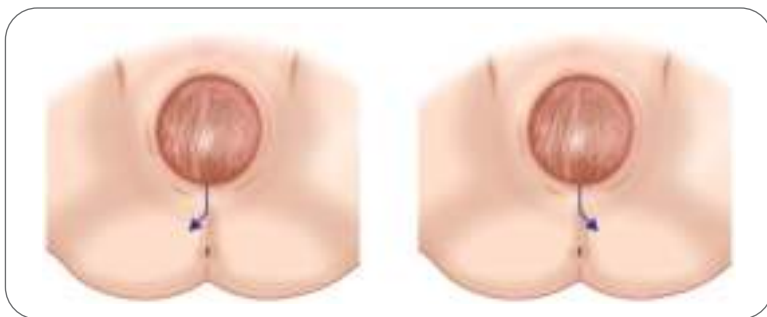
- **Median:** Incision made from the center of the fourchette and extends posteriorly along the midline for about 2.5 cm.



- **Lateral:** Incision starts 1 cm away from the center of the fourchette and extends laterally.



- **“J” shaped:** Incision begins in the center of the fourchette and is directed posteriorly along the midline for about 1.5 cm and then directed downward and outward along 5 or 7 o'clock position to avoid the anal sphincter.



STEPS OF PROCEDURE

Before Procedure

Preparation of the Mother

Physical preparation

- Shave the perineum/trim the hair as per the policy of the hospital during the first stage of labor.
- Keep the mother in lithotomy or dorsal position with thigh flexed and separated.
- Drape the mother to maintain privacy.

Psychological preparation

- Explain the procedure and its uses to the mother to win the confidence.
- Encourage and reassure during the procedure.

Preparation of the Articles

Articles	Purposes
• Sterile gloves	• To prevent infection
• Antiseptic solution—Savlon, Betadine over the wound	• For toileting of vagina, betadine to pour
• Cotton swabs	• To clean the perineum
• Gauge pieces	• To apply betadine on the episiotomy wound
• Draping sheets	• To minimize exposure and prevent infection
• Xylocaine (1%)	• For local infiltration
• 10 mL disposable syringe with 21-gauge needle	• For local infiltration
• Episiotomy scissors	• For giving episiotomy
• Toothed thumb forceps while suturing	• For holding the edges of the episiotomy
• Round body needle	• For suturing mucosal and muscle layers
• Cutting body needle	• For suturing skin
• Suture material (chromic or silk)	• For suturing the episiotomy catgut (0 or 1)
• Tampon/sponge	• To soak the bleeding
• Needle holder	• To hold the needle while suturing

Preparation of the Environment

- Good source of light
- Maintain privacy
- Maintain sterile field

During Procedure/Steps of The Procedure

Step 1. Preliminaries

- The perineum is thoroughly swabbed with antiseptic lotion and draped properly.
- **Local anesthesia:** The perineum in the line of the proposed incision is infiltrated with 10 mL of 1% solution of lignocaine.



Step 2. Incision

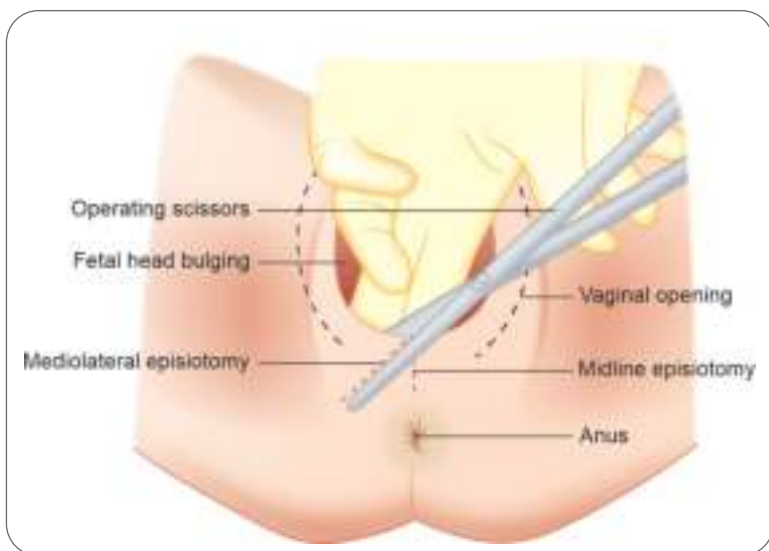
Structures cut are:

- Skin and subcutaneous tissue
- Posterior vaginal wall
- Bulbospongiosus muscle
- Superficial and deep transverse perineal muscle
- Part of levator ani
- Fascia covering those muscles
- Transverse perineal branches of pudendal vessels and nerves

Process of Giving Episiotomy

- Two fingers are placed in the vagina between the presenting part and the posterior vaginal wall.

- The incision is made by an episiotomy scissors, sharp blade of which is placed inside, in between the fingers and the posterior vaginal wall and the other on the skin.
- Incision should be made at the height of a uterine contraction.
- Deliberate cut should be made starting from the center of the fourchette extending diagonally either to the right or to the left.
- It is directed diagonally in a straight line which runs about 2.5 cm away from the anus.



Step 3. Repair

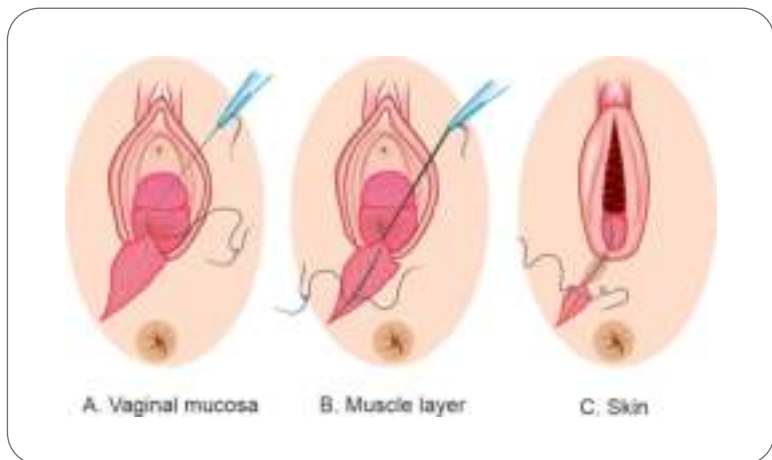
- **Timing of repair:** The repair is done soon after expulsion of placenta.
- **Preliminaries:** The mother is placed in lithotomy position. The perineum is cleansed with antiseptic solution. Draped properly and repair done under strict aseptic precaution. If oozing is present, vaginal pack or tampon may be inserted and placed high up. Remove the pack after the repair is completed.
- Repair is done in three layers.

Principles to be followed are:

- Perfect hemostasis
- To obliterate the deep space
- Suture without tension.

Repair is done in the following manner:

- Apex is identified and the first bite is taken 0.5–1 cm above the apex.
- Apex, vaginal mucosa and submucosal tissue sutured in continuous and interlocking manner.
- Perineal muscles sutured in intermittent manner.
- Skin and subcutaneous tissues sutured in mattress manner.



Aftercare of the Patient and the Articles

- Make the patient comfortable
- Clean the perineum with antiseptic solution
- Pour betadine over the wound and apply sterile vulval pad
- Collect equipment. Wash in basin with cold water and send for autoclaving or disinfectant
- Clean other equipment and return to their usual places
- Wash hands.

Recording and Reporting

- Record on patient's chart and nurse note book. With date and time
 - Indication of episiotomy
 - Type of episiotomy given
 - Suture type.
- Report any complication to the ward incharge and doctor.

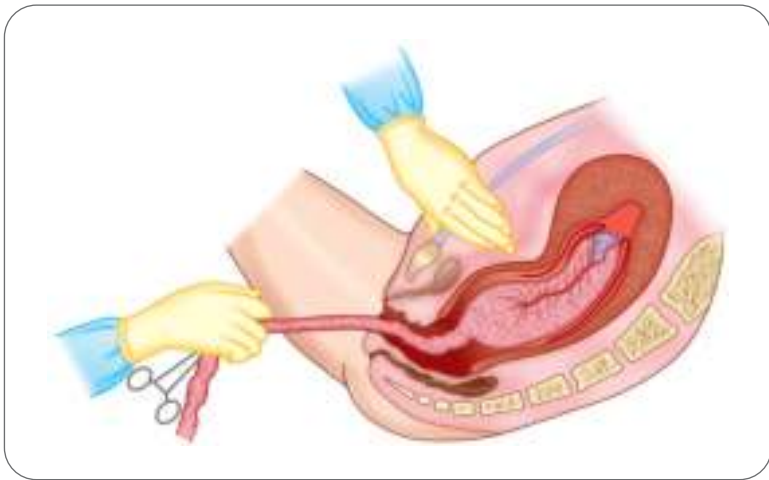
POSTOPERATIVE NURSING CARE

- **Perineal care:** Perineal wound is prone to infection, hence meticulous care is important.
 - Cleaning the wound after each bowel and bladder action: cleaning should be done from front to back in a single stroke action to prevent anal contamination.
 - Application of antiseptic cream
 - Use of sterile pads which are frequently changed
 - Inspection of the wound periodically for redness, purulent discharge or any other sign of infection
 - Removal of the perineal skin stitches after 5 days, if required.
- **Comfort:** To relief pain in the area the following can be given:
 - Sitz bath
 - Application of infrared light
- **Ambulance:** Allow the patient to move out of the bed after 24 hours. Prior to this, the patient can roll over onto her side or even to sit but only with thighs apposed to prevent tearing.

Active Management of Third Stage of Labor

INTRODUCTION

- Postpartum hemorrhage is a potentially life-threatening, albeit preventable, condition that persists as a leading cause of maternal death. It occurs mostly during the third stage of labor, and active management of the third stage of labor (AMTSL) can prevent its occurrence.
- AMTSL is a recommended series of steps, including the provision of uterotonic drugs immediately upon fetal delivery, controlled cord traction, and massage of the uterine fundus, as developed by the World Health Organization (WHO).



THIRD STAGE OF LABOR

The Third Stage of Labor is defined as the time between the delivery of the baby and the expulsion of the placenta. The duration of the third stage is ~6–30 minutes.

According to **WHO**, the active management of the TSL:

- Administration of uterotonic agents after delivery of the baby.
- Expulsion of placenta with controlled traction of cord.
- Uterine fundal massage after expulsion of placenta.

ACTIVE MANAGEMENT OF THIRD STAGE OF LABOR

Principles

- Enhance separation of placenta
- Safe and complete delivery of placenta
- Minimize bleeding

Components

- Use of oxytocics
- Delivery of placenta by controlled cord traction
- Massage of uterus after placental delivery
- Examination of birth canal and afterbirths
- Repair of tears/episiotomy

Oxytocics

- Oxytocin
- Ergometrine/Methylergometrine
- Prostaglandin
- Misoprostol

Delivery of Placenta

Early cord clamping

- Controlled cord traction
- Raising the uterus gently upward by abdominal hand
- Traction when placenta is separated/uterus contracted

Uterine Massage

- Immediately after placental delivery till uterus is hard
- Repeat intermittently for 1–2 hours.

Immediate Postpartum Care

- Closely monitor for first 6 hours.
- Pulse, respiration, temperature, BP, GC.
- Vaginal bleeding, uterine hardness @ Every 15 minutes for 1 hour, @ every 30 minutes or for 2 hours.
- If stable give her something to drink/eat when thirsty/hungry.

Delivery of Placenta

INTRODUCTION

Third stage of labor is one of the most important stages which require a great amount of skill by the midwife. Delivery of the placenta has to be done carefully to prevent further complication. It is the process of expulsion of placenta along with its membranes.

OBJECTIVES

- To achieve hemostasis
- To achieve involution of uterus.

REQUIRED ARTICLES

Articles	Purposes
A clean tray containing	
Kocher's forceps—2	To clamp the cord
Umbilical cord cutting scissors—1	To cut the umbilical cord
Kidney tray	To keep the placenta
Gloves	To protect hands from infection
Sponge holding forceps	To remove membranes
Sterile bowl with cotton swabs	To explore the uterus
Mackintosh	To protect the bed from soiling

Contd...

Articles	Purposes
Antiseptic solution	To clean the area
Sterile pad	To cover the perineum
Screen	For privacy

PREPARATION

Preparation of the Mother

- Explain the procedure to the mother.
- Give lithotomy position to the mother.
- Tell mother to bear down when contractions occur.

Preparation of the Articles

Articles required for the procedure should be kept arranged near the bedside of the mother.

Preparation of the Unit

- Unit should be well ventilated and lighted.
- The area where the examination done should be kept clean and neat.

Preparation of the Self

- The midwife should wash her hands before doing procedure.
- She should be well confident.
- Wear gloves before doing procedure.

STEPS OF PROCEDURE

Steps	Rationale
Normal delivery	
1. Put screen	• To maintain privacy
2. Wash hands	• To prevent cross infection
3. Wear gloves	• To prevent cross infection

Contd...

Steps	Rationale
4. Give lithotomy position to the mother	<ul style="list-style-type: none"> Facilitate steps of the procedure
5. Tell mother to bear down	<ul style="list-style-type: none"> For the easy expulsion of placenta
6. Check the characteristics of uterus	<ul style="list-style-type: none"> To find out uterus is contracted or not
7. Notify the S/S of placental separation	<ul style="list-style-type: none"> To find out whether placental separation has started or not
	<ul style="list-style-type: none"> Sudden gush of fresh blood
	<ul style="list-style-type: none"> Apparent lengthening of cord
	<ul style="list-style-type: none"> Cricket ball-like uterus per abdomen
	<ul style="list-style-type: none"> Suprapubic bulge
	<ul style="list-style-type: none"> Feeling placenta per vagina
8. Wait for 10 minutes till the placenta descends.	
9. When placenta reaches the introitus grasped by the hands, twist round in clockwise direction with gentle traction.	<ul style="list-style-type: none"> For the complete expulsion of placenta
10. If membranes threaten to tear they are caught by sponging holding forceps.	
11. Continue the twisting movements until the membranes are delivered.	

Assisted Expulsion

Controlled Cord Traction

- Once the uterus is found contracted, one hand is placed above the level of symphysis pubis with palm facing toward the umbilicus exerting pressure in an upward direction.
 - To apply counter traction

- With the one hand firmly grasping the cord, apply traction in a downward and backward direction following the line of birth canal.
- Keep the steady tension by pulling firmly and maintaining the pressure.
- Jerky movements and force should be avoided.
- Keep the steady pressure till the placenta reaches the introitus.
- Follow the steps as spontaneous expulsion.

Fundal Pressure

- Fundus is pushed downward and backward after placing four fingers behind the fundus and the thumb in front using the uterus as a sort of piston.
- Give pressure only when uterus becomes hard.
- If uterus is not hard, make it hard by gentle rubbing.
- The pressure to be withdrawn as soon as the placenta passes through the introitus.
- Follow the steps as spontaneous expulsion of placenta.

Aftercare of Article and Mother

- After the delivery of the placenta, keep the placenta in a kidney tray for examination.
- Give comfortable position to mother.
- Clean the perineum with antiseptic solution, look for presence of any tear, laceration and apply sterile vulval pad.
- Wash the article with soap and water.
- After drying, arrange the article for next use.
- Discard all waste.

Recording and Reporting

The observations made during the procedure should be recorded in the nurse's notes and patient's file and any abnormal findings should be informed to higher authority.



Controlled cord traction



Fundal pressure

CONCLUSION

A midwife has to be vigilant in monitoring the timing of the third stage of labor to assess further emergency intervention needed for delivery of the placenta.

Placental Examination

INTRODUCTION

Placenta known as the bed of the baby, provides nutrition and oxygen required for growth and development of fetus. After the delivery of the baby the placenta is shed off. Therefore, placental examination should be done after each delivery.

Placental examination is the method of observing and visualizing placenta for normal characteristics.

OBJECTIVES

- To observe the placenta for normal characteristics
- To visualize placenta for abnormal characteristics
- To observe umbilical cord for any kind of abnormalities.

REQUIRED ARTICLES

Articles	Purposes
A clean tray containing	
• Mackintosh	• To protect the table from soiling
• Measuring tape	• To measure the cord length
• Pin	• To measure the thickness of the placenta

Contd...

Articles	Purposes
• Cotton thread	• To measure the diameter of the placenta and length of the cord
• Weighing machine	• To measure the weight of the placenta
• Gloves	• To protect hands
• Kidney tray and or paper bag	• To discard waste
• Cotton swab	• To spread membrane
• Yellow plastic	• To discard the placenta

PREPARATION

Preparation of the Articles

Articles required for the procedure should be kept arranged near the bedside of the mother.

Preparation of the Unit

- Unit should be well ventilated and lighted.
- The area where the examination done should be kept clean and neat.

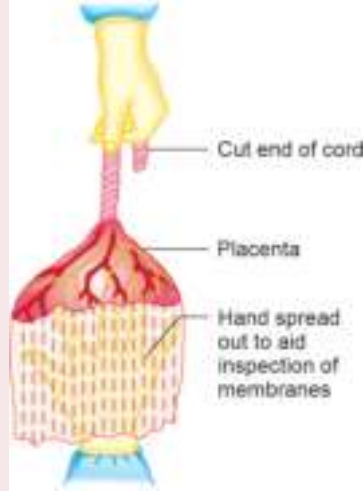
Preparation of the Self

- The midwife should wash her hands before doing procedure.
- She should be well confident.
- Wear gloves before doing procedure.

STEPS OF PROCEDURE

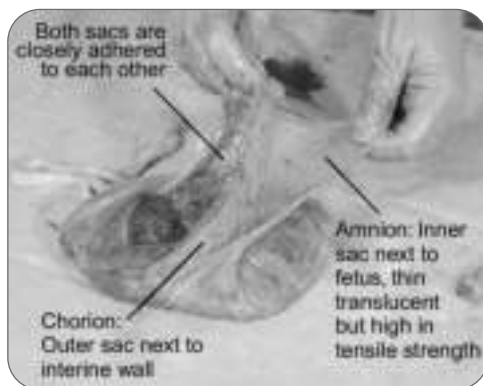
1. Wash hands	• To prevent cross infection
2. Wear gloves	• To prevent cross infection
3. Wash the placenta under running water	• To remove blood clots and for easy visualization

Contd...

Examination of the membrane	
<ul style="list-style-type: none"> Hold placenta by cord, allow the membrane to hang 	<ul style="list-style-type: none"> For easy visualization
<ul style="list-style-type: none"> The hole through which baby was delivered, the midwife should put hands inside the hole and spread the membrane 	<ul style="list-style-type: none"> For easy visualization of membranes
<ul style="list-style-type: none"> Keep the placenta in a flat surface and examine both placental surface under membrane 	 <p>The diagram shows a hand holding the cut end of the umbilical cord. The cord is attached to the placenta. The placenta is held flat against a surface, and the membrane is spread out to aid in inspection. Labels include: 'Cut end of cord', 'Placenta', and 'Hand spread out to aid inspection of membranes'.</p>
<ul style="list-style-type: none"> With the cotton swab try to separate the amnion and chorion 	
<ul style="list-style-type: none"> The amnion should be peeled from the chorion right up to the insertion of the umbilical cord in the fetal surface. And chorion is up to the margin of the placenta 	
<ul style="list-style-type: none"> Check for presence of any extra hole in the membrane 	<ul style="list-style-type: none"> To check abnormalities
Examination of the placenta	
<ul style="list-style-type: none"> Spread the placenta on the palmar aspect of both hands 	<ul style="list-style-type: none"> Easy visualization
<ul style="list-style-type: none"> Put the placenta on a flat surface 	

Contd...

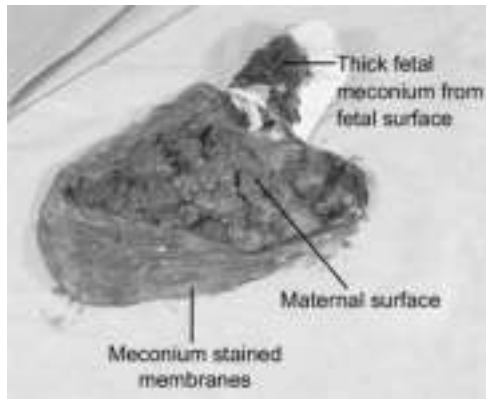
<ul style="list-style-type: none"> • Check the diameter of the placenta with thread and measuring tape 	
<ul style="list-style-type: none"> • Put pin in the margin and in the center 	
<ul style="list-style-type: none"> • Check both surface, i.e., maternal and fetal 	<ul style="list-style-type: none"> • To measure the thickness of placenta
<ul style="list-style-type: none"> • Check the fetal surface for the distribution of the blood vessels 	<ul style="list-style-type: none"> • To check any abnormality color, appearance, insertion of cord, and
<ul style="list-style-type: none"> • To check the maternal surface for number of lobes, color, any calcium deposition or infarcted area 	<ul style="list-style-type: none"> • To find out missing of lobes and ageing of placenta
<ul style="list-style-type: none"> • Weigh the placenta 	<ul style="list-style-type: none"> • To know the weight
Examination of cord	
<ul style="list-style-type: none"> • Check for presence of true knot and false knot 	<ul style="list-style-type: none"> • To check any abnormality
<ul style="list-style-type: none"> • Check the length of the umbilical cord 	<ul style="list-style-type: none"> • To check any abnormality
<ul style="list-style-type: none"> • Cut the umbilical cord check for no. of arteries and vein 	<ul style="list-style-type: none"> • To find out any congenital deformity



Examination of the membrane



Fetal surface of placenta



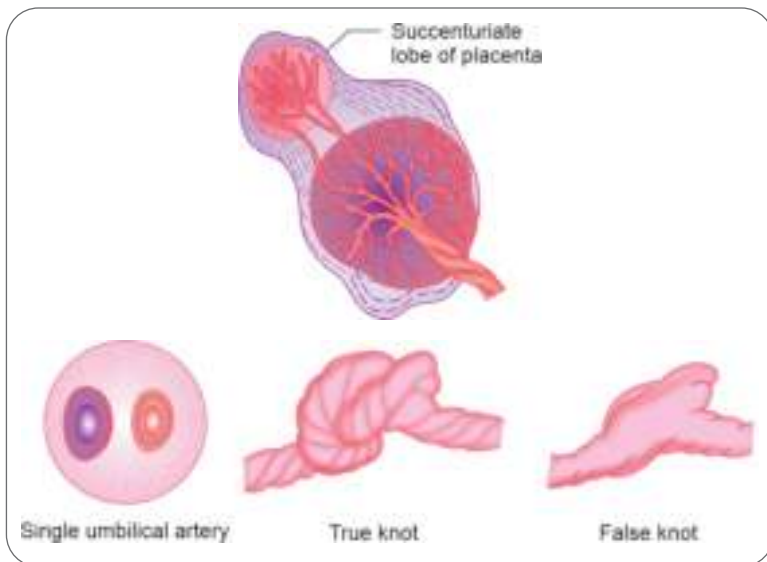
Maternal surface of placenta



Battledore placenta



Velamentous insertion of cord



Aftercare of Articles and Mother

- After the examination of the placenta, it should be kept in a yellow cover and send it for incineration.
- Wash the article with soap and water.
- After drying arrange the article for next use.
- Discard all waste.

Recording and Reporting

The observations made during the procedure should be recorded in the nurse's notes and patient's file and any abnormal findings should be informed to higher authority.

CONCLUSION

Placental examination guides the midwife to find out variation in the placenta which aids in diagnosing maternal complication and congenital abnormalities in mother and fetus, respectively. Therefore, placental examination should be done after every delivery.

Abnormalities in Placenta and Cord

INTRODUCTION

- The placenta is an important organ that evolves with the implantation of the blastocyst throughout the pregnancy.
- The placenta has an essential role in functions such as nutrition, excretion, and immunologic and endocrine function.
- The normal placenta is a round- or oval-shaped organ that attaches to the uterine wall and has roughly 22 cm in diameter and a thickness of about 2–2.5 cm and weighs about one sixth of the fetal birth weight.
- Consequently, the placenta abnormalities can range from structural anomalies, to function disorders, to site of implantation abnormalities.

OBJECTIVES

- To review common placental variants
- To outline the clinical significance of an abnormal placenta.

PLACENTA VARIANTS

Bilobed Placenta

- Bilobed placenta (placenta bilobate, bipartite placenta, placenta duplex) is a placental morphological anomaly that refers to a placenta separated into two roughly equal-sized lobes, separated by membranes.

- If there are more than two lobes, then the placenta is called a multilobed placenta.



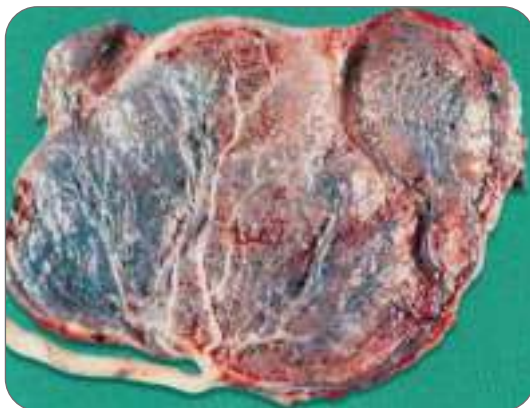
Circumvallate Placenta

- Circumvallate placenta represents one type of an extrachorial placenta, defined as an annularly-shaped placenta with raised edges composed of a double fold of chorion, amnion, degenerated decidua, and fibrin deposits.
- There is an increased risk of vaginal bleeding at the beginning of the first trimester and also a risk of premature rupture of the membranes, preterm delivery, placental insufficiency, and placental abruption.



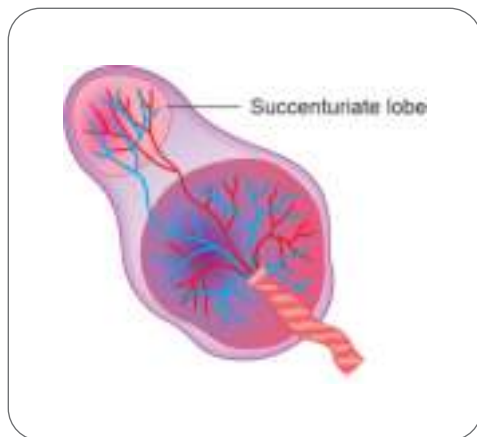
Placenta Membranacea

- The placenta develops as a thin structure, occupying the entire periphery of the chorion.
- The common symptom of this type of placental pathology is vaginal bleeding in the second or third trimester (often painless) or during labor.



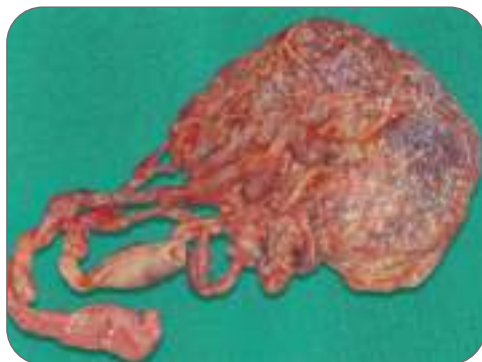
Succenturiate Placenta

- In succenturiate placenta, a smaller accessory placental lobe develops in the membranes, apart from the main disk of the placenta.
- In placenta spuria the communicating membranes do not have vessels.



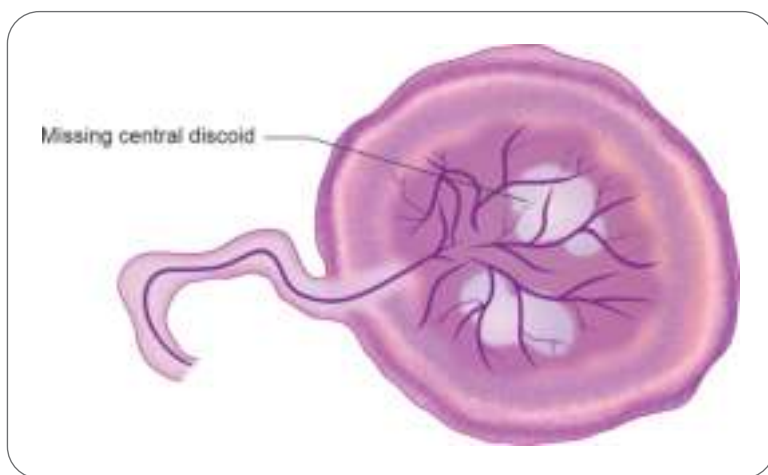
Placental Mesenchymal Dysplasia

- Placental mesenchymal dysplasia is a rare vascular anomaly of the placenta characterized by mesenchymal stem villous hyperplasia.
- The ultrasound diagnosis includes placentomegaly and a “grape-like” placental appearance.



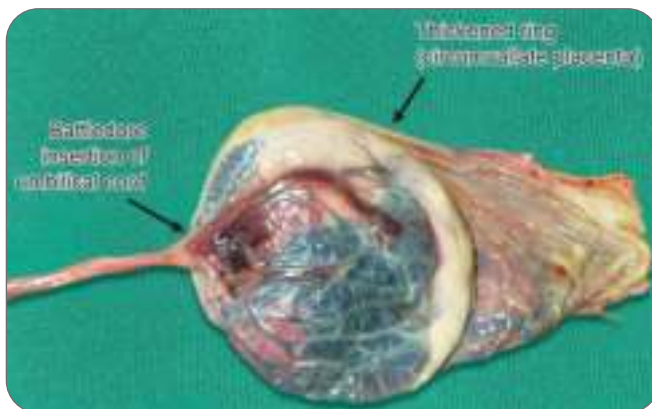
Placenta Fenestrata

- The central portion of the discoid placenta is missing.
- Rarely, there may be an actual hole in the placenta, but more frequently, the defect involves the villous tissue, and the chorionic plate remains intact.



Battledore Placenta (Marginal Cord Insertion)

It is a condition in which the umbilical cord is inserted at or near the placental margin rather than in the center.



CLINICAL SIGNIFICANCE

The placenta is a maternal-fetal organ that begins development at implantation of the blastocyst, and it is delivered at birth with the fetus. The fetus relies on the placenta for nutrition and many developmentally essential functions.

Assisting for Lower Segment Cesarean Section

INTRODUCTION

It appears that the operation derives its name from the notification “lex cesarea” according to roman law but operation does not derive from the birth of cesar, as his mother lived long time after his birth. The other thing is that the word cesarean is derived from the latin verb *cedere* which means to “cut”.

Cesarean section (CS) is the operative procedure whereby the fetuses after the end of 28th week are delivered through an incision on the abdominal and uterine walls.



INDICATIONS

Absolute indication	Relative indication
• Dead fetus	• Cephalopelvic disproportion (CPD)
• Central placenta previa	• Previous cesarean delivery
• Contracted pelvis/CPD	• Nonreassuring fetal heart rate (FHR)
• Advanced cervical carcinoma	• Dystocia (three Ps)
• Vaginal obstruction (atresia, stenosis)	• Antepartum hemorrhage

COMMON INDICATIONS

Primigravida:	• Hypertensive disorder Bad obstetric history
	• CPD
	• Dystocia (three Ps)
	• Fetal distress (non-reassuring FHR)
Multigravida:	Medical gynecological disorders:
	• Previous cesarean delivery
	• Uncontrolled diabetes
	• Antepartum hemorrhage
	• Heart disease
	• Carcinoma of the cervix
	• Malpresentation
	• Repair of vesicovaginal fistula

PREPARATION OF THE LOWER SEGMENT CESAREAN (LSCS) TROLLEY

Drape the trolley with plastic drape and then linen drape after lysoling the trolley.

Articles in the Trolley

Articles	Number required	Purposes
Sponge holder	3	For cleaning and painting
BP handles (No. 3 and 4)	1 each	For incision
Blade no. 10, 20	2	For incision
Toothed forceps (big and small)	1 each	To hold the skin and tissue while suturing
Plain forceps (big and small)	1 each	To hold the tissue and muscles during incision to hold the muscles
Tissue cutting scissors	2	To cut the tissues
Mosquito curved artery	6	To catch the bleeders
Curved artery forceps	6	For hemostasis
Alli's forceps (big and small)	2 + 4	To catch the tissues
Babcocks	2	To hold the soft organs
Straight artery forceps (big)	2	To clamp the cord
Needle holder (big and small)	1 each	To stitch
Suture cutting scissors	1	To cut the sutures
Drapes	6	For draping
Towel clip	6	To fix the drape
Suction tube	1	To suck out the blood and mucus
Big bowl	2	For normal saline and for receiving the
Sponges	5	To mop the wet area
Gallipot small	2	For betadine, spirit or Savlon
Kidney tray	2	During catheterization
Roundbodyneedle cutting needle	2	
Langenben retractor (right angle)	2	To retract the muscle in big area
Small retractor	2	To retract the muscle in small area
Doyen's retractor	1	To retract the abdominal wall

Contd...

Articles	Number required	Purposes
Green armytage	2 to 4	For hemostasis
Gauze piece bundle	5	To mop the wet area (5 in each bundle)
Cautery hand piece	1	For cauterization
Suture material		
Catgut 1-0		To stitch the incision
Vicryl 1, 0		
Ethilon 1, 10		

NURSING MANAGEMENT OF WOMEN UNDERGOING LSCS

The responsibilities at cesarean section are:

- Preoperative preparation and care of mother.
- Getting the theater ready and preparing the required instruments and equipment.
- Reception and resuscitation of the baby.
- Postoperative care of the mother.

Preoperative Preparation and Care of Mother

- Mother for CS is usually admitted a day or two prior to the day of operation to familiarize her with the hospital and environment and to prepare her for anesthesia.
- Brief description of what the operation entails to the mother. Consent for operation is then obtained from the mother or her next kin.
- The specific examinations and investigations carried out to reduce the risk of anesthesia under an anesthetist.

INVESTIGATIONS

Investigation	Rationale
• Blood test	Packed cell volume in case of anemia.
	Blood grouping and cross matching in case need for blood transfusion
• Urinalysis	Albuminuria, glycosuria and acetonuria
• Nutritional and disease of the cardiovascular system	To exclude hypertension, respiratory tract general health

OTHERS PREOPERATIVE PREPARATIONS

- Bowel should be emptied with an enema given at night before or in the morning of the operation. Just before the operation the bladder is emptied.
- Vulva is shaved and the lower part of the abdomen is also shaved.
- A sedative with appropriate dose to ensure good sleep is usually given at night before the operation.
- An hour before the operation a theater gown is put on the mother. Hair is clipped and the head is covered with a cap.
- Removal of any artificial dentures, earrings, necklace, hairpins, except wedding ring.
- Premedication sedatives must not be given.
- Patient's notes and X-rays must accompany her to the theater.
- General anesthesia, epidural or spinal anesthesia may be used. The choice of anesthesia depends on the several factors. The mother's medical history or present condition, such as a spinal injury or hemorrhage, may contraindicate the use of regional anesthesia. Time is another factor, especially if an emergency arises and the life of the mother or infant is at risk.
- The mother needs to be fully informed about the risk and benefit of the different types of anesthesia so that she can participate in the decision whenever there is a choice.

Position

Dorsal position: In susceptible cases, to minimize any adverse effects of vasovagal compression, a 15° tilt to her left using sand bags until delivery of baby is beneficial.

Incision on the Abdomen

A low transverse incision is made about two fingers above the symphysis pubis. Some obstetrician makes a vertical infraumbilical or paramedian incision, which extends from about 2.5 cm below the umbilicus to the upper border of the symphysis pubis.

The anatomical layers incised are:

- Skin
- Fat
- Rectus sheath

- Muscle (rectus abdominis)
- Abdominal/pelvic peritoneum
- Uterine muscle.

Special instruments

Instruments	Purposes
Green Armytage's forceps	To hold the cut edges of the lower uterine segment
Murless head retractor	Extraction of fetal head during CS

PROCEDURE

- The surgeon usually incises the rectus sheath, but divides the rectus muscle digitally. Care is taken for the bladder and the ureters.
- The scrub nurse must avoid contamination of the sterile field and keep close account of all swabs, instruments and needles.
- When the uterine cavity is opened, the amniotic fluid escapes and is aspirated. The baby is delivered in much the same way as in a vaginal delivery but through the uterine incision; obstetric forceps are often used to extract the head from pelvis.
- When the baby is born, an oxytocin drug is administered before the placenta and membrane are delivered.
- If she is having general anesthesia the mother may now be given a slightly deeper anesthetic and the operation proceeds at a more leisurely pace. The uterus bleeds freely at this stage and the surgeon will quickly apply the special hemostatic green-armytage forceps.
- The uterine muscle is sutured in two layers, the second of which tends to align or include the cut edges of the pelvic peritoneum. Some obstetricians prefer to suture the pelvic peritoneum as a distinct layer, followed by the abdominal peritoneum.
- Repair of the rectus sheath also brings the rectus abdominis into alignment. Sometimes, the subcutaneous fat is sutured and finally the skin is closed with sutures or clips.
- A vacuum drain, such as a "Redivac" drain, may be inserted beneath the rectus sheath to prevent the formation of a hematoma, wound.
- The uterine muscle is sutured in two layers using continuous running sutures, the second of which tends to be aligning the cut edges of the pelvic peritoneum. Repair of the rectus sheath brings the rectus abdominis into alignment.

- The subcutaneous fat is sometimes sutured and finally, the skin is closed with sutures or clips.

Aftercare of the Patient and the Articles

- Make the patient comfortable.
- Observe for any complications, like perforation of the uterus, acidosis and cardiac arrhythmias due to high CO₂, fluid overload due to fluid distending media.
- Collect equipment. Wash in basin in cold water and send for autoclaving or disinfectant.
- Clean other equipment and return to their usual places.
- Wash hands.

Recording and Reporting

- Record on patient's chart and nurse's note book with date and time and result.
- Report any complication to the ward sister and doctor.

POSTOPERATIVE CARE

- After the operation, the linens should be changed before she leaves the operating table.
- Be with the mother until she regains conscious. When the patient is unconscious, her airway should be kept clear and the nasopharynx sucked out as often as necessary.
- Observations and recording of the patient's pulse, respiration and blood pressure are made quarterly. Temperature is recorded hourly. Any abnormality must be reported without delay.
- The nurse should inspect wound site and the vulva to exclude bleeding.
- A midwife should not leave the operating room with the mother without the following:
 - A good knowledge of what has done for the mother and any postoperative instructions, which are to be clear to be carried out.
 - Clear instructions regarding the fusion and transfusion.
 - The postoperative drugs written out.

First 24 Hours

Day 0

- The mother is observed meticulously for at least 6–8 hours.
- Periodic checkup of pulse, blood pressure, amount of vaginal bleeding.
 - **Fluid:** Sodium chloride (0.9%) or ringer lactate drip is continued at least 2–2.5 liters of the solution are infused. Blood transfusion is helpful in anemic mothers for a speedy postoperative recovery. Blood transfusion is required if the blood loss is more than average during the operation (average blood loss in CS is approximately 1–1.5 liters)
 - **Injection methergin** 0.2 mg intramuscularly may have to be repeated.
 - **Prophylactic antibiotic** is usually prescribed parentally for the first 48 hours.
 - **An analgesic** in the form of pethidine hydrochloride 75–100 mg is administered and may have repeated.
 - **Ambulation:** The mother can sit on the bed or over even get out of bed to evacuate the bladder, provided the general condition permits. She is encouraged to move her legs and ankle and to breathe deeply to minimize leg vein thrombosis and pulmonary embolism. The baby is put to the breast.

Day 1

Oral feeding in the form of plain or electrolyte water or raw tea may be given. Active bowel sounds are observed by the end of the day.

Day 2

Light solid diet of the patient's choice is given. Three to four teaspoons of lactose may be given at bedtime, if the bowels do not move spontaneously.

Day 5 or Day 6

The abdominal stitches are to be removed on the D-5 (in transverse) or D-6 (in longitudinal).

Care of Mother and Baby by Cesarean Birth Without Any Complications

Characteristics	Immediate postoperative cesarean	By 4th hour day cesarean baby	First day with postoperative	First after postnatal unit
Abdominal incision	Dressing dry and intact	Dressing dry and intact	—	Dressing dry, intact
Activity	Bed rest	Bed rest	Assisted to comfortably position for holding and feeding the baby	Mother can sit on the bed or even get out of bed to evacuate the bladder, provided the general conditions permits.
Medication	Oxytocin added to IV; pain control, antibiotic-parentally for the first 48 hours	Oxytocin added to IV; pain control, analgesics—IM/PO	—	Oxytocin discontinued pain control, analgesics—IM/PO
Teaching discharge plan	Breastfeeding: Positioning: She is encouraged to move her legs, i.e., leg and ankle exercise, and to breathe deeply to minimize leg vein thrombosis and pulmonary embolism	Verbalize understanding of unit routines how to achieve rest, involution, and pain control	Hand washing, safety, positioning for feeding and burping; if breastfeeding, then positioning baby, timing, removing from breast	Comfort measures and care positioning; teaching about lactation suppression and promotion
Assessment	Recovery room PACU admission assessment completed	PP admission assessment completed and care	—	—

Contd...

Characteristics	Immediate postoperative cesarean	By 4th hour day cesarean baby	First day with postoperative	First after postnatal unit
Vital signs	Every 15 minutes for 1 hour, then every 30 minutes for 4 hours; WNL	Every 1 hour for 3 hours; WNL	—	Every 8 hours; WNL
Postpartum assessment	Every 15 minutes for 1 hour; WNL	Every 1 hour for 3 hours; WNL	—	Every 8 hours; WNL
Genitourinary	Retention catheter output more or less than 30 mL/hour	Retention catheter output more than 30 mL/hour	—	Catheter discontinued output more than 100 cc/void
Gastrointestinal		Active bowel sounds are observed	—	Active bowel sounds are observed by the end of the day
Musculoskeletal	Alert or easily aroused can move legs	Alert and oriented; moving all extremities	—	Ambulating with help
Bonding	Evidence of parents/child bonding: Breastfeeding; grooming-in	—	Grooming- in	—
Innervations: IV fluid	IV continuous discontinued	IV	—	May be discontinued
Diet	NPO	Sips of clear fluid-plain or electrolyte water or raw tea.	—	Clear liquid
Perineal Referral/ follow-up		Perineal care	—	Self-perineal care

Contd...

Characteristics	Second day with baby	Second PP day	Third day with baby	Third PP day	Discharge day
Abdominal incision	—	Dressing off or changed; incision intact	—	Dressing dry and intact	Incision WNL
Activity	Hold the baby comfortably	Ambulate without assistance; ADL's unassisted	—	Activity as desired	—
Medication	—	Stool softener 3–4 teaspoons of lactose may be given at bedtime, if the bowels do not move spontaneously	—	—	—
Teaching/discharge plan	Bonding; parents concerns; feeding	Diet; activity/rest/bowel/bladder function	Infant bath; cord care; eye care feeding	Home care-sign of complications (infection, bleeding), and most important is contraception (knowledge and practice)	Verbalization of understanding about home care sign of complications (infection, bleeding and most important is contraception (knowledge and practice and advantages)

Contd...

Characteristics	Second day with baby	Second PP day	Third day with baby	Third PP day	Discharge day
Assessment Vital signs		Every 8 hours; WNL	—	Every 8 hours; WNL	—
Postpartum assessment		Every 8 hours; WNL	—	Every 8 hours; WNL	—
Genitourinary		Urine output more than 240 mL/8 hours	—		
Gastrointestinal	—	Active bowel sounds and flatus are observed	—	Active bowel sounds; flatus and bowel movement are observed by the end of the day	—
Musculoskeletal	—	Ambulating unassisted	—	Ambulating as desired	—
Bonding	Evidence of parents/child bonding progressing	—	Grooming in	—	—
Laboratory tests	—	Determine Rh status and need for anti Rh globulin	—	—	Check for rubella immunity and give if needed.
Innervations: IV fluid					

Contd...



Characteristics	Second day with baby	Second PP day	Third day with baby	Third PP day	Discharge day
Diet		Regular diet			
Perineal		Perineal care with size bath if ordered		Self-perineal care	
Referral/Day 5 and day 6 – Removal of stitches D-5 (in transverse) D-6 (in Follow-up Longitudinal) Follow-up after 1 week for 1 month. Abbreviations * IM, intramuscular; * PO, per OS; * PACU, post anesthesia care unit; * IV, intravenous; * WNL, within normal limits; * NPO, nil per OS; <i>Abbreviation:</i> ADL, activities of daily living.					

Recording and Reporting

- Record on patient's chart and nurse's note book with date and time and result.
- Report any complication to the ward sister and doctor.

Aftercare of the Patient and the Articles

- Make the patient comfortable.
- Observe for any complications, like perforation of the uterus, acidosis and cardiac arrhythmias due to high CO₂, fluid overload due to fluid distending media.
- **Collect equipment:** Wash in basin in cold water and send for autoclaving or disinfectant.
- Clean other equipment and return to their usual places.
- Wash hands.

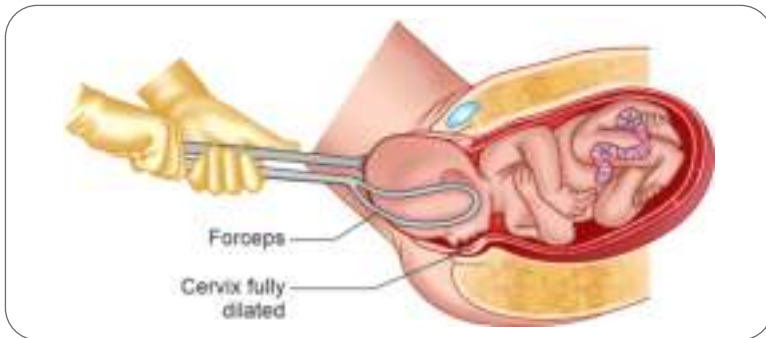
Discharge Planning

The mother is discharged on the day following the removal of stitches, if otherwise fit. The usual advice given is similar to in the case following vaginal delivery. However, the main advice you have to give is for at least three following years like Cu-T, condom and oral pills.

Assisting for Forceps Delivery

INTRODUCTION

A forceps delivery is a type of assisted vaginal delivery. It's sometimes needed in the course of vaginal childbirth. In a forceps delivery, a health care provider applies forceps—an instrument shaped like a pair of large spoons or salad tongs—to the baby's head to help guide the baby out of the birth canal.



OUTLET FORCEPS

- Scalp at introitus without separating labia
- Skull at pelvic floor
- Sagittal suture in AP diameter, ROA, LOA, OA
- Fetal head on the perineum
- Rotation less than 45 degrees

LOW FORCEPS

- Skull greater than +2 station
- Rotation less than 45 degrees LOA or ROA to OA, LOP or ROP to OP
- Rotation greater than 45 degrees

MID FORCEPS

Above +2 station, head engaged

High Forceps—Not Classified

Forceps—Applications

- Sagittal suture equidistant between branches
- Posterior fontanelle one fingerbreadth above shanks
- Tips of blades lie over cheeks
- Fenestrated blades admit one finger between the heel of blade and head
- No maternal tissue grasped by forceps

The function of forceps is traction with minimal compression during contractions. Rotation, if necessary, is done between contractions. Forceps are applied from below the fetal head while sitting. Traction force originates from the forearms, not the chest. The plane of traction is with the pelvic curve (Saxtorph-Pajot maneuver). Traction should be steady without rocking motion. An early episiotomy usually RML to avoid rectal injury is performed to allow for more space and prevention of vaginal lacerations. When the BPD passes the vulvar ring, remove the forceps in reverse order. Most cases progress with first or second pull and delivery with third or fourth pull.

Forceps delivery is done during the second stage of normal vaginal delivery. During this procedure:

- The doctor gently inserts two or more fingers inside your vagina and beside your baby's head.
- The doctor then gently slides one part of the tong between the fingers and the baby's head, followed by positioning of the other half of the tong on the other side of the baby's head.

- Both parts of the tong are then locked together to safely secure the baby's head in between them.
- If the baby is facing upward, in between the mother's contractions, the doctor uses the forceps to gently shift the position of the baby's head.
- As the labor progresses the doctor may remove the forceps before the widest part of the baby's head goes through the birth canal or he/she may retain the hold of the forceps.
- When the mother experiences the next contraction, the doctor gently guides the baby through the birth canal using the forceps.

Note: If after using the forceps the doctor is not able to move the baby after three pulls or the baby is not delivered within 20 minutes the doctor will most likely suggest an emergency C-Section. Alternatively, the doctor may also opt for vacuum extraction.

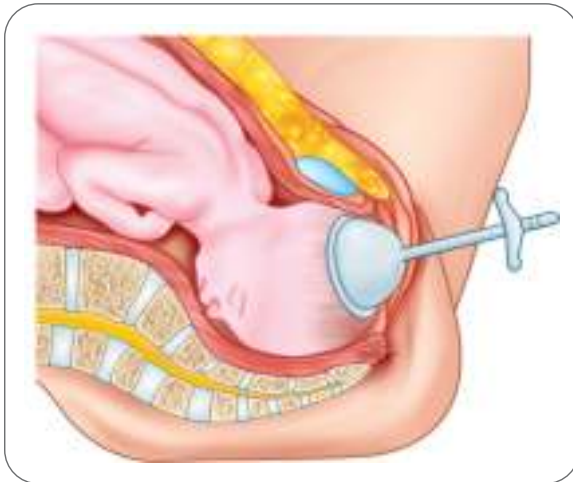
Aftercare of the Patient and the Article

After delivery, health care provider should examine for any tears that might have been caused by the forceps. Any tears will be repaired. Newborn will also be monitored for any signs of complications.

Assisting for Vacuum Delivery

INTRODUCTION

Ventouse is an instrumental device designed to assist delivery by creating a vacuum between it and the fetal scalp.



OBJECTIVE

To cut short the second stage of labor.

INDICATIONS

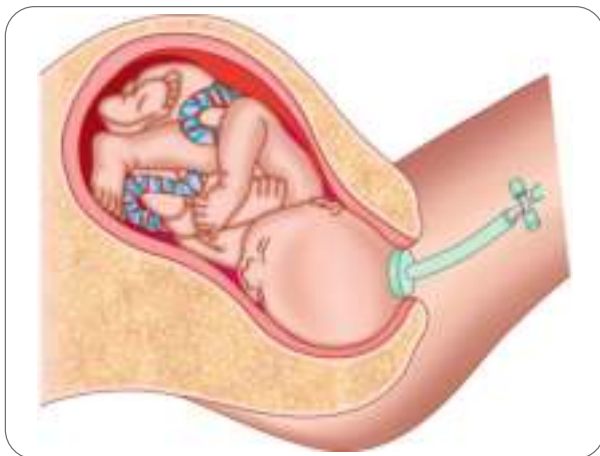
- Deep transverse arrest with adequate pelvis.
- Delay in descent of the high head in case of the second baby of twins.
- As an alternative to forceps operation; **except:**
 - Face presentation and after coming head of breech.
 - Fetal distress or prematurity.
- Delay in late first stage due to uterine inertia or primary cervical dystocia.
- As an adjunct to symphysiotomy.

Conditions to be Fulfilled

- There should not be slightest bony resistance below the head.
- The head of a singleton baby should be engaged.
- Cervix should be at least 6 cm dilated.
- Membranes to be ruptured.
- Urinary bladder must be empty.

PRINCIPLE

Acceleration of the delivery by effect of traction on fetal head with the help of vacuum.



Vacuum extractor

STEPS OF PROCEDURE

Before Procedure

Preparation of the Mother

- Explain the procedure and its uses to the patient to win the confidence and cooperation during the procedure.
- Encourage and reassure during the procedure.

Preparation of Articles

Articles	Purposes
<ul style="list-style-type: none"> • Suction cup, a vacuum pump, traction rod device 	<ul style="list-style-type: none"> • For giving vacuum pressure
<ul style="list-style-type: none"> • Gloves, mask, and gown 	<ul style="list-style-type: none"> • To prevent infection
<ul style="list-style-type: none"> • Cotton swabs with antiseptic solution 	<ul style="list-style-type: none"> • To clean the perineum and prevent infection
<ul style="list-style-type: none"> • Draping and leggings 	<ul style="list-style-type: none"> • To minimize unnecessary exposure
<ul style="list-style-type: none"> • One percent lignocaine with 10 mL syringe and 21-gauge needle 	<ul style="list-style-type: none"> • For infiltration

Preparation of the Environment

- Good source of light
- Maintain privacy
- Maintain sterile field

Preliminaries

Anesthesia: Pudendal block or perineal infiltration with 1% lignocaine is sufficient. It may be applied even without anesthesia, especially in parous women.

- The patient to be placed in the lithotomy position.
- Full surgical asepsis is to be taken.
- Surgeon and assistant are to wear sterile mask, gown and gloves.
- Vulva, vagina is to be swabbed with antiseptic solution.

- The perineum is to be draped by sterile towel and the legs with leggings.
- The instrument should be assembled and the vacuum is tested for proper functioning prior to its application.

Step I

Application of the Cup

- The largest possible cup according to the dilatation of the cervix is to be selected.
- The cup is introduced after retraction of the perineum with two fingers of the other hand.
- The cup is placed against the fetal head nearer to the occiput with the “knob” of the cup pointing toward the occiput.
- This will facilitate flexion of the head and the knob indicates degree of rotation.
- A vacuum of 0.2 kg/cm^2 is induced by the hand pumps slowly, taking at least 2 minutes.
- A check is made using the fingers round the cup to ensure that no cervical or vaginal tissue is trapped inside the cup.
- The pressure is gradually raised at the rate of 0.1 kg/cm^2 per minute until the effective vacuum of 0.8 kg/cm^2 is achieved in about 10 minutes time.
- The scalp is sucked into the cup and an artificial caput succedaneum (chignon) is produced.

Step II

- Traction must be at right angle to the cup.
- Traction should be synchronous with the uterine contractions.
- Traction should be made using one hand along the axis of the birth canal. The fingers of the other hand are to be placed against the cup. Note the correct angle of traction, rotation and advancement of the head.
- If there is no advancement during four successive uterine contractions, it is to be abandoned. On no account, traction should exceed 30 minutes.

- As soon as head is delivered, the vacuum is reduced by opening the screw-release valve and the cup is then detached. The delivery is then completed in the normal way.

Note: Silicon rubber cups are also used; it is soft and can be smoothly applied over the contour of the fetal head.

Aftercare of the Mother and the Articles

- Make the mother comfortable.
- Collect equipment. Wash in basin in cold water and send for autoclaving or disinfectant.
- Clean other equipment and return to their usual places.
- Wash hands.

Recording and Reporting

- Record on mother's chart and nurse's note book with date and time. Indication of vacuum delivery.
- Report any complication to the ward incharge and doctor.
 - Mother
 - Baby.

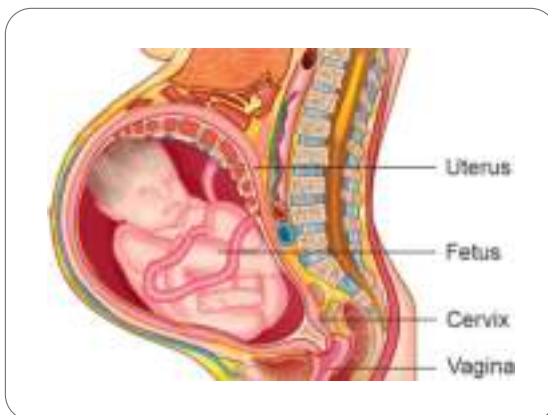
Breech Delivery

INTRODUCTION

The successful completion of the 40 weeks' gestation period requires the harmonious functioning of three components: (1) emotional factors, (2) fetus and (3) pelvis. But, disruption in any of the three components may affect the others and cause dystocia (abnormal or difficult labor).

Breech delivery is the single most common abnormal presentation. The incidence is highly dependent on the gestational age. At 20 weeks, about one in four pregnancies are breech presentation. By full term, the incidence is about 4%.

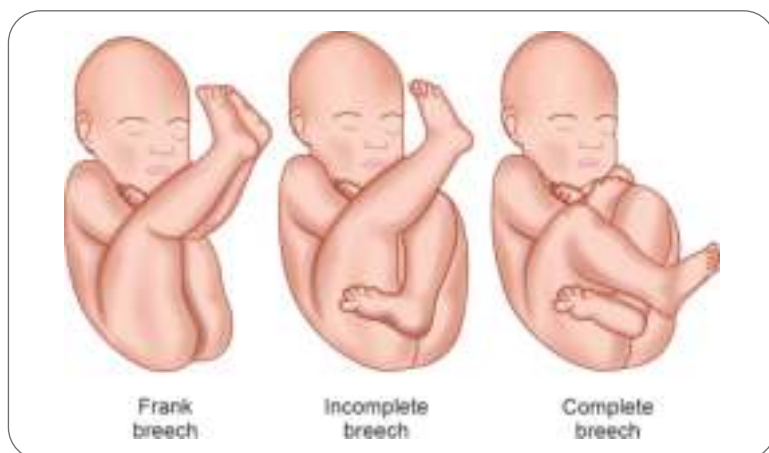
In breech presentation, the lie is longitudinal and the podalic pole presents at the pelvic brim. It is the most common malpresentation.



Fetus in breech presentation

TYPES OF BREECH PRESENTATION AND POSITION

- **Breech with extended legs (frank breech):** The breech presents with the hips flexed and legs extended on the abdomen. Seventy percent of breech presentations are of this type and it is particularly common in primigravida whose good uterine muscle tone inhibits flexion of the legs and free turning of the fetus.
- **Complete breech:** The fetal attitude is one of complete flexion, hips and knees both flexed and the feet tucked in beside the buttocks.
- **Footling breech:** This is rare. One or both feet present because neither hips nor knees are fully flexed. The feet are lower than the buttocks, which distinguishes it from the complete breech.
- **Knee presentation:** This is very rare. One or both hips are extended, with the knees flexed.



Variations of the breech presentation

ASSISTED BREECH DELIVERY

Breech delivery should be conducted by a skilled obstetrician. The following are to be kept ready beforehand, in addition to those required for conduction of normal labor:

- Anesthetist—to administer anesthesia as and when required.
- An assistant—to push down the fundus during contraction.

- Instruments and suture materials for episiotomy.
- A pair of obstetric forceps for the after-coming head, if required.
- Appliances for revival of the baby, if asphyxiated.

Principles in Conduction

- Never to rush.
- Never pull from below but push from above.
- Always keep the fetus with the back anteriorly.

Never to pull—aggressive and hasty pull affects breech delivery adversely by:

- Entrapment of the after-coming fetal head through the incompletely dilated cervix
- Traction from below results in deflexion of the head posing longer occipitofrontal diameter (11.5 cm) at the pelvic inlet.

PROCEDURE

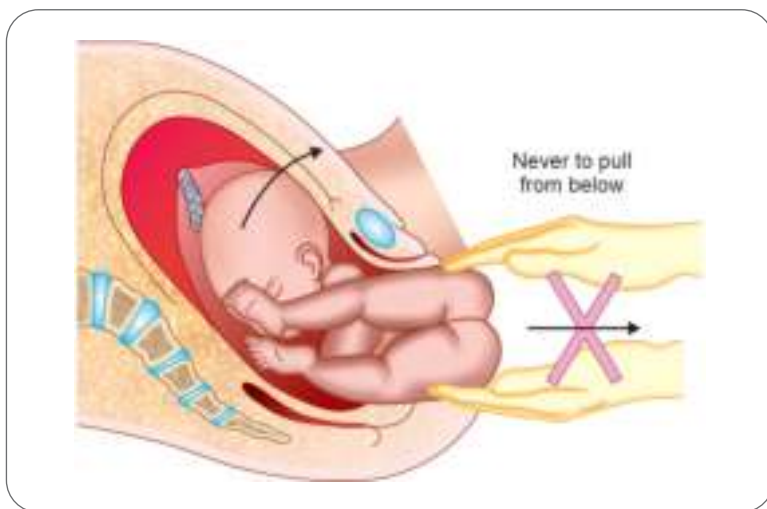
- The patient is brought to the table when the anterior buttock and fetal anus are visible. She is placed in lithotomy position when the posterior buttock distends the perineum.
- To avoid aortocaval compression, the woman is tilted laterally using a wedge under the back.
- Antiseptic cleaning is done; bladder is emptied with a rubber catheter.
- Pudendal block is done along with perineal infiltration if not epidural has been used earlier.
- **Episiotomy:** It should be done liberally in all cases of primigravida and selected multipara.

Advantages of episiotomy may be listed as:

- To straighten the birth canal which specially facilitates the delivery of breech with extended legs where lateral flexion is inadequate.
- To facilitate intravaginally manipulation and for forceps delivery.
- To minimize compression of the after-coming head. The best time for episiotomy is when the perineum is distended and thinned by the breech as it is “climbing” the perineum.

The mother is encouraged to bear down as the expulsive forces from above ensure flexion of the fetal head and safe descent. The “no touch of the fetus” policy is adopted until the buttocks are delivered along with the legs in flexed breech and the trunk slips up to the umbilicus.

- a. The extended legs (in frank breech) are to be decomposed by pressure on the knees (popliteal fossa) in a manner of abduction and flexion of the thighs (Pinard maneuver).
- b. The umbilical cord is to be pulled down and to be mobilized to one side of the sacral bay to minimize compression. There may be transient abnormality in cord pulsation at this stage which has got no prognostic significance. An attempt of hasty delivery for this reason alone should be avoided.
- c. If the back remains posteriorly, rotate the trunk to bring the back anteriorly (sacroanterior).
- d. The baby is wrapped with a sterile towel to prevent slipping when held by the hands and to facilitate manipulation, if required.



DELIVERY OF THE ARMS

- The assistant is to place a hand over the fundus and keep a steady pressure during uterine contractions to prevent extension of the arms. Soon, the anterior scapula is visible.

- The position of the arm should be noted. When the arms are flexed, the vertebral border of the scapula remains parallel to the vertebral column and when extended there is winging of the scapula (parallelism is lost).
- The arms are delivered one after the other only when one axilla is visible, by simply hooking down each elbow with a finger.
- It is immaterial as to which arm is to be delivered first.
- The baby should be held by the feet over the sterile towel while the arms are delivered.

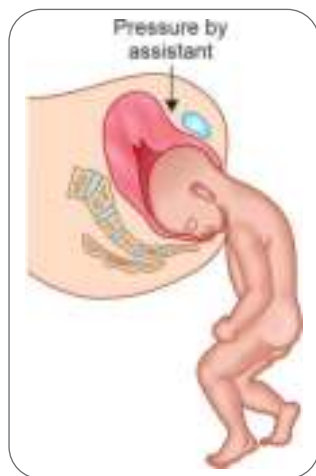
DELIVERY OF THE AFTER-COMING HEAD

- This is the most crucial stage of the delivery.
- The time between the deliveries of umbilicus to delivery of mouth should preferably be 5–10 minutes.
- There are various methods of delivery for the after-coming head. Each one is quite safe and effective in the hands of an expert, conversant with that particular technique.

The following are the common methods employed:

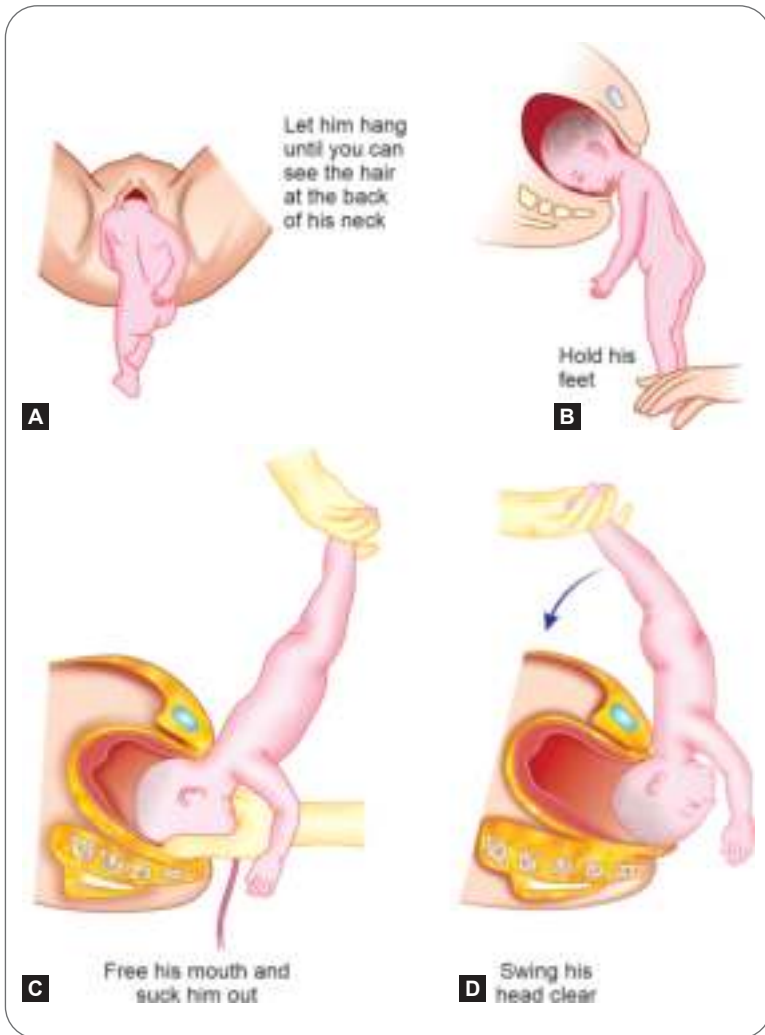
Burns-Marshall Method

- The baby is allowed to hang by its own weight.
- The assistant is asked to give suprapubic pressure with the flat surface of hand in a downward and backward direction; the pressure is to be exerted more toward the sinciput.
- The aim is to promote flexion of the head so that favorable diameter is presented to the pelvic cavity.
- Not more than 1–2 minutes are required to achieve the objective. When the nape of the neck is visible under the pubic arch, the baby is grasped by the ankles with a finger in between the two. Maintaining a steady traction and forming a wide arc of a circle, the trunk is swung in upward and forward direction.



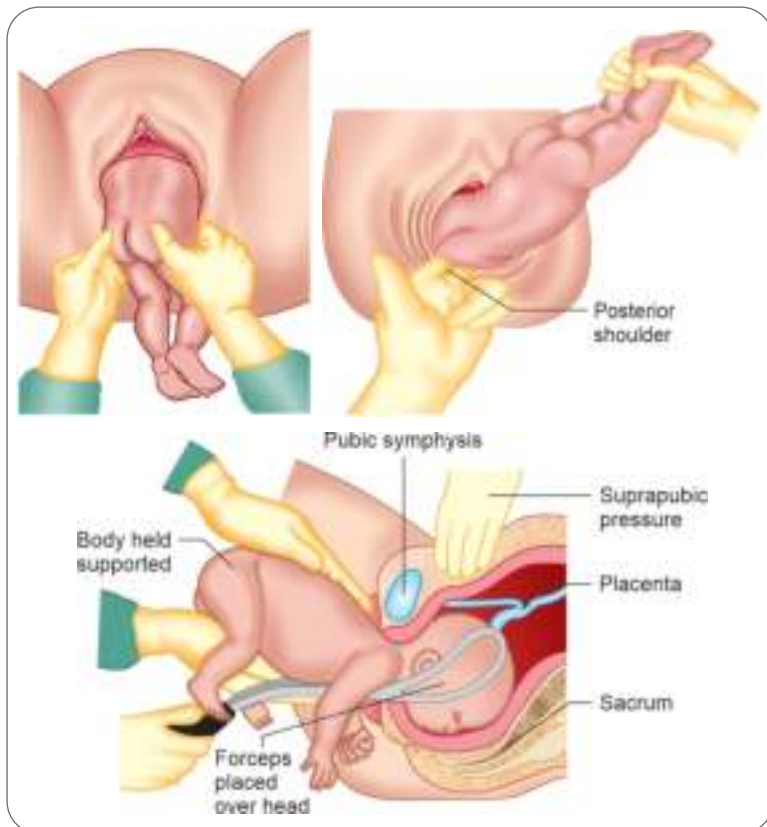
- Meanwhile, with the left hand to guard the perineum, slipping the perineum off successively the face and brow. When the mouth is cleared off the vulva, there should be no hurry. Mucus of the mouth and pharynx is cleared by mucus sucker. The trunk is depressed to deliver rest of the head.

The Burns–Marshall Maneuver



Forceps Delivery

- Forceps can be used as a routine. The head must be in the cavity. The advantages are: Delivery can be controlled by giving pull directly on the head and the force is not transmitted through the neck; flexion is better maintained and mucus can be sucked out from the mouth more effectively.
- The head should be brought as low down as possible by allowing the baby to hang by its own weight aided by suprapubic pressure.
- When the occiput lies against the back of the symphysis pubis, an assistant raises the legs of the child as much to facilitate introduction of the blades from below.



Breech presentation with forceps delivery

- Too much elevation of the trunk may cause extension of the head. The forceps pull maintains an arc which follows the axis of the birth canal. Ordinary forceps with usual length of shank, as in Das' variety, is quite effective.
- Piper forceps is specially designed (absent pelvic curve) for use in this condition.
- The head should be delivered slowly (over 1 minute) to reduce compression-decompression forces as that may cause intracranial bleeding.

Malar Flexion and Shoulder Traction (Modified Mauriceau-Smellie-Veit Technique)

- The technique is named after the three great obstetricians who described the use of the grip independently.
- The baby is placed on the supinated left forearm (preferred) with the limbs hanging on either side. The index and middle finger of the same hand are placed over the malar bones on either side (original method, where the index finger was introduced inside the mouth).
- This maintains flexion of the head.
- The ring and little fingers of the pronated right hand are placed on the child's right shoulder and the index finger is placed on the left shoulder and the middle finger is placed on the suboccipital region.
- Traction is now given in downward and backward direction till the nape of the neck is visible under the pubic arch.
- The assistant gives suprapubic pressure during the period to maintain flexion.
- Thereafter, fetus is carried in upward and forward direction toward the mother's abdomen releasing the face, brow and lastly the trunk is depressed to release the occiput and vertex.

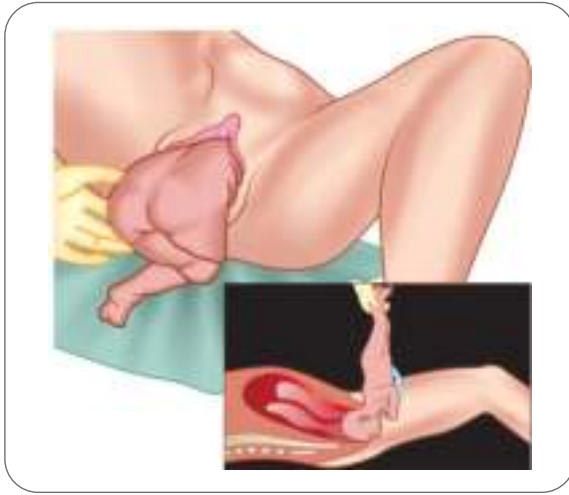
Resuscitation of the baby: The baby may be asphyxiated and need to be resuscitated immediately.

THIRD STAGE

The third stage is usually uneventful. The placenta is usually expelled out soon after delivery of the head. If prophylactic oxytocin to be given, it should be administered IM following delivery of head of the baby.

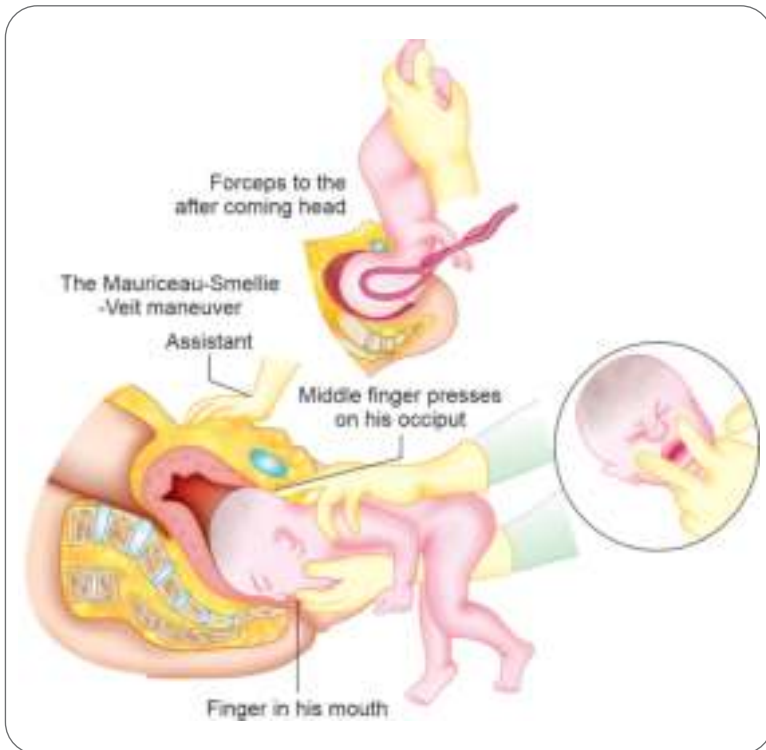
Aftercare of the Procedure

- Make the mother and baby comfortable
- Recording the labor process in labor register
- Postnatal care



Allow the baby to hang from the birth canal during delivery. If the head is retained for more than 3 minutes after the shoulders have appeared, grasp the feet and lift baby over the mother's abdomen to free mouth and nose.

TWO MORE METHODS FOR DELIVERING THE HEAD



Assessment and Monitoring of Pregnant Women with Preeclampsia and Eclampsia

CHAPTER

28

INTRODUCTION

- Hypertensive disorders are common complications of pregnancy, affecting 8–10% of all gestations.
- Approximately $\frac{1}{3}$ of hypertensive disorders in pregnancy are due to chronic hypertension and $\frac{2}{3}$ are due to gestational hypertension—preeclampsia.

CLASSIFICATION OF HYPERTENSIVE DISORDERS OF PREGNANCY

- Chronic hypertension
- Gestational hypertension
- Preeclampsia
- Preeclampsia superimposed on chronic hypertension

As Per National High Blood Pressure Education Program (NHBPEP)

- Normal or acceptable BP SBP ≤ 140 and DBP ≤ 90 mm Hg
- Mild hypertension SBP 140–159 or DBP 90–99 mm Hg
- Severe hypertension SBP ≥ 160 or DBP ≥ 110 mm Hg

SCREENING TESTS FOR PREECLAMPSIA (WHO, 2004)

- History collection
- Physical examination
- Uterine artery Doppler ultrasound
- Biochemical markers

PHYSICAL EXAMINATION

- Onset at >20 weeks' gestational age
- 24-hour proteinuria ≥ 30 mg/day or, if not available, a protein concentration ≥ 30 mg ($\geq 1+$ on dipstick) in a minimum of two random urine samples collected at least 4–6 hours but no more than 7 days apart
- **Edema:** Pitting edema over the ankles after the 12 hours of bed rest or excessive gain in weight of more than 4 lb in a week.
- Systolic blood pressure >140 mm Hg or diastolic blood pressure ≥ 90 mm Hg as measured twice, using an appropriate cuff, 4–6 hours and less than 7 days apart, and disappearance of all these abnormalities before the end of the 6th week postpartum.

Mild preeclampsia	Severe eclampsia
<ul style="list-style-type: none"> • Resting blood pressure measurement using an appropriate cuff- diastolic blood pressure ≥ 90 mm Hg measured on two occasions at least 6 hours apart, combined with proteinuria (two or more occurrences of protein on dipstick, >300 mg total protein in a 24-hour urine collection, or a protein creatinine ratio >30 mg/mmol). • Screening for weight gain, edema 	<ul style="list-style-type: none"> • Maternal systolic blood pressure ≥ 160 mm Hg or diastolic blood pressure ≥ 110 mm Hg • Maternal neurological disorders such as persistent headaches, phosphene signals, tinnitus, and brisk, diffuse, polykinetic tendon reflexes, eclampsia, acute pulmonary edema • Proteinuria ≥ 5 g/day, oliguria <500 cc/day, creatinine >120 $\mu\text{mol/L}$, • HELLP syndrome, thrombocytopenia $<100,000/\text{mm}^3$

Contd...

Mild preeclampsia	Severe eclampsia
<ul style="list-style-type: none">• The fetus should be assessed by electro cardiocotography. Laboratory tests include: A complete blood count with platelets, haptoglobin, and lactate dehydrogenase; a blood smear to test for schistocytes; bilirubin, aspartate transaminase, and alanine transaminase in order to identify potential HELPP syndrome; electrolyte, urea, and creatinine assessment to check for acute renal failure or uremia; 24-hour proteinuria; prothrombin, activated thrombin time, and fibrinogen (microangiopathic hemolytic anemia); blood group; and irregular antibody screening.• Other examinations include fetal ultrasound with Doppler velocimetry of the umbilical, cerebral, and uterine arteries, estimation of fetal weight, assessment of fetal well-being by Manning score, and examination of the placenta• Roll test: Patient lies supine with neck flexed 20°. Head is quickly rolled 90° to one side for up to one minute, observe presence and direction of nystagmus, and then return slowly to midline; maintaining the neck flexion, the procedure is repeated to the other side.	

TREATMENT OBJECTIVES

- To stabilize the hypertension and to prevent severe preeclampsia.
- To prevent the complications.
- To prevent eclampsia.
- To deliver a healthy baby in optimal time.
- To restore the health of the mother in puerperium.

PREVENTION

Do's	Don'ts:
Smoking cessation	Calcium supplement
Low dose acetylsalicylic acid before 16 gestational week (high risk populations)	Antioxidants
Moderate exercise	Low salt diet
	Bed rest

Management of Postpartum Hemorrhage

INTRODUCTION

Postpartum hemorrhage (PPH) is a complication of delivery and the most common cause of maternal death, accounting for about 35% of all maternal deaths worldwide. These deaths have a major impact on the lives and health of the families affected.

The PPH is commonly defined as a blood loss of 500 mL or more within 24 hours after birth, while severe PPH is defined as a blood loss of 1000 mL or more within the same timeframe according to World Health Organization (WHO). A small blood loss that makes the woman hemodynamically unstable is also termed PPH.



CAUSES OF PRIMARY POSTPARTUM HEMORRHAGE

The PPH may result from various reasons such as failure of the uterus to contract adequately (atony), genital tract trauma (vaginal or cervical lacerations), uterine rupture, retained placental tissue, or maternal bleeding disorders.

- **Uterine atony:** It is failure of the uterus to contract following delivery. It is the most common cause of maternal mortality worldwide.
- **Genital trauma:** Damage to the genital tract may occur spontaneously or through manipulations used to deliver the baby. Injuries during labor to perineum, vaginal walls, cervix, uterus, episiotomy, caesarean section can also cause PPH.
- **Tissue:** Uterine contraction and retraction lead to detachment and expulsion of the placenta. Complete detachment and expulsion of the placenta permit continued retraction and optimal occlusion of blood vessels.
- **Coagulation problems:** Women with pre-existing bleeding disorders and women taking therapeutic anticoagulants are at increased risk of PPH.

Secondary PPH: It is the abnormal or excessive bleeding from the birth canal after 24 hours and 6 weeks postnatally. It is often associated with infection (endometritis).

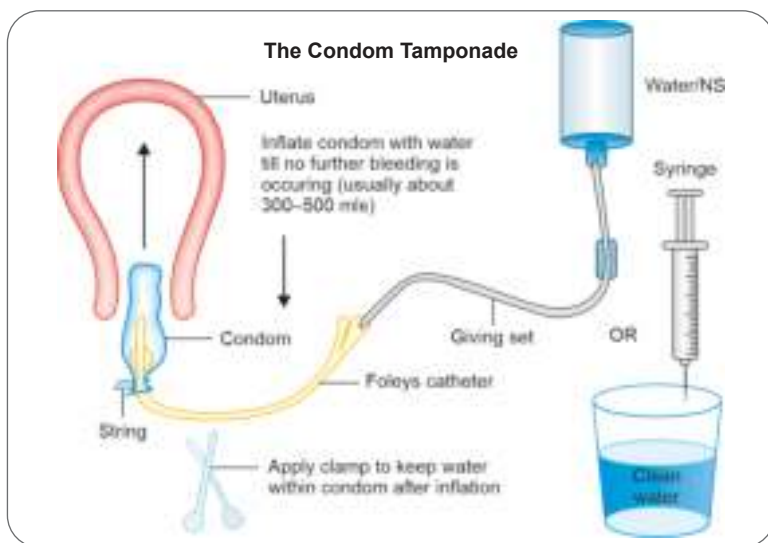
MANAGEMENT OF POSTPARTUM HEMORRHAGE

Initial assessment is performed and basic treatment should be instituted as follows:

- Call for help
- Assess airway, breathing, circulation (ABC)
- Provide supplementary oxygen
- Obtain intravenous line
- Start fluid replacement with intravenous crystalloid fluid
- Monitor blood pressure, pulse and respiration
- Catheterize bladder and monitor urinary output
- Assess need for blood transfusion
- Start intravenous oxytocin infusion
- Order laboratory tests-complete blood count, coagulation screen, blood grouping and cross-match

(a) If Uterine Atony is Suspected

- Uterine massage (uterine packing is not recommended for the treatment of PPH due to uterine atony after vaginal delivery)
- Bimanual uterine compression
 - Wearing HLD gloves, insert hand into vagina; form fist.
 - Place fist into anterior fornix and apply pressure against anterior wall of uterus.
 - With other hand, press deeply into abdomen behind uterus, applying pressure against posterior wall of uterus.
 - Maintain compression until bleeding is controlled and uterus contracts.
- External aortic compression
 - Apply downward pressure with closed fist over abdominal aorta through abdominal wall (just above umbilicus slightly to patient's left)
 - With other hand, palpate femoral pulse to check adequacy of compression
 - Pulse palpable = inadequate
 - Pulse not palpable = adequate
 - Maintain compression until bleeding is controlled
- Bakri balloon or condom tamponade



If mechanical and pharmacological measures fail to control the hemorrhage, surgical measures are instituted:

- Compression sutures
- Bilateral ligation of uterine arteries
- Bilateral ligation of internal iliac (hypogastric) arteries
- Hysterectomy

If placenta delivered incomplete	If placenta is not delivered
Oxytocin	Additional oxytocin in combination with controlled cord traction
Manual exploration to remove fragments	If whole placenta still retained, Manual removal with prophylactic antibiotics
Gentle curettage or aspiration	
If bleeding continues, manage as uterine atony.	

(b) PPH due to Lower Genital Tract Trauma

Excessive bleeding or shock with contracted uterus:

- Look for lower genital tract trauma with repair tears; and evacuation and repair of hematoma.
- If bleeding continues, administer tranexamic acid.

(c) Uterine Rupture or Dehiscence

- Treat for uterine rupture or dehiscence with laparotomy for primary repair of uterus and Hysterectomy if repair fails.
- If bleeding continues administer tranexamic acid.

(d) Uterine Inversion

- Immediate manual replacement
- Hydrostatic correction
- Manual reverse inversion (use general anaesthesia or wait for effect of any uterotonic to wear off)
- If treatment is not successful, laparotomy is advised to correct inversion.
- If laparotomy correction is not successful, then hysterectomy is performed.

(e) Clotting Disorder

Treat for clotting disorder as necessary with blood products.

Secondary PPH: Surgical measures should be undertaken if there is excessive or continuing bleeding, irrespective of ultrasound findings.

Newborn Resuscitation

INTRODUCTION

Neonatal Asphyxia accounts for 20.9% of neonatal deaths. Although the vast majority of newly- born infants (90%) do not require intervention to breathe during transition from intrauterine to extrauterine life, approximately 10% of the newborns require some assistance to begin breathing at birth, and about 1% require extensive resuscitative measures.



OBJECTIVES

The objective of neonatal resuscitation is to prevent the morbidity and mortality associated with hypoxic-ischemic tissue then it become tissue injury and also to re-establish adequate spontaneous respiration and cardiac output.

INDICATIONS

A rapid assessment of newly-born infants who do not require resuscitation can generally be identified by the following four characteristics:

1. Was the infant born after a full-term gestation?
2. Is the amniotic fluid clear of meconium and evidence of infection?
3. Is the infant breathing or crying?
4. Does the infant have good muscle tone?

If the answer to all four of these questions is 'yes,' the infant does not need resuscitation and should not be separated from the mother. The infant can be dried, placed directly on the mother's chest and covered with dry linen, to maintain temperature. Observation of breathing, activity and color should be ongoing.

If the answer to any of these assessment questions is 'no,' there is a general agreement that the infant should receive one or more of the following four categories of action in sequence:

1. Initial steps in stabilization (provide warmth, position, clear airway, dry, stimulate, reposition)
2. Ventilation
3. Chest compressions
4. Administration of epinephrine and/or volume expansion

Key points: The decision to progress from one category to the next is determined by the simultaneous assessment of three vital signs: respiration, heart rate and color. Approximately 30 seconds is allotted to complete each step, re-evaluate and decide whether to progress to the next step.



PREPARATION OF ENVIRONMENT

Preparations should include having:

- Warmth, place to do the resuscitation, and equipment and supplies
- A draught free, warm room with temperature $>25^{\circ}\text{C}$
- A clean, dry and warm delivery surface
- A radiant warmer/overhead lamp with 200-watt bulb if available
- Two clean, warm towels/clothes
- A folded piece of cloth ($\frac{1}{2}$ to 1" thick)
- A newborn size self-inflating bag
- Infant masks in two sizes: size '1' for normal weight baby and '0' for low birth weight baby
- A suction device
- Oxygen (if available)
- A clock

PREPARATION OF THE ARTICLES

Equipment must be cleaned and checked after each delivery and checked again before the next delivery to ensure it is ready for use.

- Broken equipment is dangerous and should be replaced.
- Equipment must be of the appropriate size. Pediatric and adult bag and masks cannot be used on newborn babies who have small and fragile lungs.
- The volume of the bag should not be more than 250–500 mL and generate a pressure of at least 35 cm of water.
- If a mucus extractor is used the trap should be big enough (20 mL) to prevent aspirated fluid going into the resuscitator's mouth.
- A mucus extractor with a bulb is NOT recommended because they are difficult to clean and might act as a source of cross infection.
- Suction should not exceed a negative pressure of 100 mm Hg or 130 cm water.

PROCEDURE

Steps

1. Deliver the baby on mother's abdomen; make sure there is a warm towel or cloth on the bed to place the baby on.
2. Note the time of birth and dry the baby with a warm towel and replace it by wrapping baby in dry towel.
3. If meconium is present and the baby is not crying you should immediately start suction.
4. First do suction from mouth by inserting the tube of suction device no more than 5 cm beyond the lip. Apply the suction while withdrawing the tube. Then insert the suction tube 1–2 cm into each nostril and apply suction while withdrawing the tube
5. Assess the baby's breathing.
If Baby is crying—No need for resuscitation or suctioning—Provide routine care.
If baby is not crying, but his chest is rising regularly between 30 and 60 times in a minute No need for resuscitation or suctioning—Provide routine care. Baby is gasping/not breathing—Start resuscitation immediately if not breathing
6. Open the baby's airway: Position the head so that it is slightly extended and place a folded piece of cloth under the baby's shoulders to help maintain this position.
7. Stimulate to breath by using safe and appropriate methods of providing tactile stimulation include:
 - Slapping or flicking the soles of the feet
 - Gently rubbing the newborn's back or extremities
8. Reassess the baby's breathing if the baby is breathing), place the baby with mother and provide observational care.
9. If the baby is still not breathing: Immediately start ventilation with bag and mask.
Breaths should be delivered at a rate of 40–60 breaths/min, or slightly less than once a second. To help maintain a rate of 40–60 breaths/min, try saying to yourself as you ventilate the newborn: **"Breathe – Two – Three, Breathe – Two – Three"**
10. Check if the baby breathing spontaneously.
If yes—gradually reduce the rate and volume of breaths and watch for the baby's breathing
If baby is not breathing well (gasping or not breathing at all) after 30 seconds of adequate ventilation needs continued ventilation and further evaluation.

Contd...

Steps

11. Evaluate the heart rate by feeling the umbilical cord pulse or listening to the heart beat with stethoscope while you stop ventilation for 6 secs. If the heart rate is normal (**above 100 bpm**) but the baby is still not breathing well continue to provide bag and mask ventilation and reassess after every 30 seconds
A heart rate **less than 100 beats/min** is slow. The baby may need more advanced support such as endotracheal intubation, chest compressions and medications.

AFTERCARE OF THE NEWBORN

Infants who require resuscitation are at risk of deterioration after their vital signs have returned to normal. Once adequate ventilation and circulation have established, the infant should be maintained in or transferred to an environment in which close monitoring and anticipatory care can be provided.

Babies who have received only brief ventilation can be given observational care. However, babies who require prolonged positive pressure ventilation are at risk for deterioration, and are at high risk for developing subsequent complications; so these babies need supervised medical care (postresuscitation care).

- Keep the baby warm
- Check breathing, temperature, color and capillary refill time (CRT)
- Monitor blood sugar
- Watch for complications
- Initiate breastfeeding, if well.

Postnatal Assessment

INTRODUCTION

Examination of a postnatal mother and early identification of complication is one of the important responsibilities of a nurse in the postnatal area. Adequate postnatal examination is necessary for planning the care of postnatal mother.

The postnatal period is a postdelivery period when the maternal system returns to a pre-pregnant state. This is a 6-week period which is divided into three phases:

1. **Immediate:** 24 hours after delivery
2. **Early:** Up to 7 days
3. **Late:** Up to 6 weeks

Postnatal care includes systematic examination of mother and the baby and the appropriate advice given to the mother during postpartum period.

PURPOSES

- To assess the health status of the mother and institute therapy to rectify the defect, if any.



- To detect and treat at the earliest any gynecological condition arising out of obstetric legacy.
- To impart family planning guidance.

PREPARATION

History/Preparation of the Mother

Collect the history in the following manner:

Procedure	Rationale
<ul style="list-style-type: none"> • Greet the mother • Collect information related to mother <ul style="list-style-type: none"> ▪ Other children ▪ Type of housing ▪ Occupation ▪ Education level ▪ Socioeconomic status 	It opens the channel for communication
Pregnancy history	
<ul style="list-style-type: none"> • A quick review of pregnancy • Para • Gravida • Estimated due date (EDD) • Any problems 	Pregnancy history is useful for further planning.
Delivery history	
<ul style="list-style-type: none"> • Hypertension or spotting <ul style="list-style-type: none"> ▪ Date and time of delivery ▪ Type of onset of labor ▪ Mode of delivery ▪ Duration of labor ▪ Problems during labor 	This information will help to plan postnatal procedures such as episiotomy care, etc.
• Position of fetus	
• Type of delivery	
Neonatal data	

Contd...

Procedure	Rationale
<ul style="list-style-type: none"> • Sex • Birth weight • Any difficulty at birth • Breastfeeding • Any congenital anomalies 	This information helps to plan care for the newborn
Postpartum data	
<ul style="list-style-type: none"> • Description of lochia • Its amount (number of pad used per day), color, consistency, odor of lochia 	This information is helpful in general health assessment of the mother's present condition and planning of her care and health education
<ul style="list-style-type: none"> • Activity level since delivery 	
<ul style="list-style-type: none"> • Any complain of pain in abdomen/breast/perineum 	

Preparation of the Article

Articles Required

Articles	Purposes
<ul style="list-style-type: none"> • Measuring tape 	<ul style="list-style-type: none"> • To measure the height of the mother and fundal height
<ul style="list-style-type: none"> • Weighing machine 	<ul style="list-style-type: none"> • To check the weight of the mother
<ul style="list-style-type: none"> • Vital signs articles 	<ul style="list-style-type: none"> • To assess the vital signs and note any deviation
<ul style="list-style-type: none"> • Cotton swabs 	<ul style="list-style-type: none"> • To clean the breast if any secretion is present
<ul style="list-style-type: none"> • Sterile perineal pad 	<ul style="list-style-type: none"> • To apply in the perineum
<ul style="list-style-type: none"> • Newspaper 	<ul style="list-style-type: none"> • To collect the soiled perineal pad

ACTUAL STEPS OF THE PROCEDURE

Wash hands and do a full examination of the mother systematically as described here:

a. General Appearance

- Gestures of pain and her facial expressions
- **Face:** Edema
- Whether she has combed her hair, neatly dressed (to know about her feeling of well-being)?

b. Vital Signs

- **Pulse:** Check the pulse, which varies from 70 to 80/minutes. Pulse rate more than 100/minutes should be investigated for fever and shock.
- **Respiration:** Observe the respiration whether it is normal or abnormal, (i.e., labored, shallow or fast breathing).
- **Temperature:** It should not be more than 99°F within the first 24-hours. On the third day there may be slight rise in temperature due to breast engorgement.
- **Blood pressure:** Blood pressure remains unchanged. If there has been any history of hypertension in pregnancy, blood pressure should be checked at every visit.

c. Head-to-Toe Examination

General Findings

- Immediately after the delivery the fundus will be 13.5 cm above the symphysis pubis.
- For first 24 hours, it will remain constant.
- Thereafter, uterus involutes 1–2 cm in every 24 hours.
- By 14th day it will become a pelvis organ.

Perineum

Ask the woman to turn on her side, inspect the perineum, as it is more visible in lateral position. Look for:

- Hematoma
- Intact episiotomy stitches
- Any discharge/bleeding from the wound
- Swelling
- Pain.

Assessment of Weight Loss

Record weight of the mother. There is weight loss of at least 2 kg apart from the loss after delivery

Postnatal Assessment

Bubble-He

B – Breast

U – Uterus

B – Bowel

B – Bladder

L – Lochia

E – Episiotomy

H – Homan's sign

E – Emotional status

Breast

- Expose the breast to observe for any engorgement, hardness or redness.
- Observe for any abnormality of the nipple (i.e., cracked, retracted or depressed nipple).
- **First and second day:** Breast tissue feels soft on palpation
- **Third day:** Engorgement occurs; breast feels firm and warm to the touch.

Uterus

- Ensure that the mother has emptied the bladder before examination.
- Ask the woman to lie on flat surface.
- Give a gentle fundal massage to stimulate uterine contraction and expel out the clots.
- Note the height of the fundus by placing the ulnar border of the left hand over the fundus and other on the symphysis pubis with a measuring tape. Note the findings in centimeters.
- Note the consistency of the uterus.

Assessment of Bowel and Bladder Activities

- Ask the women
 - Whether she has passed urine or not
 - About the amount and frequency of micturition
 - About pain and burning sensation during micturition
 - About incontinence
 - Ask when she passed her first motion.

Check Lochia for

- Amount
- Consistency
- Pattern (rubra to serosa to alba)
- Odor.

Episiotomy

REEDA Assessment—R: Redness, E: Edema, E: Ecchymosis, D: Discharge, A: Approximation

Homan's Sign

- Observe for the signs of thrombophlebitis
- Check for Homan's sign
 - Ask the mother to lie in supine position.
 - Place left hand over the knee and dorsiflex the same foot with right hand
 - Check for presence of any pain in the calf muscle.
 - Presence of any pain indicates positive Homan's sign.

Assessing Psychological Status

- Her facial expression
- Involvement with the baby, like breastfeeding, cuddling, talking to the baby and taking care of the baby.
- Her appearance (grooming).

Aftercare of the Mother and the Articles

- Make the mother comfortable.
- Collect the soiled perineal pad and dispose it in the designated dustbin covering with newspaper.

- Give perineal care, if necessary
- Put new sterile vulval pad.
- Inform her about the findings of the examination.
- Clean equipment and return to their usual places.
- Wash hands.

Recording and Reporting

- Record on patient's chart and nurse's notes with date and time.
- Report any complication or abnormal findings to the ward incharge and doctor.

Breast Care

INTRODUCTION

Breast care is the process of cleaning the breast of mother that helps in maintaining hygiene and prevents from cross infection during feeding. It is the process of caring of breast in order to prevent and relieve breast engorgement.



PURPOSES

- To clean the breast
- To detect any abnormalities
- To stimulate milk ejection
- To prevent infection
- To prevent breast complications.
- To prevent/relieve breast engorgement

INDICATIONS

- Puerperal mothers before and after breastfeeding
- Dirty nipples
- Cracked nipples
- Clients who are not able to take self-care
- Crust formation over the nipple.

REQUIRED ARTICLES

Articles	Rationale
<ul style="list-style-type: none"> • Screen 	<ul style="list-style-type: none"> • To maintain privacy
<ul style="list-style-type: none"> • A clean tray containing: <ul style="list-style-type: none"> ▪ Mackintosh with towel ▪ A bowl with 2–3 cotton pads ▪ A bowl with boiled and cool tailed cotton swabs (12–15) ▪ A bowl with dry gauze pieces (12–15) ▪ Kidney tray ▪ Paper bag 	<ul style="list-style-type: none"> • To protect the bed and mother's clothing • To clean the expressed milk from breast • To clean the breast • To dry the breast • To squeeze excess water from cotton swab • To discard the waste
<ul style="list-style-type: none"> • Hand washing article (a jug with water, a big basin, soap and towel) 	<ul style="list-style-type: none"> • For hand washing of the mother

Note: Mother also can be asked to wash hands before starting the procedure.

STEPS OF PROCEDURE

Steps	Rationale
1. Explain the procedure to the mother	To gain confidence
2. Provide screen for privacy	For privacy
3. Provide comfortable position to the mother	To make the mother comfortable
4. Collect all the articles at the bed side	For convenience
5. Spread the mackintosh with towel over the lap of the mother	To protect the cloth
6. Wash hands	To prevent cross infection
7. Stand on the right side of the mother	
8. Expose both the breast first and check symmetry	To find out abnormalities

Contd...

Steps	Rationale
9. Expose the farthest breast covering the near one	
10. Inspect the breast for size, inverted/cracked/retracted nipples/s/s of infection	To find out abnormalities
11. Palpate the breast from superficial to deep for tenderness, pain, tumors, exaggerated lymph nodes, etc.	
12. Squeeze the breast and observe the secretion	To check the secretion
13. Clean the secretion with the cotton pad and throw in paper bag	
14. Take the cotton swab and squeeze it holding the tail and keeping above the hand	To prevent cross infection
15. Clean the breast in the following order: <ul style="list-style-type: none"> ■ Nipple ■ Primary areola ■ Secondary areola ■ Total breast ■ Lower crease except axilla 	To clean the breast
16. Dry the breast with gauze pieces following the same manner	To dry the breast
17. Cover the further breast exposing the near one. Inspect, palpate and squeeze in the same manner	To find out abnormalities
18. Help the mother to do hand wash	For return demonstration
19. Help the mother to clean the other breast in same pattern	
20. Put the baby on to the breast	To initiate breastfeeding
21. Make the mother and baby comfortable	For comfort and well-being

Aftercare of Article and Mother

- Give comfortable position to mother.
- Wash the article with soap and water.
- After drying arrange the article for next use.
- Discard all waste.

Recording and Reporting

The observations made during the procedure should be recorded in the nurse's notes and patients file and any abnormal findings should be informed to higher authority.

Manual Expression of Breast Milk

INTRODUCTION

All breastfeeding women should be familiar with the basic technique of manual expression of milk from the breast, and ideally this technique is acquired before discharge from the hospital and with the assistance of the nursery or postpartum nursing staff.



Reasons to express breast milk include the following:

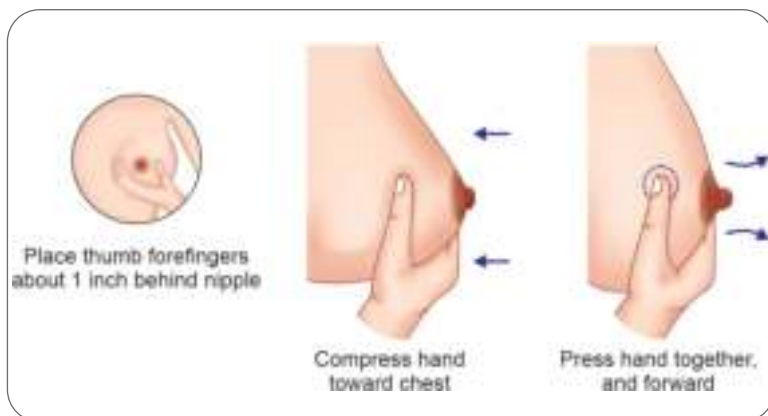
- To initiate flow and assist an infant to grasp the breast properly.
- To encourage production of milk early in lactation when an infant is premature or ill.
- To relieve engorgement.
- To maintain lactation when an infant cannot be fed.

Manual expression is appropriate to initiate flow before applying a hand pump or an electric pump. Not many women can manually pump large volumes over time without mechanical assistance. The breast should always be massaged, and flow initiated, before applying any pump.

PROCEDURE

Steps

1. Wash your hands well and grab a clean cup or container to collect the milk in. If you're collecting colostrum, a spoon will work.
2. **Position your hands:** Put hand on one breast with your thumb and forefingers opposite each other around the outer edge of your areola, about an inch behind your nipple. Use other hand to hold the cup, container or spoon up to your nipple.
3. **Compress, press and rotate:** Compress your hand in toward your chest, gently pressing your thumb and forefinger together while pulling forward slightly. (It should feel like a massage, not painful). Avoid letting your fingers slip down towards your nipple. As you release, milk should squirt or flow out. Repeat five or six times, rotating your thumb and fingers around your areola to get milk from around your breast.
4. **Switch to the other breast and repeat:** Move to other breast and do the same compress and press motion five or six times. Continue this sequence, alternating between your breasts. You can hand express for a few minutes if you're just trying to take the edge off full breasts. If hand expressing in lieu of pumping, try to go for 20 to 30 minutes, or until your breasts feel soft.



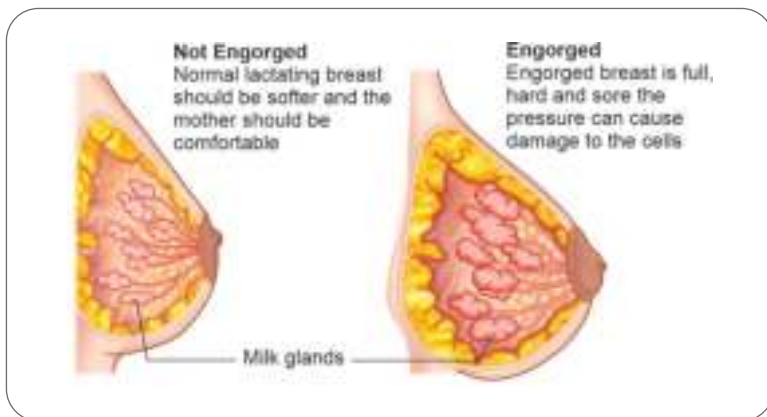
- **Get some hands-on guidance:** While you're recovering in the hospital after giving birth, ask a nurse, midwife or lactation consultant to help you learn how to hand express.
- **Start with some warmth:** A warm compress or even a warm shower can help get the milk flowing. Try to get your hands warm, too.
- **Practice in the morning:** Your supply tends to be the most abundant in the morning, so try hand expressing after your first morning feeding.
- **Relax:** Feeling comfortable will boost your milk flow. Find a quiet spot, and try to clear your mind by thinking about something calming.
- **Move around your breast:** Expressing around some areas will yield more milk than others, so keep switching positions. Just don't squeeze around your nipple, since that can cause bruising.
- **Use gravity:** Lean forward while expressing to help draw more milk out.
- **Think short and sweet:** Especially in the beginning, you'll get more milk through lots of short hand expressing sessions compared to longer, less frequent ones.

Breast Engorgement Care

INTRODUCTION

Breast engorgement is a painful situation affecting a large number of mothers in the early postpartum period. During a time when mothers are coping with the demands of a new baby it may be particularly distressing. It may hinder the development of successful breastfeeding which leads to early breastfeeding cessation and is associated with more serious illness, including breast infection.

Breast engorgement is a painful condition which occurs when milk builds up in the breast. It eventually leads to pain, warmth, and tenderness in the breasts, along with fever.



PURPOSES

- To remove milk from your breasts.
- To decrease breast swelling.
- To prevent breast engorgement and its associated complications.
- To reduce the pain due to breast engorgement.

KEY POINTS

- Monitoring daily for any engorgement of the breasts.
- Regularly breastfeeding the baby.
- Properly massaging the breast before each feed.

PRIMARY ASSESSMENT

- Early identification of breast engorgement in the initial period itself.
- Check for the extent of engorgement, size, color and tenderness.
- Monitor the feeding habit of the baby.
- Educating the mother about the correct technique of breastfeeding.

PROCEDURE

Inspection

- Examine for the size, shape and symmetry of both the breasts.
- Examine for the redness, swelling, cracked nipple, and fissures.

Palpation

- First examine from the farther side of the breast followed by the near side.
- Push one of the breasts on one side and palpate the breast for the engorgement.
- Then again, push the other breast and palpate for the same.
- Then gently squeeze the nipple for the milk secretion.

Suggestions for Relieving Engorgement

- Breastfeeding or pumping breasts every 2–2½ hours during the day and 3 hours at night.
- Applying cold packs 20 minutes before breastfeeding or pumping to decrease swelling in the breast.
- Avoid using heat when there is swelling as it can worsen the condition.
- Avoid prolonged intervals between breastfeeding.
- Massaging the breasts while breastfeeding or pumping by stroking toward the baby's mouth or the pump flange.
- Wearing a supportive, well-fitting bra to avoid putting pressure on milk-making breast tissue.
- Drinking plenty of fluids.
- Avoid eating high-sodium (salt) foods and liquids that may increase swelling.

MANAGEMENT OF ENGORGEMENT

Cold Compress

Cold packs are used to relieve breast swelling so the milk will flow more easily and also used for comfort.

Preparation of Cold Packs

- Place small ice cubes in a zip lock bag.
- Put zip lock bags inside a pillow case.
- Wrap the cold packs around the breasts.

Steps of Applying Cold Compress

1. Alternate cold packs by placing them on each breasts for 20 minutes, take them off for 20 minutes, put back again for 20 minutes, and repeat this process.
2. Use cold packs between feeding or pumping sessions as needed.



Reverse Pressure Softening

- Reverse pressure softening (RPS) is a technique used to help the baby latch on when the mothers' nipples and areolas are swollen from engorgement.
- Reverse pressure softening will push the fluid away from the nipple and areola briefly so that the baby can latch on more easily.

Steps of Reverse Pressure Softening are as follows:

1. Place fingers and thumb around the base of the nipple on the areola
2. Push back toward the ribs.
3. Continue putting pressure on that area for 1–2 minutes.
4. Repeat this technique and reposition fingers farther away from the nipple on the areola if needed to relieve more swelling.
5. While removing the fingers and thumb, the baby should be able to latch on the softened area.
6. If difficulties still persist, try pumping for 1–2 minutes to relieve fullness in nipples and areolas, then try latching the baby.



Reverse pressure softening

- Cabbage leaf compresses can also be helpful.
- Avoid tight/ill-fitting bras, as they can lead to plugged ducts and mastitis.
- Talk to your health care provider about using a nonsteroidal anti-inflammatory such as ibuprofen to relieve pain and inflammation.

Recording and Reporting

- Record the procedure.
- Make the client comfortable and help her to dress up.

Postnatal Exercise

INTRODUCTION

- Childbirth and care of the newborn are both physically exhausting tasks. After childbirth, the new mother hardly finds time for herself as the care required for the baby doesn't give the time to look after her health.
- Many women postdelivery find difficulty in getting back the abdomen to its original tone.
- Postnatal exercises are a must to boost up the energy levels and keep the woman in shape. Postnatal exercises should be started immediately after delivery, if possible, in order to improve circulation, strengthen pelvic floor and abdominal muscles, and to prevent transient and long-term problems.

ADVANTAGES

- Strengthens muscles and firm up the body particularly those stretched during pregnancy and labor.
- Promotes circulation and hence minimizes the risk of puerperal venous thrombosis.
- Prevents from aches and pains and gives more energy on being tired.
- Helps to regain prepregnant state and lose weight.
- Improves mood, relieves stress and helps to prevent postpartum depression.
- Maintains firm shape of breasts and ensure milk supply.

- Improves physical strength and stamina which will make looking after a newborn baby easier.
- Prevents incontinence of urine.
- Prevents genital prolapse.
- Aids in the involution of reproductive organs.

PREPARATION

- Consult doctor/midwife before beginning the exercise.
- Start the exercises slowly and rhythmically after 24 hours of delivery.
- Before starting and after finishing exercises, must practice deep breathing.
- Commence with five minutes of gentle exercise, such as slow walking, gentle arm circles and knee lifts to warm up the body. This is very important to prepare your body for exercise and help prevent injuries.
- Begin exercise with few minutes and then gradually increase the time.
- Relax all muscles at the finish of each exercise.
- Perform exercises regularly, plan a regular schedule that is at least thrice a week.
- Void before exercising.
- Exercise on a firm surface.
- Limit activities to shorter intervals. Exercise for 10–15 minutes rest for 2–3 minutes then exercise for another 10–15 minutes.
- Rest for 10 minutes after the exercise.
- Never hold breath while performing an exercise.
- Don't exercise in a hands-and-knees position for the first six weeks as there is a risk that bubbles of air can form at the site where your placenta was attached.
- Do not exercise with full stomach.
- Do not continue the exercise if you experience shortness of breath, pain, numbness, undue cramping, vaginal bleeding or nausea. Report to the doctor/midwife if it happens.
- Don't become over heated for extended periods.
- Never exercise to a point of fatigue.

Preparation of the Environment

- Arrange the area, i.e., a hard firm bed or a mat spread on the floor.
- Ensure privacy.
- Ensure that there is adequate light and ventilation.

A. EXERCISES FOLLOWING NORMAL DELIVERY

Sl. no.	Postpartum day	Exercises	Technique
1.	1st day	Lying on abdomen with pillow under, for 30 minutes on empty stomach.	<ol style="list-style-type: none"> 1. Lie on bed with knees bent. With a pillow under the head. 2. Close the eyes and concentrate on breathing. 3. Breathe deeply in through the nose and out through the mouth, repeat it five times
		Breathing exercise	Abdominal breathing <ul style="list-style-type: none"> • Lie on bed with knees bent, with a pillow under the head. • Inhale through the nose, keep the rib cage as stationary as possible and allow the abdomen to expand and then contract the abdominal muscles as exhales slowly through the mouth. • Place one hand on the chest and one on the abdomen when inhaling. The hand on the abdomen should rise and the hand on the chest should remain stationary. Repeat it five times.

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Sl. no.	Postpartum day	Exercises	Technique
			Circulatory exercise <ul style="list-style-type: none"> • Lie or sit on a chair with back straight, move feet up and down. Repeat it 10 times. • Lie or sit on a chair, move feet inward and outward. Repeat it 10 times. • Lie or sit on a chair, make a circle with both feet at anti-clockwise direction and vice versa. Repeat it 10 times. • Lie in supine and brace both knees, hold for a count of four, and then relax. Repeat it 10 times.
2.	2nd day	Arm raising	Lying on back with legs slightly parted, place arms at right angles to the body. Slowly raises arms keeping elbows still do they are perpendicular. Lower the arms gradually.
		Shoulder rolls	The fingers tips are placed on shoulder, then brought forward and up during inhalation, back and down during exhalation or rolling each shoulder forward five times, then back five time. This is done to tone up the breast. Repeat it 10 times.
		Kegel exercise	<ul style="list-style-type: none"> • Empty the bladder. Adopt any comfortable position with legs slightly apart (Lying, sitting or standing). • Squeeze pelvic floor muscle as though you are preventing the flow of urine and bowel action. Then feel it being lift up. • Try to hold for 4 seconds and rest in between 10 seconds.

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Sl. no.	Postpartum day	Exercises	Technique
		Neck exercise	<ul style="list-style-type: none"> • Sit on a chair with straight back. Look upward and bring back head to neutral position. Repeat it five times. • Sitting: Head to left and then to right. Repeat it five times. • Sitting: Bring ear towards left shoulder and then right ear towards right shoulder. • Repeat it five times.
3.	3rd day	Pelvic tilting	<ol style="list-style-type: none"> 1. Lie on back with knees bent and feet on the floor. 2. Place one hand under the small of back and the other on top of the abdomen. Tighten the abdomen and buttocks and press the small of the back down onto the underneath hand. Repeat five times.
		Abdominal tightening	<ol style="list-style-type: none"> 1. Lie on your back with knees bent and feet on the floor, tighten abdomen and press down until low back flattens against the floor. 2. Hold each position for five seconds. Repeat five times.
		Breast exercise	<ul style="list-style-type: none"> • Raise the arms to the shoulder level and cross them in front so that right hand collapsed under left elbow and left hand under right elbow. Breathe in and with a succession of quick jerks. • Grip the forearm and try to push the skin toward elbows. Jerking movements tighten the breast muscles.

Contd...

Sl. no.	Postpartum day	Exercises	Technique
4.	4th day	Pelvic tilting	<ul style="list-style-type: none"> • Lie on back with knees bent and feet on the floor, tighten abdomen and press down until low back flattens against the floor. • Then buttocks off the bed (lifting the pelvis) by putting weight on heels.
5.	5th day	Head and shoulder raising	Instruct woman to lie flat without pillow and raise both head and shoulder off the bed and lower them slowly. Gradually increase the number of repetitions until able to do this for 10 times.
6.	6th day	Curl-up	<ul style="list-style-type: none"> • Lie flat on supine position, knees bend and keep feet flat and together • Tighten abdomen. Press pelvis downward to flatten the back against the bed. • Lift head and shoulder just off the bed with both hands touching the knees, i.e., trying to sit up. Hold for a while and lie down slowly.
7.	7th day	Knee-rolling	<ul style="list-style-type: none"> • Lie flat on supine position. knees bend and feet flat. • Roll both knees alternatively in opposite direction and try to touch the bed while keeping back straight. Hold for five seconds and repeat 5 times.
		Hip-hitching	<ul style="list-style-type: none"> • It is also called leg shortening exercise. • It is performed with one knee bend and other knee straight.

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Sl. no.	Postpartum day	Exercises	Technique
			<ul style="list-style-type: none"> Slide the heel of straight leg downward thus lengthening of leg. Shorten the same leg by drawing the hip up toward the rib on same side. Keep the abdomen pulled in while doing this. Repeat it 6–10 times.
		Straight-leg raise	<ul style="list-style-type: none"> Instruct woman to lie on the floor with no pillows under the head, point toe and slowly raise one leg keeping the knees straight then other. Lower the leg slowly. Never attempt double leg lifts.
8.	8th day	Knee-bending	<ul style="list-style-type: none"> Lie in supine and bend hips and knees, then press in both knees toward the chest and relax. Bend alternate knees toward chest. With stomach pulled in and the back pressed firmly to the floor/bed. Hold for 5–6 seconds and then release it (do not arch back while lying).
		Abdominal crunch	<ul style="list-style-type: none"> Lie flat on supine position, knees bend and keep feet flat and together Tighten abdomen, press pelvis downwards to flatten the back against the bed. Keep hands under the head and lift the head and shoulder just off the bed and try to sit up. Return to the starting point slowly and repeat it 10–15 times and increase the number gradually.

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Sl. no.	Postpartum day	Exercises	Technique
		Shoulder and back lifting	<ul style="list-style-type: none"> • Lie on abdomen and lift the shoulder and back while inhaling. • Hold for a while and return to starting point slowly while exhaling.

Six exercises to strengthen the muscles of the pelvic floor



B. EXERCISES FOLLOWING CESAREAN SECTION

Cesarean is a major operation and the first six weeks after the operation is a time for healing. Don't do any strenuous exercise or heavy lifting in the first couple of months. Postnatal exercises should be started after 6 weeks. However, mother can begin practicing pelvic floor exercises as soon as she feels up to it.

- Every time while lifting baby, tighten pelvic floor muscles and lower tummy muscles at the same time. This will help to protect back.
- Foot and leg exercises as described earlier should be started as soon as possible.

- These may be followed by not more than four deep breaths to ensure full expansion of lungs and pumping action on the inferior vena cava.
- In spite of abdominal breathing, deep diaphragmatic breathing (Huffing) exercise should be started as early as possible.

Huffing Technique

- Huffing is a forceful outward breath using the diaphragm rather than abdominal muscles to push air out of lungs.
- The abdominals are pulled up and rather than pushed out causing decreased abdominal pressure and less strain on the incision.
- Support the incision with pillows or hands during cuffing or huffing and say “HA” forcefully while pulling in abdominal muscle.
- Mother can start Kegel’s exercise from 2nd postpartum day.
- To ease backache and to relieve flatulence, the pelvic tilting exercise can be practiced gently after 3 postpartum days.

CONCLUSION

After delivery, exercises help strengthen muscle tone and firm up the body particularly those stretched during pregnancy and labor. The goal of any exercise program should be safety and improved well-being of the mother. Promoting adequate oxygenation. Venous return and a positive emotional state are important elements of a well-rounded exercise program. To gain all the advantages of exercise, mother should perform these exercises daily.

Newborn Assessment

INTRODUCTION

Every newborn baby requires a brief physical examination within the first few minutes after birth, and then a full and detailed assessment within the next 48 hours and prior to discharge from hospital.

It is systematic examination (physical and neurological) of newborn.

PURPOSES

- To identify the baby who is acutely unwell and requires urgent treatment.
- To recognize common neonatal problems and give advice to parents about management.
- To diagnose congenital malformations and arrange appropriate management.

TIMING

- Detailed assessment is performed within the first 48 hours after birth.
- If baby is discharged within the first 8 hours after birth, complete full assessment prior to discharge even though this is not the optimal time to detect all abnormalities.

PREPARATION

Preparation of Environment

- Ensure adequate warmth and lighting.
- Ensure privacy for discussion about sensitive family/health issues.

Preparation of Mother/Patient

- Explain the purpose, procedure and limitations of the assessment.
- Ask the baby's name and confirm sex.
- Ask about any concerns and provide opportunity for questions and answers.
- Discuss feeding choice and progress.
- Provide further information as required.

Preparation of the Article

Name of the articles
Overhead warmer, if required
• Stethoscope
• Ophthalmoscope
• Pencil torch
• Tongue depressor and glove
• Tape measure
• Infant scales and growth charts
• If indicated, bilirubinometer and jaundice nomograms
Baby's Personal Health Record

PROCEDURE

Initial Examination and Assessment

- **Identification:** Check and identify the sex of the infant and verify the records with the correct name, sex and registration number.

- **Vital signs:** Check the vital signs in the following order:
 - **Respiration:** Normal value of respiration is 40–60 breaths/min.
 - **Heart rate:** Normal value of heart rate is 120–140 beats/min.
 - **Temperature:** Normal value of temperature is 36.5°C–37.5°C.

Full and Detailed Newborn Baby Assessment

Physical Examination

- **Length:** Crown to heel length with infant supine/upside down/with the knees slightly pressed down to obtain maximum leg extension (47–50 cm).
- **Head circumference:** It is measured with a tape measure drawn across the center of the forehead and the most prominent portion of the posterior head (33–35 cm).
- **Chest circumference:** It is measured at the level of nipples and is about 2 cm less than head circumference (30–33 cm).
- **Weight:** Average birth weight 2.5–3.5 kg
- **Posture and movements:** Supine position with partial flexion of arms, legs and hand commonly turned a little to one side. Hip joints are partially abducted. Movement is most evident in face and limbs. Unusual movement or lack of movements and asymmetry should be noted and reported.

Assessment	Normal results	Abnormal results
General appearance	<p>While the baby is quiet, alert, not hungry or crying observe:</p> <ul style="list-style-type: none"> • Skin color/warmth/perfusion • Alert/responsive state of activity • Range of spontaneous movement • Posture • Muscle tone 	Dysmorphic features
Growth status and feeding	<p>Document on the age and sex appropriate percentile charts:</p> <p>Weight</p> <p>Length</p> <p>Head circumference</p>	<ul style="list-style-type: none"> • Less than 10th percentile or greater than 90th percentile • Excessive weight loss (more than 10% of birth weight)
Skin	<ul style="list-style-type: none"> • Color • Trauma • Congenital or subcutaneous skin lesions • Edema 	<ul style="list-style-type: none"> • Any jaundice at less than 24 hours of age • Central cyanosis • Petechiae not fitting with mode of birth, or newly appearing or associated with purpura • Pallor • More than 3 café-au-lait spots in a Caucasian, more than 5 in a black African newborn baby • Multiple hemangioma • Edema of feet (consider Turner syndrome)

Contd...

Assessment	Normal results	Abnormal results
Head	<ul style="list-style-type: none"> • Shape and symmetry • Scalp • Anterior and posterior fontanelle • Sutures • Scalp lesions/swelling/bruising/lacerations 	<ul style="list-style-type: none"> • Enlarged, bulging or sunken fontanelle • Microcephaly (less than 2nd percentile)/macrocephaly (greater than 98th percentile) • Subgaleal haemorrhage Caput/cephalhaematoma (consider potential for developing jaundice)
Face	<p>Symmetry of structure, features and movement</p> <p>Eyes</p> <ul style="list-style-type: none"> • Size and structure • Position in relation to the nasal bridge • Red reflex 	<p>Asymmetry on crying</p> <ul style="list-style-type: none"> • Hazy, dull cornea • Absent red reflex • Unequal, dilated or constricted pupils • Purulent conjunctivitis • Yellow sclera • Congenital cataracts
	<p>Nose</p> <ul style="list-style-type: none"> • Position and symmetry of the nares and septum 	<ul style="list-style-type: none"> • Nasal flaring • Nasal obstruction especially if bilateral

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Assessment	Normal results	Abnormal results
	Mouth <ul style="list-style-type: none"> • Size, symmetry and movement • Shape and structure • Gums and teeth (if present) • Lips • Palate (hard and soft) • Tongue and frenulum 	<ul style="list-style-type: none"> • Cleft lip and/or palate • Mouth drooping
	Ears <ul style="list-style-type: none"> • Position • Structure including patency of the external auditory meatus • Well-formed cartilage 	<ul style="list-style-type: none"> • Unresponsive to noise • Absent external auditory canal or microtia • Drainage from ear
	Jaw size and shape	Small receding chin or micrognathia (e.g., Pierre Robin syndrome)
	Neck <ul style="list-style-type: none"> • Structure and symmetry • Range of movement • Thyroid gland or other masses 	Masses/swelling Neck webbing
Shoulders, arms and hands	<ul style="list-style-type: none"> • Length • Proportions • Symmetry • Structure and number of digits 	<ul style="list-style-type: none"> • Swelling over clavicle/fractured clavicle • Hypotonia • Palsy (e.g., Erb's palsy, Klumpke's paralysis) • Contractures • Palmar crease pattern

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Assessment	Normal results	Abnormal results
Chest, cardio respiratory	<p>Chest</p> <ul style="list-style-type: none"> • Chest size, shape and symmetry • Breast tissue • Number and position of nipples <p>Respiratory</p> <ul style="list-style-type: none"> • Chest movement and effort with respiration • Respiratory rate • Breath sounds 	<p>Small, malformed or asymmetry Widely spaced nipples (e.g., Turner's syndrome)</p> <p>Signs of respiratory distress, apneic episodes</p>
	<p>Cardiac</p> <ul style="list-style-type: none"> • Pulses—brachial and femoral • Skin color/perfusion • Heart rate • Heart rhythm • Heart sounds • Pulse oximetry 	<ul style="list-style-type: none"> • Variations in rate, rhythm or regularity • Murmurs • Central cyanosis/mottling • Weak or absent pulses • Positive pulse oximetry screen
Abdomen	<ul style="list-style-type: none"> • Shape and symmetry • Palpate for enlargement of liver, spleen, kidneys and bladder • Bowel sounds • Umbilicus including number of arteries • Tenderness 	<ul style="list-style-type: none"> • Organomegaly gastroschisis/exomphalos • Bilious vomiting • Inguinal hernia • Erythema or swelling at base of umbilicus onto anterior abdominal wall

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Assessment	Normal results	Abnormal results
Genitourinary	Urine passed including color and amount Male genitalia <ul style="list-style-type: none"> • Penis including foreskin • Testes (confirm present bilaterally and position of testes) including any discoloration • Scrotal size and color • Other masses such as hydrocele Female genitali <ul style="list-style-type: none"> • Clitoris • Labia • Hymen 	<ul style="list-style-type: none"> • No urine passed within 24 hours • Ambiguous genitalia • Bilateral undescended testes • Testicular torsion • Hypospadias, penile chordee • Penile torsion >60% • Micropenis (stretched length <2.5 cm) • Unequal scrotal size or scrotal discoloration • Testes palpable in inguinal canal
Anus	<ul style="list-style-type: none"> • Meconium passed • Anal position • Anal patency 	No meconium passed within 24 hours
Hips, legs and feet	Use Barlow and Ortolani maneuvers to examine hips A firm surface is necessary Assess legs and feet for <ul style="list-style-type: none"> • Length • Proportions • Symmetry Structure and number of digits	<ul style="list-style-type: none"> • Risk factors for hip dysplasia: Breech presentation, fixed talipes, fixed flexion deformity, asymmetrical buttock creases, severe oligohydramnios, first degree relative with developmental hip dysplasia • Positive barlow and/or Ortolani test • Hypotonia/contractures • Positional talipes

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Assessment	Normal results	Abnormal results
Back	<ul style="list-style-type: none"> • Spinal column • Scapulae and buttocks for symmetry skin 	<ul style="list-style-type: none"> • Curvature of spine • Nonintact spine • Tufts of hair or dimple along intact spine • Sacral pit without visible intact base
Neurologic	<p>Observe throughout:</p> <ul style="list-style-type: none"> • Behavior • Posture • Muscle tone • Movements • Cry <p>Examine reflexes—Moro, Suck, Grasp</p> <ul style="list-style-type: none"> • Blinking or corneal reflex: It persists throughout life. • Pupillary reflex: Pupil constricts when a bright light shines toward it. It persists throughout life. • Doll's eye reflex: As head is moved slowly to right or left, eyes lag behind and do not immediately adjust to a new position of head. If disappears, fixation develops. If persists, indicate neurologic damage. 	<ul style="list-style-type: none"> • Weak, irritable, high pitched cry • No cry • Does not respond to consoling • Absent/exaggerated reflexes • Seizures • Altered state of consciousness

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Assessment	Normal results	Abnormal results
	<ul style="list-style-type: none"> • Sneezing reflex: Spontaneous response of nasal passages to irritation or obstruction. It persists throughout life. • Glabellar reflex: Tapping briskly on glabella (bridge of nose) causes eyes to close tightly. It disappears as brain matures • Sucking reflex: It disappears around 12 months. • Rooting reflex: It disappears around 3–4 months. It is elicited by the examiner stroking the cheek or corner of the infant's mouth. The infant's head turns toward the stimulus and opens its mouth. • Gag reflex: Stimulation of posterior pharynx by food, suction or passage of a tube causes infant to gag. It persists throughout life. • Extrusion reflex: When tongue is touched or depressed, infant responds by forcing it outwards. It disappears by age 4 months. • Yawn reflex: Spontaneous response to decreased oxygen by increasing amount of inspired air. • Palmer grasp reflex: It disappears around 2 months. It is elicited by the examiner placing his finger on the palmar surface of the infant's hand and the infant's hand grasps the finger. 	

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Assessment	Normal results	Abnormal results
	<ul style="list-style-type: none"> • Tonic neck (fencing posture): It disappear at around 7 months. It is elicited by rotating the infant's head from midline to one side. The infant should respond by extending the arm on the side to which the head is turned and flexing the opposite arm. The lower extremities respond similarly. • Moro's reflex: The examiner holds the infant so that one hand supports the head and the other supports the buttocks. The reflex is elicited by the sudden dropping of the head in her hand. The response is a series of movements: the infant's hands open and there is extension and abduction of the upper extremities. This is followed by anterior flexion of the upper extremities and audible cry. • Stepping (dancing) reflex: It is elicited by touching the top of the infant's foot to the edge of a table while the infant is held upright. The infant makes movements that resemble stepping. • Babinski reflex: It disappears at around 12 months. It is elicited by stimulus applied to the outer edge of the sole of the foot. The infant responds by plantar flexion and either flexion or extension of the toes. • Crawling reflex: When placed on abdomen, infant makes crawling movements with arms and legs. It disappears at about age 6 weeks. 	

Aftercare of the Patient and the Article

- Wash the hands.
- Cover the baby.
- Replace the articles to the utility room.

Recording and Reporting

- Plot anthropometric parameters on growth charts.
- Explain parental use and completion after discharge.
- Document completion of the newborn assessment and associated discussions, findings and follow-up requirements in the medical record.

Counseling for Family Planning

INTRODUCTION

Family planning is about deciding how many children you choose to have and when you want to have them (timing of pregnancies and birth spacing).

OBJECTIVES

- Spacing births allow the mother to recover physically and emotionally before she gets pregnant again, and faces the demands of pregnancy, birth and breastfeeding.
- Limiting the number of children in a family means more resources for each child and more time for the parents to dedicate to each child.

TIMING TO COUNSEL ON BIRTH SPACING

- Begin discussing family planning during pregnancy, particularly during the third trimester, after birth and in the immediate postpartum period.
- Pregnant women need to know that if they are not exclusively breastfeeding, they can get pregnant as soon as four weeks after the birth of their baby, even if they have not yet started their menstrual cycle.
- Advise women about the benefits of using breastfeeding as a family planning choice, known as the Lactational Amenorrhea Method (LAM).

COUNSELING A WOMAN ON FAMILY PLANNING AFTER AN ABORTION

- Explain that she can become pregnant as soon as 2 weeks after an abortion if she begins to have sexual relations.
- A woman who has recently experienced an induced or spontaneous abortion should wait at least 6 months before another pregnancy to reduce risks to her health and to her future baby.

A healthcare provider can support her and her partner in choosing a method that meets their needs:

- If she has no postabortion complications or infection, she can safely use any family planning method, and can start all methods immediately postabortion (except for the natural calendar method, when she should wait for 3 months).
- If an infection is present or suspected, advise her to avoid intercourse until the infection is ruled out or fully treated. Delay female sterilization and intrauterine device (IUD) insertion until an infection is fully treated, but offer other methods to use in the meantime.
- For IUD insertion or female sterilization after a second trimester abortion, the provider may need special training because of the changed uterine size and the position of the fallopian tubes.
- If she thinks she could be at risk of getting STI/HIV, she should use a condom in all sexual relations.

MALE PARTNER

The partner should be encouraged to take part in family planning counseling sessions, especially if the chosen method involves his cooperation, for example, condoms or natural methods.

WOMEN WITH SPECIAL NEEDS

- Women with special needs may require extra time for family planning counseling.
- Women who are in violent relationships may also need special counseling and support to explore their alternatives, (i.e., condom use may be unlikely). These women may also not be able to discuss

family planning with their partners and may need extra help and support in using family planning methods.

- Women with physical disabilities may have special requirements in terms of which methods are suitable for their situation and disability.
- Women with severe physical or mental disabilities may have become pregnant due to rape or abuse.
- Adolescents or unmarried women should also be offered family planning counseling. Sometimes this is difficult if the family or community disapproves of adolescent sexual activity and pregnancy.

There is no single method of family planning which should be recommended for everyone. Family planning counseling can help a woman, and/or her partner choose which method best suits him/her.

There are various models of family planning counseling that can be applied, including the GATHER model (Greet the client, Ask about situation and needs, Tell about different methods and options, Help clients choose, Explain how to use a method, Return) or the REDI model (Rapport-building, Exploration, Decision-making, and Implementing the decision). In general, the steps or actions outlined below should be covered to counsel on family planning.

- Assess the situation, her needs and information gaps

In order to help counsel a woman on family planning, it is very important to discuss her and her partner's specific needs and situation.

 - You can ask if she knows about family planning, what she has heard about it, and if she knows it is important.
 - Explain that it is important to know that she can become pregnant soon after giving birth if she is not exclusively breastfeeding.
 - You should also ask whether the woman or couple already have a family planning method in mind—those people who receive the method that they have planned for, are much more likely to use it successfully. You can then help them assess if this method suits their situation and needs (e.g., Are you confident you could remember to take a pill every day?), or it may also be helpful to

discuss other options in case there is a method that better suits his/her or their needs.

- Help to prioritize solutions, narrow down options and make a good choice

You can then discuss various family planning methods based on the needs and situation of the woman and her partner. Key method characteristics that can be discussed include:

- Can the method be used while breastfeeding?
- How effective is it?
- Are there any side effects?
- Does it provide protection from STIs or HIV?
- Does it impact on sexual relations?
- How easy is it to use?
- Is it easy to stop using the method?
- Is the method reversible?
- How quickly will fertility return once method is stopped?
- Is there a need to do something before sex? (e.g., putting a condom on, inserting a diaphragm)
- Is it used continuously, or only used when needed?
- Is there a need to touch genitals?
- Check if she is eligible to use the chosen method
- Provide useful information on the chosen method

Women and their partners need accurate information to use a family planning method correctly. Although too much information can be unhelpful or off-putting, there are some key pieces of information that must be explained:

- What the method is and how it works?
- How effective it is at preventing pregnancy?
- **Side effects:** What the user can expect, and what to do about them?
- How to use the method correctly?
- What to do in case of a mistake in the use of the method or problems (missed pills, late for injection, condom splits)?
- Information on when to return to the clinic?
- Signs of complications to watch out for?

Table 37.1: Starting family planning methods after childbirth

Method	Breastfeeding	Not breastfeeding	Effectiveness
LAM (Breastfeeding)	Start immediately after childbirth; can use if exclusively breastfeeding day and night for up to 6 months or until periods return	N/A	Very effective with correct use, few side effects
IUD	Insert within 2 days of childbirth, or from 4 weeks after childbirth	Insert within 2 days of childbirth, or from 4 weeks after childbirth	Always very effective, long-term method but may have side effects
Female sterilization	Perform within 7 days, or from 6 weeks after childbirth	Perform within 7 days, or from 6 weeks after childbirth	Always very effective, permanent method, fewer side effects
Combined pill (estrogen progestogen)	From 6 months after childbirth	From 3 weeks after childbirth	Very effective with careful use, may have side effects
Monthly injection (combined)	From 6 months after childbirth	From 3 weeks after childbirth	Very effective with careful use, may have side effects
Mini-pill (progestogen only)	From 6 weeks after childbirth	From immediately after childbirth	Very effective with careful use, may have side effects
DMPA and NET-EN (3- or 2-month injection)	From 6 weeks after childbirth	From immediately after childbirth	Very effective with careful use, may have side effects

Contd...

Method	Breastfeeding	Not breastfeeding	Effectiveness
Implants	From 6 weeks after childbirth	From immediately after childbirth	Always very effective, long-term method but may have side effects
Condoms	From immediately after childbirth	From immediately after childbirth	Effective with careful use
Diaphragm	From 6 to 12 weeks after childbirth (depending on when the uterus and cervix return to normal)	From 6 to 12 weeks after childbirth (depending on when the uterus and cervix return to normal)	Effective with careful use
Fertility awareness-based methods	When periods return to normal	When periods return to normal	Effective with careful use

Management of Hypothermia and Kangaroo Mother Care

INTRODUCTION

Kangaroo mother care (KMC), originally defined as skin-to-skin contact between a mother and her newborn, frequent and exclusive or nearly exclusive breastfeeding, and early discharge from hospital, has been proposed as an alternative to conventional neonatal care for low birthweight (LBW) infants.

- Neonatal hypothermia is a common alteration of thermoregulatory state of neonates which occurs when axillary temperature falls below 36.5°C (WHO, 1997).
- KMC refers to the practice of providing continuous skin-to-skin contact between mother and baby, exclusive breast milk feeding, and early discharge from hospital.

MANAGEMENT OF NEONATAL HYPOTHERMIA

Sl. no.	Steps of the procedure
Mild hypothermia	
1.	Remove the baby from the source that may be causing hypothermia.
2.	Cover the baby adequately with warm clothes.
3.	Ensure skin to skin contact with mother, if not possible, kept next to mother after fully covering the baby.

Contd...

Sl. no.	Steps of the procedure
4.	Warm the environments including room/bed (28°C–32°C).
5.	Immediately breastfeed the baby.
6.	Monitor axillary temperature every ½ hourly till it reaches 36.5°, then hourly for next 4 hours, 2 hours for 12-hour thereafter.
7.	If the temperature of baby is not rising, check if adequate amount of heat being provided. Sepsis should be suspected unresponsive hypothermia.
8.	Watch for apnea and hypoglycemia.
9.	Follow-up
Moderate to severe hypothermia	
1.	Remove wet clothes and rapid rewarming by incubator, preheated radiant warmer or thermostatically controlled heated mattress.
2.	Room heater or 200 W bulb or infrared bulb can also be used.
3.	Rapid rewarming is done up to 34°C, then slow rewarming to 36.5°C.
4.	Where radiant warmer or incubator is not available, KMC may be the only option.
5.	Monitor temperature every ½ hourly till it reaches 36.50. If rise of temperature has been by 0.5°C per hour then heating is considered adequate, and temperature measurement is continued every hourly for next 4 hours and 2 hourly for next 12-hour thereafter.
6.	If rise of temperature is not adequate, one should check the heating technique.
7.	If temperature doesn't improve, provide additional heat. Sepsis should be suspected unresponsive hypothermia.
8.	Encourage mother to breast feed the baby more frequently. If breastfeeding is not possible, give expressed breast milk using an alternative feeding method.
9.	Assess the baby: Look for emergency signs
10.	Parental support: If the feeding is well, temperature remains within the normal range and there are no other problems requiring hospitalization, discharge the baby. Advise the mother how to keep the baby warm at home.

Contd...

Sl. no.	Steps of the procedure
11.	Supportive measures: Prompt detection and management of hypoxia, hypoperfusion and hypoglycemia, Measure blood glucose. If the blood glucose is less than 45 mg/dL (2.6 mmol), treat for low glucose, If perfusion is poor, give 20 mL/kg of RL or NS over 5 minutes, provide oxygen if moderate to severe hypothermia.

KANGAROO MOTHER CARE

Indications

- All LBW babies
- Baby stable and doesn't require special care (e.g., oxygen or IV fluid): begin continuous KMC.

Components of KMC

- Skin-to-skin contact.
- Exclusive breastfeeding.
- Early discharge and follow-up.

Prerequisites of KMC

- Support to the mother in hospital and at home.
- Postdischarge follow-up.

Benefits of KMC

- Reduces risk of hypothermia.
- Promotes lactation and weight gain.
- Reducing infections and hospital stay.
- Better bonding between mother and newborn.

Procedure

Preparation

- When the baby is ready for KMC, mother and family members should be counseled so that a positive attitude is created for KMC.

- Mother should be provided with a front open gown and the baby is dressed with cap, sock, nappy and front open sleeveless shirt.

Sl. no.	Steps
1.	Counsels the mother.
2.	Provides privacy to the mother. Requests the mother to sit or recline comfortably
3.	Undresses the baby gently, except for cap, nappy and socks.
4.	Places the baby prone on mother's chest in an upright position with the head slightly extended, between her breasts in skin to skin contact in a frog like position; turns baby's head to one side to keep airway clear. Supports the baby's bottom with a sling/binder.
5.	Covers the baby with mother's 'pallu' or gown; wraps the baby-mother duo with an added blanket or shawl depending upon the room temperature
6.	Advises mother to breastfeed the baby frequently
7.	Ensures warm room with room temperature maintained between 26°C–28°C.





Monitoring of Kangaroo Mother Care

- Babies receiving KMC should be monitored carefully, especially during the initial stages.
- Nursing staff should make sure that babies neck position is either too flexed or too extended, airway is clear, breathing is regular, color is pink and baby is maintaining temperature.

Duration for Kangaroo Mother Care

- When it comes to duration, skin to skin contact should start gradually in the nursery, with a smooth transition from conventional care to continuous KMC.
- Sessions last less than one hour should be avoided because frequent handling may be stressful for the baby.
- The mother can sleep with the baby in KMC position in reclined or semi-recumbent position about 30 degrees from horizontal.

When to Stop Kangaroo Mother Care

- Kangaroo mother care (KMC) is continued till the baby finds it comfortable and cosy. KMC may be stopped once the baby attains a weight of 2.5 kg or a gestation of 37 weeks.
- A baby who, upon being put in KMC, tends to wriggle out, pulls limbs out or cries or fusses is no longer in need of KMC.

Recording

Each mother-baby pair needs a record sheet to note daily observations, information about feeding and weight, and instructions for monitoring the baby as well as specific instructions for the mother. Accurate standard records are the key to good individual care; accurate standard indicators are the key to sound program evaluation.

Bereavement Counseling

INTRODUCTION

- The loss of a pregnancy can result in grief, guilt, self-doubt, anxiety, and post-traumatic stress disorder (PTSD). These losses may result in immediate and long-term psychological consequences.
- In addition, pregnancy loss also burdens health and social care systems in a significant way. Such an effect arises from negative psychological signs, reduced social performance, financial and occupational difficulties, and increased use of healthcare services in future pregnancies.
- However, about 30% of the bereaved mothers go through major depression, suicidal tendencies, anxiety, PTSD, or other psychological complications.
- Such adverse effects may last up to 4 years after the original incidence and also negatively influence future pregnancies, regardless of the health status of the neonate.

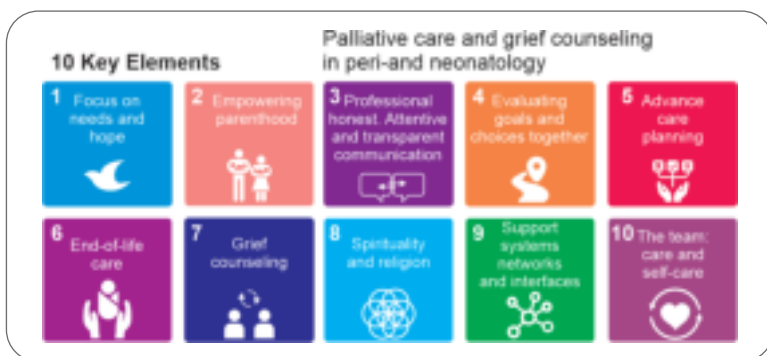
Bereavement counseling—sometimes called grief counseling—refers to counseling offered to individuals who have suffered a loss, typically the death of a loved one, in order to help the bereaved through the process of mourning and recovery.

PURPOSES

Offer an understanding of the mourning process to:

- Explore areas that could potentially prevent the mother from moving on.

- Help resolve areas of conflict still remaining.
- Help to adjust to a new sense of self.
- Address possible issues of depression or suicidal thoughts.



STEPS OF BEREAVEMENT COUNSELING

Act as a Companion

Each person's experience with grief is different. The role is to provide company, listen, and validate their feelings.

- Don't tell, listen.
- Constantly reinforce that their response is normal and natural.
- Encourage the mothers to use their own skills to cope with grief.
- Help them understand and recognize their feelings.
- Help them develop a schedule that allows them to manage their daily tasks while reducing unnecessary outside stressors.

Validate Feelings

It is important to understand the person's feelings.

- Those who experience instrumental grief focus on problem solving and try to control emotional responses.
- Those who experience intuitive grieving have intense emotional experiences that might include depression and thoughts about mortality.
- It is common for people to blame themselves, feel anger, hopelessness, anxiety, and withdrawal from the world.

Ask Open Questions

- Don't ask leading questions or "yes" and "no" questions.
- Do not ask "why" questions. These make it sound as if you do not understand or support their feelings.
- Ask broad questions like "How do you feel?"
- Ask "What bothers you the most?"
- Instead of asking "Why do you feel that way?" ask "Could you give me specific examples?"

Paraphrase Responses

When trying to get to the core of their problems, try giving a short summary of what we think they have told us.

If they tell you, "I stay up every night thinking about him. When I go to work I am tired and can't think clearly. I am getting more and more nervous and depressed because I can't function during the day." Ask, "So your grief is causing sleep problems that disrupt your life?"

Reflect Their Feelings

When you get a sense for how they feel, verify that you have correctly understood their emotions. This is a way to demonstrate that you are listening and that you have developed an emotional connection.

- Try, "Sounds like you are very angry about what has happened."
- Alternatively, "it sounds like you are having difficulty understanding your emotions."

Refrain from Unsupportive Behavior

Everything you do should be directed at them. Anything that suggests your focus is elsewhere will be counterproductive. You should avoid forcing your own solutions upon them.

- Do not watch the clock.
- Do not take notes.
- Do not look around the room.
- Do not try to read too much into their feelings and impose your own idea or their feelings on them.
- Do not preach or lecture about what they should do.
- Refrain from giving too much advice or asking too many questions.

- Do not respond too quickly. Allow moments of silence.
- Do not change the subject.
- Do not talk too much about yourself.

Keep Your Body Open and Relaxed

Crossed legs and arms may suggest that you are closed off or uninviting. Try to sit straight up, with your limbs open. Your body should appear relaxed and you can gesture with your hands to show emotional support.

- Also be sure that your body is facing directly toward the grieving person to indicate that you are engaged with him.
- Sit on the same level as the person you are talking to. Do not take a chair that allows you to tower over the person, or the person over you. This creates a sense of power imbalance that is not helpful for open conversation.

Talk Like You Care

Talk naturally and allow your voice to show emotion. Try to develop a soothing tone in your voice. Your conversation style should also demonstrate that you are there to listen. Don't interrupt him, or jump from topic to topic, or rush the person to an answer.

10 GUIDELINES FOR GRIEF COUNSELING

Some of the guidelines adapted from Worden (2005) are listed here:

1. Help the bereaved actualize the loss
2. Help the bereaved identify and experience feelings
3. Assist living without the deceased
4. Help find meaning in the loss
5. Facilitate emotional relocation of the deceased
6. Provide time to grieve
7. Interpret normal behavior
8. Allow for individual differences
9. Examine defenses and coping styles
10. Identify pathology and refer

Postpartum Intrauterine Contraceptive Device Insertion (PPIUCD)

INTRODUCTION

The copper bearing intrauterine contraceptive device (Cu IUCD) is a small, flexible plastic frame containing copper, which a specifically trained provider inserts into a woman's uterus. IUCD provides very effective, safe, and long-term, yet reversible protection from pregnancy.

TIMING OF PPIUCD INSERTION

Postpartum

- **Postplacental:** Insertion within 10 minutes after expulsion of the placenta following a vaginal delivery, on the same delivery table.
- **Intracesarean:** Insertion that takes place during a cesarean delivery, after removal of the placenta and before closure of the uterine incision.
- **Within 48 hours after delivery:** Insertion within 48 hours of delivery.

Postabortion and postmedical termination of pregnancy: Insertion following an abortion, if there is no infection, bleeding or any other contraindications.

Extended postpartum/interval: Insertion could be done any time after 6 weeks postpartum. Here the technique of insertion will be same as that of interval IUCD insertion.

PPIUCD Insertion

Preparation of the article:

Insertion technique	Instruments
Postplacental and postpartum insertion within 48 hours of delivery	<ul style="list-style-type: none"> • Flat surface for placing the instruments • Light source • High level disinfectants or sterile vaginal speculum (Sims' or other vaginal speculum) • High level disinfectants or sterile ring forceps or sponge-holding • Forceps • High level disinfectants or sterile PPIUCD insertion forceps (long placental forceps or Kelly placental forceps) • Bowl for cotton swabs • Cotton swabs • Povidone iodine or chlorhexidine • High level disinfectants or sterile gloves (if the same provider, who did the delivery, is inserting the IUCD, the same gloves may be worn) • Copper IUCD in a sterile package
Intracasearean insertion	Copper IUCD, which has been opened onto the sterile field

STEPS OF POSTPLACENTAL INSERTION

Procedure

Sl. no.	Steps for insertion using PPIUCD insertion forceps
1.	<p>Check woman's record to ensure that she is an appropriate client for IUCD and she has given her consent.</p> <p>To screen for PPIUCD pre-insertion, rule out conditions which prevent insertion of IUCD like:</p> <ul style="list-style-type: none"> • Rupture of membranes for more than 18 hours • Chorioamnionitis • Unresolved postpartum hemorrhage
2.	<p>Confirm that high level disinfectants/sterile instruments, supplies and light source are available in the labor room.</p> <ul style="list-style-type: none"> • Talk to the woman with kindness and respect. • Confirm with the woman whether she still wants IUCD. • Explain that you will insert the IUCD following delivery of the placenta. Answer any questions she might have.

Contd...

Sl. no.	Steps for insertion using PPIUCD insertion forceps
3.	Perform hand hygiene and put on HLD or sterile gloves.
4.	Arrange instruments and supplies on sterile tray or draped area.
5.	Inspect perineum, labia and vaginal walls for lacerations. If lacerations are not bleeding heavily, insert the IUCD and repair, if needed.
6.	Gently visualize cervix by inserting a Sim's speculum in the vagina and depressing the posterior wall of the vagina.
7.	Gently clean cervix with antiseptic solution two times using two separate cotton swabs with Povidone Iodine or Chlorhexidine. Wait for two minutes to allow the antiseptic to work.
8.	Gently grasp the anterior lip of the cervix with the ring (or sponge holding) forceps up to the first lock. (The same ring (or sponge holding) forceps that was used to clean the cervix can be used).
9.	<ul style="list-style-type: none"> Grasp IUCD with PPIUCD insertion forceps in the sterile package using a no-touch technique. It should be held just on the edge of the PPIUCD insertion forceps so that it can be easily released from the instrument when opened.
10.	<ul style="list-style-type: none"> Apply gentle traction on the anterior lip of the cervix using the ring (sponge holding) forceps and insert IUCD into lower uterine cavity. Avoid touching the walls of vagina. The provider passes the PPIUCD insertion forceps with the IUCD carefully into the lower uterine cavity.
11.	<ul style="list-style-type: none"> Once the PPIUCD insertion forceps is in the lower uterine cavity, remove the ring (or sponge holding) forceps that is holding the anterior lip of the cervix. Move the left hand to the woman's abdomen and push the entire uterus superiorly (upward). This is to straighten out the angle between the vagina and the uterus, so that the instrument can easily move upward toward the uterine fundus.
12.	<ul style="list-style-type: none"> Gently move PPIUCD insertion forceps upward toward the fundus following the curve of the uterine cavity. The provider should take care not to apply excessive force. If the uterus is not pushed upward, the angle between the cervix and the uterus may not allow the instrument to advance smoothly. The provider should always keep the instrument closed so that the IUCD is not dropped accidentally in the mid-portion of the uterine cavity.

Contd...

Sl. no.	Steps for insertion using PPIUCD insertion forceps
13.	Confirm that the end of PPIUCD insertion forceps has reached the fundus and tilt the forceps slightly inward. When it reaches the uterine fundus, the provider will feel resistance and will also feel the thrust of the instrument at the fundus of the uterus with her left hand which is placed on the abdomen.
14.	<ul style="list-style-type: none"> • Open PPIUCD insertion forceps and release the IUCD at the fundus. • Sweep PPIUCD insertion forceps to side wall of the uterus. • Stabilize uterus (using base of hand against lower part of body of uterus). • Slowly remove PPIUCD insertion forceps from uterine cavity, keeping it slightly open. Take particular care not to dislodge the IUCD as PPIUCD insertion forceps are removed. • Stabilize the uterus until the PPIUCD insertion forceps are completely out of the uterus. • To help prevent the IUCD being drawn downward in the uterus, the instrument is swept to the right to ensure that the instrument is away from the IUCD. • Then the instrument is slowly withdrawn, keeping it slightly open at all times. If the instrument closes and catches the strings of the IUCD, it can accidentally pull the IUCD down from its fundal position, increasing the risk of expulsion. • Counter traction is applied to stabilize the uterus while the instrument is being withdrawn and until it is completely out of the uterus.
15.	<ul style="list-style-type: none"> • Examine the cervix to ensure there is no bleeding. If IUCD is seen protruding from cervix, remove and reinsert. • It is important to check that the IUCD is not visible at the cervical os. If it is visible, or if the strings appear to be very long, then the IUCD has not been adequately placed at the fundus and the chance of spontaneous expulsion is higher. • If it appears that the IUCD is not placed high enough, the provider can use the same forceps to remove the IUCD and repeat steps of insertion using aseptic procedures.
16.	<ul style="list-style-type: none"> • Remove all instruments used and place them in 0.5% chlorine solution for 10 minutes for decontamination.

Contd...

Sl. no.	Steps for insertion using PPIUCD insertion forceps
17.	<ul style="list-style-type: none"> • Allow the woman to rest for few minutes. Support the initiation of routine postpartum care, including immediate breastfeeding. • The woman should rest on the table for few minutes following the insertion procedure. The provider should reassure her that the insertion was done smoothly and that she now has an effective, safe and reliable long-term spacing method of contraception.
18.	<ul style="list-style-type: none"> • Immerse both gloved hands in 0.5% chlorine solution. Remove gloves by turning them inside out and disposing of them. • Perform hand hygiene. • All infection prevention steps should be followed as per standard infection prevention procedures and facility protocol for waste management.
19.	<p>Provide the woman with post-insertion instructions.</p> <ul style="list-style-type: none"> • Provide IUCD client card showing type of IUCD and date of insertion. • Inform her about the IUCD side effects and normal postpartum symptoms. • Tell the woman when to return for IUCD follow-up/PNC/newborn checkup. • Emphasize that she should come back any time she has a concern or experiences warning signs. • Inform her about the warning signs regarding IUCD. • Explain how to check for expulsion and what to do in case of expulsion. • Assure the woman that the IUCD will not affect breastfeeding and breast milk. • Ensure that the woman understands the post-insertion instructions. • Give written post-insertion instructions. • These instructions should be reinforced again by the staff of the postpartum unit and repeated to the woman, and if possible with her family.
20.	<p>Record information regarding the PPIUCD insertion in the woman's chart or record and in the PPIUCD register kept at the facility.</p>



POSTINSERTION CARE

Postinsertion Care at the Health Facility

- The client should be advised to report any increase in more than expected vaginal bleeding or uterine cramping.
- Vaginal hemorrhage related to uterine atony should be managed as per standard procedure with uterine massage and uterotonics as necessary.
- If severe uterine cramping occurs and persists after PPIUCD insertion, a speculum or bimanual exam should be performed to check for partial or complete expulsion.
- If the woman complains of fever, a full clinical evaluation needs to be done and in the presence of endometritis, an accepted antibiotic regimen should be used for treatment.

Postinsertion Instructions to the Woman

- There may be vaginal bleeding or spotting or cramping for initial few days/weeks after insertion. These symptoms are normally experienced by the woman in the postpartum period. Advise ibuprofen, paracetamol or other pain reliever as needed.

- Spontaneous expulsion can happen in some cases, and is most likely to occur during the first 3 months postpartum. Be observant whether the IUCD comes out. If it does, come to the health facility for reinsertion or another contraceptive.
- At 6 weeks postpartum, the IUCD strings can be felt by some women. It is not necessary for her to check the strings. She may come to the health facility if she has any concern about the strings.
- Remember IUCD does not protect against STIs and HIV. Resume intercourse at any time she feels ready.
- Return for removal of the IUCD at any time she wants a pregnancy and she will have almost immediate return of fertility.
- Before discharge, the following warning signs should be highlighted and the client should be encouraged to call or come to the facility immediately for assessment:
 - Heavy vaginal bleeding
 - Severe lower abdominal discomfort
 - Fever and not feeling well
 - Unusual vaginal discharge
 - Suspected expulsion: can either feel IUCD in the vagina or has seen it expelled from the vagina
 - Any other problems or questions she has related to IUCD
- Give a card to the client with the following information in writing:
 - Type of IUCD inserted
 - Date of IUCD insertion
 - Month and year when IUCD will need to be removed or replaced
 - Date of postpartum follow-up visit
 - Where to go or call if she has problems or questions about her IUCD

Steps for IUCD Removal

Step 1: Prepare the client.

Step 2: Put new examination/high-level disinfected gloves on both hands.

Step 3: Insert a high-level disinfected (or sterile) speculum and visualize the cervix and the IUCD strings.

Step 4: Cleanse the cervix and vagina with an appropriate antiseptic

Step 5: Alert the woman before you remove the IUCD.

Step 6: Grasp the IUCD strings and apply gentle traction.

- Grasp the strings of the IUCD with a high-level disinfected (or sterile) straight artery forceps.
- Apply steady but gentle traction, gently pulling the strings toward you with the forceps.

Step 7: Show the IUCD to the woman.

Recording and Reporting

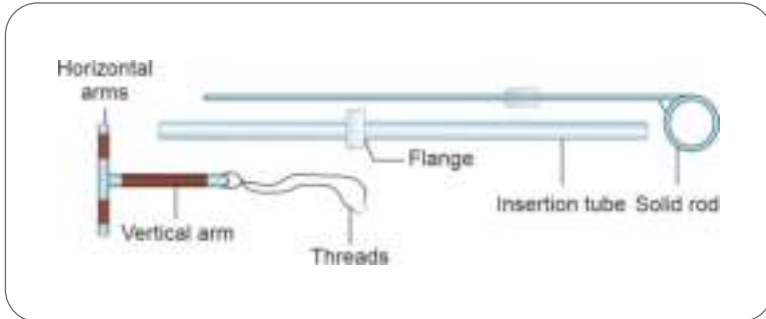
- Date, time, place and name of the doctor who performed the procedure.
- Cooperation of the patient and if any reaction or complication occurs or not is noted on patient's case file.

Copper T—Insertion and Removal

INTRODUCTION

- Copper T also called intrauterine device (IUD) is a mechanical family planning (birth control) device, used all over the world.
- It is a T-shaped plastic device made of polyethylene and impregnated with barium sulphate to make it radiopaque.
- It is 3.6 cm in length and 3.2 cm in width; copper is bounded round through its vertical stem.
- Its surface area is 200 mm and the thread is attached to the lower end of the vertical stem.
- It is available with insertion tube, flange and plunger.





OBJECTIVES OF THE PROCEDURE

The main objective of copper T insertion is to:

- Avoid unwanted pregnancy.
- Keep spacing between two children.

INDICATIONS

- Any woman in reproductive age group who wants to keep space between children or avoid pregnancy.
- In couples having two children and when the age of younger child is less than 5 years.

CONTRAINDICATIONS

Absolute	Relative
<ul style="list-style-type: none"> • Pregnancy • Anemia • Excessive or irregular • Menstrual bleeding • Active vaginal infection, e.g., vaginitis, cervicitis, pelvic inflammatory disease (PID), septic abortion and cervical erosion • Enlarged uterus • Previous history of ectopic pregnancy 	<ul style="list-style-type: none"> • Previous history of cesarean section • Medical disorder, like heart diseases, diabetes, etc.

TIME OF INSERTION

- 7–10 days of the last menstrual period (LMP).
- Immediately after medical termination of pregnancy (MTP).
- After the first period of following spontaneous abortion.
- For lactating mother after 6 weeks excluding pregnancy.

PREPARATION

Preparation of Patient

1. Ask woman to empty her bladder
2. Provide privacy
3. Give lithotomy position

Preparation of Self

1. Wash and scrub hands
2. Wear sterile gloves taking care that outer side will not get contaminated

PREPARATION OF THE ARTICLES

Articles Required for Procedure

Articles	Purposes
• Copper T with inserter	• To prevent infections plunger in a presterilized packet
• Sims'/Cusco's speculum	• To visualize the cervix
• Anterior vaginal wall retractor	• To visualize the cervix
• Allis forceps/vulsellum	• To catch the cervix during procedure
• Uterine sound	• To measure the height of uterine cavity
• Sponge holding forceps	• To hold the sterile swabs
• Scissors	• To cut the thread
• Cheatle's forceps in jar containing	• To handle the sterile antiseptic solution articles
• Gloves	• Universal precautions

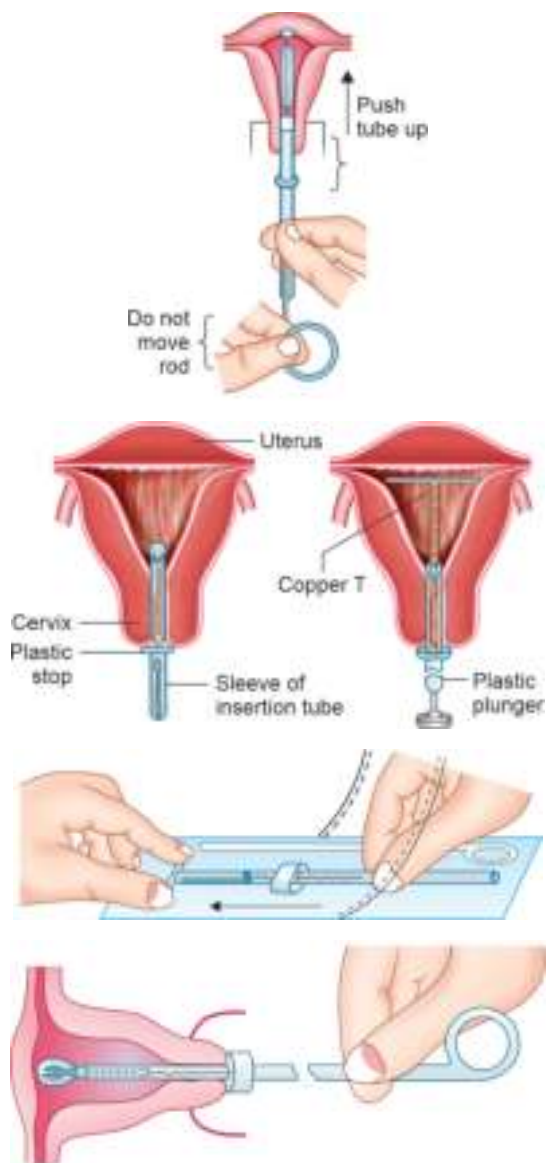
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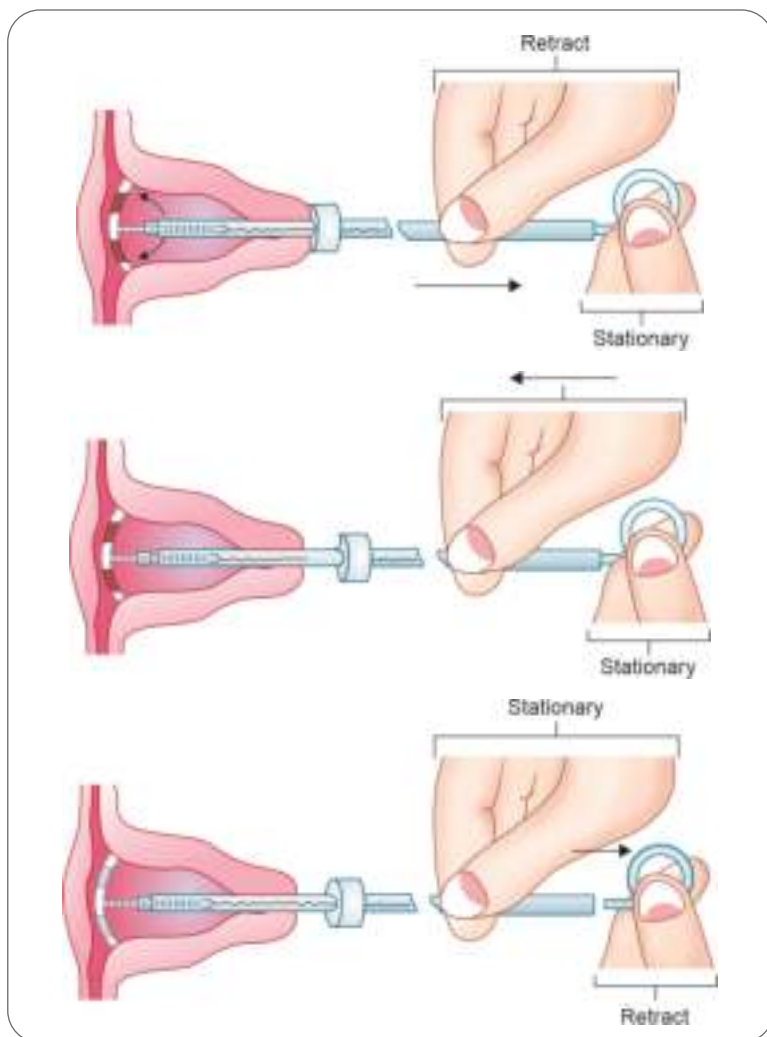
Articles	Purposes
• Sterile cotton swabs	• For painting and preparation
• Kidney tray	• To keep used instruments
• Bowl	• To keep antiseptic solution
• Antiseptic solution—Savlon 1%	• To prevent the infection

PREPARATION OF UNIT

Keep all the above articles ready at the side of patient

Steps of the procedure	Rationale
<ol style="list-style-type: none"> 1. Conduct bimanual examination. 2. Clean the vulva with antiseptic solution. 3. Insert the speculum gently by sideways, use anterior vaginal wall retractor. 4. Grasp the anterior vaginal wall give gentle traction downward and backward. 5. Introduce uterine sound gently 6. The length of uterus determined and it varies between 6 cm and 9 cm. 7. The sterile package is opened maintaining strict asepsis and put the copper T inserter. 8. Adjust the plunger up to length of the uterine cavity. 9. The loaded inserter gently introduced through cervical canal up to the upper end of the uterine cavity. 10. Hold the plunger in fixed position and withdraw the. 11. Hold the inserter tube firmly while removing the plunger 12. Gently pull inserter from copper T. 13. Cut string so it protrudes 2–3 cm 14. Remove Allis/Vulsellum and keep the patient in comfortable position in bed for 10–15 minutes. 	<ul style="list-style-type: none"> • To find out if uterus is in favorable condition to insert IUD. • To prevent infection. • Inspect the cervix and clean the cervix with antiseptic solution. • To hold the cervix during procedure and to aid in. • It indicates the tip of uterine sound has reached the funds. • This will release the arms of the copper T in the uterine inserter in downward position cavity at the fundus. • It will prevent the thread caught in between the tube and plunger which can lead to downward uterine cavity displacement of the or expulsion of copper T into the vagina. • To minimize the irritation, see if there is excessive bleeding from the Allis/Vulsellum site. • Since occasionally a fainting attack may occur after the insertion.





Aftercare of the Patient and Articles

- With the gloves on wash all the instruments in water to remove the blood.
- Scrub in hot soapy water to clean joints and screws.
- Rinse in clear water.

- Dry the articles.
- Prepare tray to send for autoclaving.

Postinsertion Instructions

- Common side effects, viz. slight pain in the lower abdomen and slight vaginal bleeding, should be explained to the patient with assurance.
- Patient should be familiarized with the type of IUD and its active life. Accordingly, she should be advised to get it changed.
- Check the threads regularly and report for follow-up in case they are not felt.
- Inspect all the pads and tampons during menstrual period, particularly in first 3 months for expulsion of the device.
- Report to the physician immediately; if
 - Threads are not felt in the vagina
 - Device is expelled out
 - Period is missed
 - Unusually heavy bleeding occurs
 - Severe pain in abdomen
 - Vaginal discharge with fever.
- She should be explained the schedule of follow-up.

Complications

- Bleeding
- Pain
- Infection
- Perforation
- Pregnancy
- Expulsion
- Missing IUD string
- Ectopic pregnancy

Follow-up

- First visit—immediately after first menstrual period.
- Second visit—after 1 year.

Indication for Removal of IUD

- Moderate to severe bleeding.
- Moderate to severe pain.
- Foul smelling vaginal discharge.
- Pelvic infection not responding to treatment.
- The clients desire to have another child.
- Menopause.

Method of Removal

- Client is positioned as for the insertion of IUD.
- Wear sterile gloves.
- Clean the vulva and vagina with 1% Savlon (antiseptic solution).
- Put the sterile speculum into the vagina, locate the thread; grasp the thread close to the cervix with sponge holding forceps and pull it out by steady gentle traction.
- Show the IUD to the client and discard it.

Recording and Reporting

- Date, time, place and name of the doctor who performed the procedure.
- Cooperation of the patient and if any reaction or complication occur or not is noted on patient's case file.

Gynecological History Taking

INTRODUCTION

A good history is always useful in suggesting the possible cause of patient's symptoms. As always, it is important to take a detailed history in gynecological practice. In most of the cases, correct diagnosis can be made from the history alone.

GENERAL PLAN OF GYNECOLOGICAL CASE

I. Patient's Identification

- Name:
- Age: It is important to know the age of the patient, because in a woman, physiological changes take place at certain ages. The patient's complaint may be only the physiological changes. Normal menarche is at the age of 12–14 years and normal menopause occurs at the age of 45–50 years (if this happens at the earlier age then it should be investigated). Some diseases are more common in certain age groups.
- Parity:
- Address:

II. Social History

- Marital status : Married with date of marriage/single/
widow
- Education : Wife....., Husband.....

- Occupation : Wife....., Husband.....
- Monthly family income : No. of adults.....
No. of children.....
- Socioeconomic status : BPL/lower/middle class/upper middle class/upper class
- Habitation : Urban/Slum/rural
- Religion : Hindu/Muslim/Christian/Other
- Social customs and belief :

III. Obstetrical History

Gravida: Para:

Abortion: Living:

Stillbirth:

IV. Menstrual History

- Age of menarche.
- Duration of menstrual period (from first day of the menstruation to the last day of that menstrual period).
- Duration of menstrual cycle (from first day of the menstruation to first day of next menstrual period).
- Regularity of menstruation.
- Amount of menstrual bleeding—average/heavy/scanty.
- Character of menstrual bleeding—average (darkish red liquid)/bright red with clots/foul smelling.
- **Dysmenorrhea:** Absent/present—site, character, reaction of pain to menses.
- Intermenstrual bleeding or discharge.
- Date of last menstrual period.
- **Perimenopause/menopause:** Bleeding pattern/Vasomotor symptoms/Hormone replacement therapy
- **Cervical and vaginal cytology:** Most Recent Pap smear result/History of abnormal Pap smears? If so, nature of diagnosis, treatment, and follow-up.

V. Contraceptive History

Adequate knowledge, its method, duration and side effects, etc.

VI. History of Presenting Complaints

These are to be recorded in chronological order of their appearance in terms of patient's own language as far as possible.

Vaginal Discharge

Color (colorless, white), consistency (watery and thick), quantity (scanty or copious), non-irritating or irritating (causing pruritis), relationship to menstruation or previous pregnancy.

Pain

- Site (lower abdomen, back).
- Duration.
- Onset (sudden/gradual).
- Severity (severe, moderate, continuous).
- Radiation (back, thighs, upper abdomen, groin).
- Relationship to functions (posture and movements, menstruation, coitus, micturition, defecation).
- Associated symptoms (menorrhagia, vaginal discharge, etc.).

Changes in Menstrual Cycle

- How long the patient had menstrual irregularity.
- Maximum and minimum duration of the menstrual cycle
- Intermenstrual bleeding/postmenopausal bleeding.
- Postcoital bleeding.
- Postmenopausal bleeding.

Failure to Conceive

- Duration of marriage.
- Marital relationship, dyspareunia or other sexual problems.
- Treatment and investigations carried out in the past.
- Detailed history, physical examination and investigation of the husband in the past.
- Contraception, if any.

Something Coming Out of the Vagina

- Uterovaginal (UV) prolapse.
- Gartner's duct cyst.

- Epidermoid cyst.
- Urethral diverticulum.
- Periurethral cyst.
- Polypoidal growth of the cervix and uterus.
- Chronic inversion of the uterus.
- Hypertrophy of the cervix.

Presence of a Mass in the Lower Abdomen

- Pregnancy
- Uterine neoplasm's, e.g., myomas.
- Ovarian tumors, commonly cystadenomas.
- Tubo-ovarian masses.
- Hematometra and hematocolpos.
- Non-gynecological causes, like full bladder (retention and urine), appendicular mass, mesenteric cyst, etc.

Difficulty in Micturition

- Frequency
- Dysuria
- Stress incontinence
- Difficulty in emptying of bladder
- Retention of urine
- Hematuria.

If patient presents with any of these difficulties, the following questions would be asked:

- Duration of symptoms.
- Relationship of above symptoms to any other gynecological symptoms like menstruation, operation, or pregnancy.
- Previous investigation and treatment.

Difficulty in Defecation

- Inability to defecate (constipation).
- Painful defecation.
- In such cases, the patient should be asked same questions as in difficulty with micturition.

Coital Problems

- Failure of erection or orgasm.
- Premature ejaculation.
- Reduced libido.
 - Impotence or apareunia.
 - Dyspareunia.

VII. Past Medical and Surgical History

- Past medical history includes history of tuberculosis (TB), hypertension (HTN), diabetes mellitus (DM), chronic systemic illnesses and any hospitalization.
- Past surgical history includes history of operations, especially abdominal and pelvic operations for any problem.
- Any history of allergy, or of prolonged drug intake.

VIII. Family History

History of TB, HTN, DM carcinoma, and any inherited disease in the family is to be enquired.

IX. Functional History

Functions of bowel, bladder, appetite, sleep are to be noted. Any change of weight is to be enquired.

X. Physical Examination

- **General examination** (total health check-up, from head to foot):
 - Height
 - Weight
 - BMI

Head and Neck

Anemia: Palpebral conjunctiva, tongue, mucosa, skin color.

Jaundice: Sclera

Tongue

Teeth and gum

Throat

Thyroid

Neck glands

Superior extremity – Pulse
– Blood pressure

Chest

Breast – Development, nipple, and any lump, hair

Heart –

Lungs –

Abdomen – Liver, spleen, kidneys (palpation of renal angles)

Groin – Inguinal lymph nodes

Inferior extremity – Edema: Feet, ankle, legs, varicose veins.

- **Gynecological examination**

- Per abdomen
- Vaginal pelvic examination
- Investigations

Date	Investigation	Patient value	Normal value	Remark

- Routine laboratory tests
- Bacteriological examination
- Cytological study
- Cytogenic study
- Examination under anesthesia
- Biopsy
- Cervical mucus
- Tubal insufflation
- Radiological investigations



Treatment

Name of the drug	Pharmacological name and action	Duration frequency	Dose	Route
Mention about other available trade names also.				

Assisting in Gynecological Investigations

INTRODUCTION

- The health care of women encompasses all aspects of medical science and therapeutics. The special medical needs and concerns of women vary with the patient's age, reproductive status, and desire to reproduce.
- For the proper evaluation, diagnosis and treatment of a gynecological patient, it is necessary for the healthcare professional to use a variety of methods of medical investigation.
- The foremost step in investigation of a gynecological patient is to get a proper history, which in most of the cases helps to make a differential diagnosis and indicates which medical investigation should be done for making an accurate diagnosis.

OBJECTIVES

- To explain the basic (objective) and auxiliary methods of gynecological examination and methods of functional diagnostics
- To interpret data of laboratory and instrumental examinations of the cervix, endometrium, vulva and endoscopic methods of examination gynecological patients

PURPOSES

Types of procedures used to assess the lower tract of genital organ:

- Speculum exam

- Colposcopy
- Cervical biopsy
- Endocervical curettage
- Loop electrosurgical excision procedure
- Vulvar biopsy

Types of procedures used to assess the upper tract of genital organ:

- Sonography
- Endometrial biopsy
- Hysteroscopy
- Hysterosalpingography (HSG)

PROCEDURE

General Steps

1. Explain the procedure to the woman.
2. Obtain informed consent.
3. Obtain a relevant medical history.
4. Inspect the vaginal speculum and inspect the cervix.
5. Obtain a cervical cytology.
6. Obtain specimens for laboratory investigations, if necessary.

Steps

Speculum examination description

1. Make sure you have all swabs, collection containers, and tools within reach prior to starting.
2. Wash your hands and wear gloves.
3. Select a speculum of appropriate size and shape.
4. Familiarize yourself with the speculum prior to the exam.
5. Lubricate the speculum with warm water or a water-soluble lubricant (some lubricants may interfere with sampling for cervical cytology and should be avoided).
6. Let the woman know that you are about to insert the speculum.
7. Manually spread the labia.
8. Introduce the speculum holding it at a downward angle, then slide it inward while applying gentle downward pressure along the posterior vaginal wall.
9. Once the speculum is fully inserted, open it slowly and carefully.

Contd...

Steps

10. Rotate and adjust the speculum until it cups the cervix and brings it into full view.
11. If there's difficulty finding the cervix, partially withdraw and try again.
12. Position the light until you can visualize the cervix well.
13. Maintain the open position of the speculum by tightening the thumb-screw on a metal speculum, or "clicking" it into place with a plastic speculum.

Aftercare of the Patient and the Articles

- Make the patient comfortable.
- Clean equipment and send for autoclaving or sterilization.
- Wash hands.
- Explain to the patient about the result.

Recording and Reporting

- Record on patient's chart and nurses note book with date and time.
- Report any complication to the ward incharge and doctor.

Per Vaginal Examination (Gynecology)

INTRODUCTION

A per vaginal (PV) examination is a procedure which is preceded by an abdominal examination, and the women's bladder must be empty.

OBJECTIVES



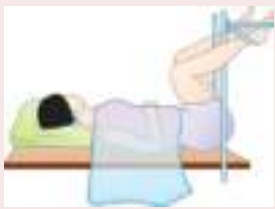

- To inspect the vagina and cervix for presence of blood, presence of discharge (color and character).
- To detect any presence of lesions on the cervix and vagina.
- To detect any presence of infective (ulcers), neoplastic (cancers of cervix) or traumatic (laceration).

ARTICLES REQUIRED FOR EXAMINATION

The following are required for vaginal examination

Articles	Purposes
<ul style="list-style-type: none"> • A length of paper towel which is placed under the buttocks 	<ul style="list-style-type: none"> • To prevent soiling
<ul style="list-style-type: none"> • Disposable gloves antiseptic 	<ul style="list-style-type: none"> • To maintain asepsis lotion
<ul style="list-style-type: none"> • Lubricants-Hibitane cream and K-Y jelly 	<ul style="list-style-type: none"> • Enhance easy insertion of speculum
<ul style="list-style-type: none"> • Speculum Sims', Cusco's, and Fergusson's in various size 	<ul style="list-style-type: none"> • To visualize the internal organ

Contd...

Articles	Purposes
• Cotton wool balls	• To wipe secretions
• Sponge-holders	• To hold sponge for cleaning
• Receptacle or bag	• To discard used instruments
• Disposable bag	• To discard used gloves and swabs
	
Dorsal recumbent position	Lateral position
	
Sims' position	Lithotomy position
	
Genupectoral position	Trendelenburg position
Common positions used for PV examination	

In addition, the following are required for obtaining vaginal or cervical specimens:

- Sterile culture swabs
- Stuart's transport medium
- Ayre's spatula (or similar)
- Microscope slides with frosted glass end
- A lead pencil
- Special fixative solution
- Transport boxes
- Pathology and histology requisite forms
- An angle poise lamp is also required

STEPS OF PER VAGINAL EXAMINATION

1. Wash your hands and don PPE, if appropriate.
2. Introduce yourself to the patient telling her your name and role.
3. Confirm the patient's name and date of birth.
4. Explain what the examination will involve using patient-friendly language.
5. Gain consent to proceed with the examination.
6. Before proceeding with the clinical examination, ask the patient if she has any pain or if she thinks, she may be pregnant.
7. Provide the patient with the opportunity to pass urine before the examination.
8. Tell the patient to lie on her back.
9. Look at the vulva for any abnormalities of skin texture, lumps, excoriation and whitening.
10. Choose the appropriate-sized speculum (usually Cusco's bivalve speculum) for the patient.
11. Warm the speculum before use.
12. Palpate the labia with your hand from above and introduce the speculum at a slight tilt to the vertical and twist it gently to the horizontal.
13. Point the speculum downward, at about 40°, making sure that the handle is not impinging on the clitoris.
14. Look at the vaginal mucosa and locate cervix.
15. Take a vaginal swab, if there is any discharge.
16. Check for retained tampon.
17. Look for warts/herpes (the rash may give symptoms for a week or so before the vesicles appear).

IF NO CERVIX VISUALIZED

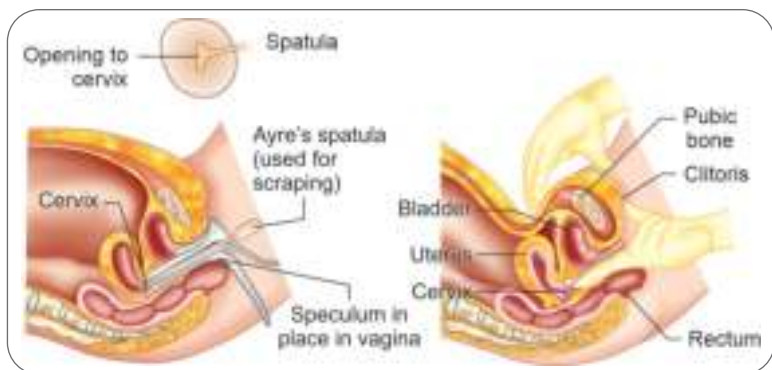
- Try partially withdrawing and try again.
- Perform bimanual examination to establish position of cervix.
- Ask patient to hold onto her knees or put hands under sacrum to tilt the pelvis. A pillow could also be used.
- If still no luck, try on a different occasion.

TAKING A SMEAR

- Ideally this should take place mid-cycle.
- Visualize cervix, clear excess mucus/discharge.
- Make a full 360° sweep of the cervix/endocervical brush (whichever is most likely to sample the transformation zone).
- If there is an obviously abnormal area on the cervix, note the position on form/notes and include the area in your smear sweep.
- Take care not to pinch the cervix as withdrawing.
- Fix the slide immediately as drying before fixing spoils the smear.
- Remember to note your findings.
- Tell patient how long to leave it before checking up results.
- Mention the possibility of needing to redo smear or examine more closely (colposcopy).
- Many practices now use liquid-based cytology for preserving and transporting smears. This has reduced the rate of inadequate smears. Training is provided locally.

BIMANUAL EXAMINATION

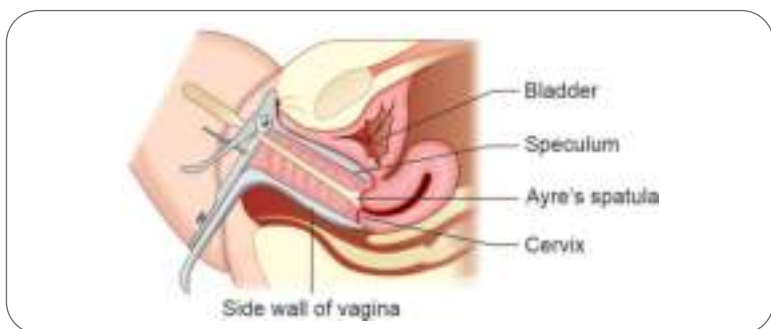
- Use your left hand to palpate abdomen and right for internal (if examining from right).
- Feel for any abnormalities of the vagina.
- Feel the cervix for areas of roughness, hardness, lumps.
- Assess uterine position, size, mobility, lumpiness, tenderness.
- Feel the adenexa bimanually for any swelling or tenderness.



Speculum and bimanual pelvic examination

CONCLUSION OF EXAMINATION

- When the doctor has finished his examination, the patient should be given the opportunity to dress and regain her composure before he discusses his findings with her. She should be covered and encouraged to make herself comfortable. She will feel less at a disadvantage psychologically if she sits up. The nurse may need to facilitate discussion by encouraging the patient to ask questions, by interpreting the doctor's terminology if inappropriate or by asking the doctor to explain himself more clearly or in more detail, if necessary.



Internal vaginal examination demonstrating the position of the speculum and Ayre's spatula used to obtain cervical cells for smear test

- The nurse may need to arrange for the doctor to see the patient's partner or family. Admission to hospital for further investigations, surgery or treatment may pose difficulties for the mother with young children, and the nurse may need to enlist the help of the hospital social worker.

AFTERCARE OF THE PATIENT AND THE ARTICLES

- Make the patient comfortable.
- Clean equipment and send for autoclaving or sterilization.
- Wash hands.
- Explain to the patient about the result.

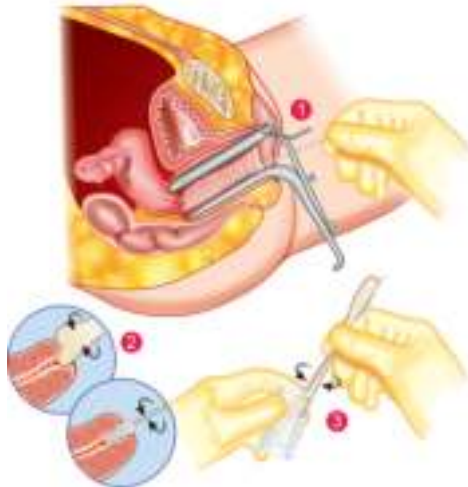
RECORDING AND REPORTING

- Record on patient's chart and nurses note book with date and time.
- Report any complication to the ward incharge and doctor.

Pap Smear

INTRODUCTION

- The Pap smear is named after Dr George N Papanicolaou, who developed it.
- This procedure is usually performed during an annual gynecological examination to check for any changes in the cells of the cervix.
- Regular Pap tests can also detect precancerous changes in the cervix, vaginitis, infections, and some sexually transmitted diseases.
- Pap smear, also called a Pap test, is a procedure to test for cervical cancer in women.



A Pap smear is a screening test to check for changes in the cells of cervix which may develop into cancer later.

Women subjected to cervical cancer screening program:

Risk	Screening schedule
No risk <ul style="list-style-type: none"> • Women who had never been sexually active • Women over the age 60 who had negative smears in the past • Women who had hysterectomy for benign lesion 	Nil
At risk <ul style="list-style-type: none"> • Women over 18 years and under-60 years and who are and have been sexually active 	Every 3 or 5 years after two negative yearly smears
High risk <ul style="list-style-type: none"> • Early marriage • Early intercourse • Early pregnancy • Smoking habits Oral pill users Multiple sexual partners <ul style="list-style-type: none"> • Human papilloma virus and herpes simplex virus (HSV) type II • Husbands whose previous wife had cervical malignancy 	Every 3 years after two negative smears

STEPS OF THE PROCEDURE

Before the Procedure

Patient Preparation

- Do not douche or use any type of vaginal medications within 48 hours of the test or do not use antiseptic solution to clean the perineum just before the procedure.
- Having sexual intercourse within 24 hours of the Pap smear can also cause inaccurate test results.
- The best time to have a Pap smear is around the middle of menstrual cycle.

- The test cannot be done while having periods.
- Empty the bladder right before the test. This will not affect the results, but will cause less discomfort.
- Take medical history, specifically related to reproductive health.
- If she does not have a record of previous Pap smears, result of the last test to be ask and recorded.
- Note any problems with menstrual periods; any medications that are taking, especially birth control pills or hormones; any family history of cervical or other gynecological problems; or any abnormal symptoms that have been experiencing.

Preparation of the Article

Articles required	
Articles	Purposes
• Cotton swab	• To clean the perineum
• Plain bowl and cool water	• To clean the perineum or normal saline before procedure
• Sims' speculum or Cusco's speculum	• To expose the vagina and cervix
• Ayre's spatula	• To collect the specimen
• Glass slide	• To smear the specimen over it
• Fixation 95% ethanol and alcohol	• To fix the specimen
• Masks and gloves	• To prevent infection

Environment Preparation

- Maintain privacy with screen or do the procedure in separate room or in procedure room, if available.
- Maintain adequate light to view the vagina and cervix.
- Maintain aseptic environment with the sterile articles arranged properly.

Actual Steps of the Procedure

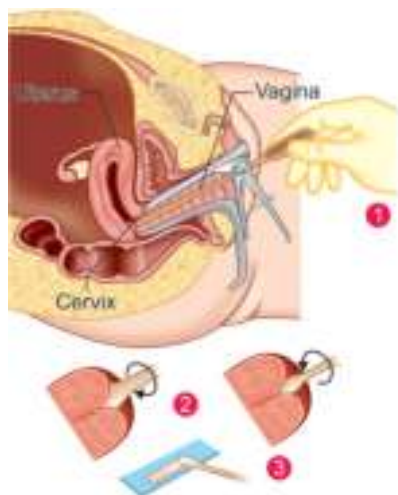
1. Patient has to lie on the back with the knees bent and feet apart. A lubricated speculum will insert vertically and rotated to bring in horizontal. The speculum holds open the walls of the vagina to examine the inside of the vagina and the cervix.

2. Then with the help of Ayre's spatula scrape some cells from the surface and the inside of the cervix. These cells are then smeared onto glass slides, sprayed with a preservative to protect the cells, and then sent to a laboratory for examination under a microscope.

Results

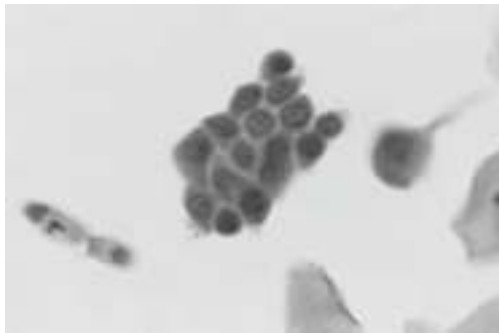
The results of a Pap smear test are classified into categories:

Interpretation	Meaning	Action taken
Negative	Everything is normal	None: Repeat in 1 year
Mild	Some abnormality but dysplasia this does not mean you have cancer	Repeat Pap smear in 6 months
Moderate	A change in the cells dysplasia that requires further investigation	Colposcopy with or without cone biopsy
Severe	A change in the cells dysplasia that requires further investigation, with another procedure	Colposcopy with or without cone biopsy

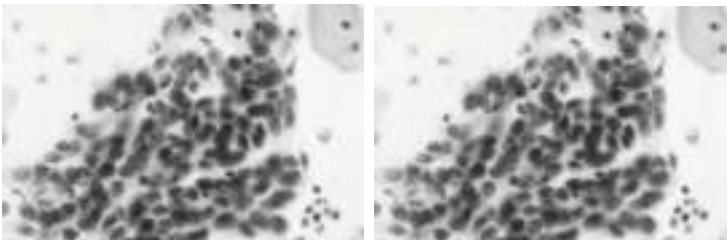




Taking a sample of cells



Normal cervical cells under the microscope



Abnormal cervical cells under the microscope

Aftercare of the Patient and the Articles

- Make the patient comfortable.
- Clean equipment and send for autoclaving or sterilization.
- Wash hands.
- Explain to the patient about the result.

Recording and Reporting

- Record on patient's chart and nurses note book with date and time.
- Report any complication to the ward incharge and doctor.

Assisting in Infertility Procedure

INTRODUCTION

Infertility refers to inability to achieve pregnancy after 12 months of having unprotected sexual intercourse with average frequency of 3 to 4 times per week without use of any birth control measure.

OBJECTIVES

- To counsel the partners regarding infertility procedures
- To maintain a healthy pregnancy.

Tests for Women

- Ovulation testing
- Hysterosalpingography
- Ovarian reserve testing
- Other hormone testing
- Imaging tests

Tests for Men

- Semen analysis
- Hormone testing
- Genetic testing
- Testicular biopsy
- Imaging.

ASSISTING IN INFERTILITY PROCEDURE

Assessment

- To educate the couple about each test and investigation, including why and how this investigation is to be performed.
- History taking and assessments to be performed should be communicated to the couples.

Treatment

- The nurse plays the link between the doctor and couple and should always be available to couple for their assistance, guidance and support before, during and after infertility treatment.
- Numerous ethical issues are associated with infertility treatments and the couple undergoing treatment need appropriate counseling and discussion.

Education

- Education about the basic male and female anatomy and physiology and how the drug acts on their body, including possible side effects.
- Fertility nurse should also educate the couple about self-administer medications.

Prevention

- Avoid gonadotropins
- Decrease exposure to occupational and environmental hazards
- Avoid transmission of STDs by limiting the number of sexual partners and by using condoms
- Eating a well-balanced and nutritious diet
- Stopping smoking and drinking

Psychological Support

- A couple undergoing infertility treatment are usually stressed due to a variety of reasons.
- The nurse as a counselor should provide anticipatory advice and guidance about the normal range of expectations and reasons throughout the treatment.

GENERAL INSTRUCTIONS

- Maintenance of body weight.
- Avoid smoking and alcohol.
- Maintain ideal coital frequency. [3–4 times/week in fertile period]
- Avoid lubricants, spermicidal jellies and creams.
- Psychological support

Postabortion Care

INTRODUCTION

- The term abortion refers to the termination of a pregnancy.
- Spontaneous abortion or miscarriage is an unintended pregnancy termination.
- Induced (elective) abortion is an intentional pregnancy termination by surgical, medical or other means.
- The emotional needs of a woman who has had an induced abortion may differ from the needs of a woman who has experienced a spontaneous abortion.
- Some women may feel upset, anxious or sad that something they did, caused the pregnancy loss, feel relieved after an abortion.

ELEMENTS OF POSTABORTION CARE

- Community-service provider partnership
- Counseling
- Emergency treatment of incomplete abortion and its complications
- Family planning services
- Linkage with other reproductive health services

WHO recommends the following advice after a woman condition after an abortion:

Self-Care

- Some women prefer to rest for a few days, especially if they feel tired.
- Some pain is normal after an abortion, as the uterus is contracting. A mild painkiller may help relieve cramping pain. If the pain increases over time, the woman should seek help.
- Change pads every 4–6 hours. Wash pad or dispose of it safely. Wash perineum.
- Do not have sexual intercourse or put anything into the vagina until bleeding stops.
- Practice safe sex and use a condom correctly in every act of sexual intercourse if at risk of STI or HIV.

Family Planning

- Use a family planning method to prevent an unwanted pregnancy and a condom to prevent infection with STIs/HIV/AIDS.
- Talk to the health worker about choosing a family planning method which best meets you and your partner's needs.
- After a spontaneous or induced abortion, the recommended interval to the next pregnancy is at least six months, both for the mother's and the baby's health.

Danger Signs

If she has any of these signs, she needs to go to the health center immediately:

- Increased bleeding or continued bleeding for 2 days
- Fever, feeling ill
- Dizziness or fainting
- Abdominal pain
- Backache
- Nausea or vomiting
- Foul-smelling vaginal discharge.

Women undergoing an abortion should receive clear, simple oral and written information about how to care for themselves after leaving the health facility and how to recognize danger signs that require attention. In addition, information and counseling should be provided on contraception.

SKILLS REQUIRED FOR HEALTHCARE PROFESSIONAL

Building an Alliance with the Woman

- Building a relationship is especially important after the trauma of an abortion.
- The important skills in building relationships include showing empathy, overcoming beliefs, values and attitudes and active listening.

Ability to Empathize with the Person You are Counseling

Empathy means understanding the woman's situation from her perspective and trying to focus on her feelings, taking into account the impact her family, education, culture and life circumstances will have on these feelings.

Ability to Overcome Beliefs, Values and Attitudes

- Sometimes health workers do not want to provide services if they believe that the person has carried out an action with which they disagree.
- It is important to take a look at yourself and to be aware of how your own beliefs, values and attitudes influence how you interact with any individual woman, or influenced what you say and do.



Glossary

- **Abruptio placenta:** It is one form of the antepartum hemorrhage where the bleeding occurs due to premature separation of normally situated placenta.
- **Adenomyosis:** A condition where there is in growth of the endometrium, both the glandular and stromal component directly into the myometrium.
- **After births:** Amnion and chorion (which includes the placenta, membrane, cord, amniotic fluid, blood) expels from the uterus after the birth of the baby.
- **After pains:** It is the infrequent spasmodic pain felt in the lower abdomen after delivery for a viable period of 2–4 days.
- **Antepartum hemorrhage:** It is defined as the bleeding from or into the genital tract after the 28th weeks of pregnancy.
- **Apareunia:** Inability to practice coitusa.
- **Asphyxia neonatorum:** When there is failure to initiate respiration within 1 minute after birth. It may be mild or severe.
- **Antepartum:** Time between conception and the onset of labor, usually used to describe the period during which a woman is pregnant, used interchangeably with prenatal.
- **Breech:** When the head of the fetus is in the upper pole of the uterus and the buttocks in the lower pole of the uterus.
- **Brow:** It is the area bounded on one side by the anterior fontanelle and coronal sutures and on the other side by the root of the nose and the supraorbital ridge of either side.
- **Cephalohematoma:** It is the collection of blood in between the pericranium and the flat bone of the skull, usually unilateral and over the parietal bone.

- **Caput succedaneum:** It is the formation of swelling due to the stagnation of the fluids in the layers of the scalp beneath the girdle of contact. It disappears spontaneously within 24 hours after birth.
- **Caul/caul baby:** Caul is the intact amniotic sac surrounding the fetus at birth. If the baby is born with complete membrane it is called caul baby.
- **Cervical dilatation:** With the onset of labor pain, the cervical canal begins to dilate more in the upper part than in the lower, the former being accompanied by corresponding stretching of the lower uterine segment.
- **Cervical ectopy:** A condition where the squamous epithelium of the ectocervix is replaced by the columnar epithelium.
- **Cervical effacement:** It is taking up of the cervix which occurs simultaneously with the dilatation of the cervix. Process of thinning out of the cervix during first stage of labor.
- **Cervicitis:** Infection of the endometrix including glands and stroma.
- **Chloasma:** It is the dark pigmentation of the forehead, cheek and around the eyes due to accumulation of the melanin pigmentation.
- **Colostrum:** It is deep yellow serous fluid, alkaline in reaction, secretes from the breast for 2–3 days, which is rich in fat, vitamin, mineral and antibodies.
- **Cryptomenorrhea:** Periodic shedding of endometrium and bleeding but menstrual blood fail to come out due to obstruction in passage.
- *Dysfunctional uterine bleeding:* It is abnormal uterine bleeding without any clinically detectable organic pathology, e.g., tumor.
- **Dysgerminoma:** It is the most common malignant germ cell tumor
- **Dysmenorrhea:** Painful menstruation.
- **Dyspareunia:** Difficult and/or painful coital act
- **Dystocia:** Difficult labor/painful labor in case of malpresentation and any abnormality in the birth space
- **Dysuria:** Difficulty in passing urine
- **Endometritis:** Infection of endometrium
- **Endometriosis:** Presence of functioning endometrium in sites other than uterine mucosa
- **Epimenorrhea:** Cyclic bleeding where cycle is reduced to an arbitrary limit of 21 days or less and remains constant at that frequency which is associated with excessive and prolong bleeding.

- **Eversion:** Marked thickening of the cervical mucosa with underlying tissue edema.
- **Face:** It is an area bounded on one side by root of the nose and supraorbital ridges and on the other by the junction of the floor of the mouth with neck.
- **Fibroid:** It is the benign solid tumor of the uterus.
- **Funic soufflé:** It is soft, blowing murmur sounds synchronized with fetal heart sound. It is due to the rush of the blood through the umbilical arteries.
- **Funis:** Umbilical cord.
- **Galactorrhea:** Secretion of milk looking discharge from one or both breast unrelated to childbirth.
- **Gestation:** The number of weeks since the first day of last menstrual period.
- **Gravida:** It denotes a pregnant state of both present and past, irrespective of the period of the gestation.
- **GU fistula:** It is an abnormal communication between urinary and genital tract.
- **Hematometra:** It is the collection of the blood in the uterus.
- **Hydrocephalus:** Excessive accumulation of the cerebrospinal fluid in the ventricles with consequent thinning of the brain tissue and the enlargement of the cranium.
- **Hypomenorrhea:** Scanty menstrual bleeding last for less than 2 days.
- **Infertility:** A failure to conceive within one or more year of regular unprotected coitus.
- **Intersex:** Presence of both male and female external and internal genital organ causing confusion in diagnosis of true sex.
- **Intrapartum:** Time from the onset of true labor pain until the birth of infant and placenta.
- **Involution:** It is the process whereby the genital organs revert approximately to the state as they were before pregnancy.
- **Labor:** It is the series of events that takes place in the genital organs in an effort to expel the viable products of conception out of the womb through the vagina into the outer world.
- **Leucorrhea:** Excessive white vaginal secretion.
- **Lightening:** It is welcome sign, occurs in few weeks prior to the onset of labor, especially in primigravida. Here, the presenting part sinks into the true pelvis.

- **Lochia:** It is the vaginal discharge for the first fortnight during puerperium consisting of blood, tissue and mucus.
- **Luteinizing hormone:** Hormone produced by the anterior pituitary that stimulates ovulation and the development of the corpus luteum.
- **Lying-in period:** It is the period during which care is provided to a woman during child birth and during puerperium.
- **Maternal mortality:** Death of a women who is pregnant or within 42 days of the 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.
- **Meconium:** It is the first stool of the baby which present in the intestine from about 16th weeks of the intrauterine life.
- **Menopause:** It is permanent cessation of menstruation at the end of reproductive life due to loss of ovarian follicular activity.
- **Menorrhagia:** It is excessive heavy bleeding.
- **Metrorrhagia:** It is an irregular acyclic bleeding.
- **Midwife:** A person who assists a woman in childbirth.
- **Moulding:** It is the overlapping of the cranial bones during the delivery of the head.
- **Multigravida:** Woman who has been pregnant two or more times.
- **Multipara:** It denotes who has delivered two or more children.
- **Natal:** It is pertaining to birth.
- **Neonatal mortality:** It is death of the baby within 28 days after birth.
- **Normal labor (Eutocia):** Labor is called normal if it fulfills the following criteria:
 - Spontaneous in onset and the term
 - With vertex presentation
 - Without undue prolongation
 - Natural termination with minimal aids
 - Without having any complications affecting health of the mother and/or the baby
- **Nullipara:** It is the one who never completed the pregnancy to the state of viability.
- **Obstetrics:** It is defined as a branch of medicine that deals with the phenomena of management of pregnancy, labor and the postpartum in low and high risk circumstances.

- **Oophritis:** Infection of ovary from fallopian tube.
- **Ophthalmia neonatorum:** Inflammation of the conjunctiva during first 3 weeks of life.
- **Parity:** Denotes a state of previous pregnancy beyond the period of viability.
- **Parturition:** The process of giving birth.
- **Perinatal death:** It is defined as the death among the fetuses delivery or within 1st week of delivery.
- **Placenta previa:** Implantation of the placenta in the lower uterine segment either completely or partially.
- **Postpartum:** It is a period of 6 weeks from the birth of infant and placenta where woman's body returns to a non-pregnant condition both anatomically and physiologically.
- **Primary amenorrhea:** Girls who have not menstruated by 16 years of age.
- **Primigravida:** Woman who is pregnant for the 1st time.
- **Primipara:** The one who has delivered one viable child.
- **Puberty:** Period of gradual development of secondary sexual organ.
- **Puberty menorrhagia:** It is the initial period may be heavy and prolong due to an ovulatory cycle.
- **Puerperium:** Period following childbirth during which the body tissues, especially the pelvic organs, revert approximately to the pre-pregnant state both anatomically and physiologically.
- **Pyometra:** Collection of pus in uterine cavity.
- **Quickening:** First fetal movement felt by the mother. Usually felt at 18th weeks in primigravida. ("Feeling of Life")
- **Rectovaginal fistula:** Abnormal connection between rectum and vagina.
- **Reflex incontinence:** This is found in paraplegics where the cerebral control of micturition is lost over local reflex.
- **Retroversion:** When the long axes of the corpus and cervix are in line and the whole organ turns backward in relation to the long axis of the birth canal.
- **Salpingitis:** Infection of fallopian tube.
- **Secondary amenorrhea:** Absence of menstruation of 6 months or more in woman who has established normal menstruation.

- **Sensory urge incontinence:** This is preceded by strong urge to pass urine.
- **Small for date:** The newborn with birth weight less than 10 percentile or less than two standard deviations for their gestational age.
- **Spalding sign:** It is the marked irregular overlapping of the skull bones. Appears 7 days after the intrauterine fetal death.
- **Still birth:** Birth of a newborn after 28th completed weeks (weighing more than 100 g) who does not breathe or show any sign of life after delivery.
- **Subinvolution:** When the involution is impaired or retarded.
- **Trimester:** One of 3 periods of about 3 months each into which pregnancy is divided.
- **Vernix caseosa:** Substance which is covering all over the baby's body at birth and acts as lubricant during birth and it is secreted by the sebaceous gland.
- **Vertex:** Quadrangular area bounded anteriorly by the bregma and coronal sutures, behind by the lambda and lambdoidal suture and laterally by the lines passing through the parietal eminences.



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