



**Dr. Vasant Rao Pawar Medical College, Hospital & Research Centre, Adgaon, Nashik - 03.**

### **2.3.2 Examples of Task Training Modules**

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## Department Of Anaesthesiology

### Module for Intravenous Cannulation

#### **Student Learning Objectives**

By the completion of the session, students should be able to-

1. Identify and demonstrate a peripheral vein.
2. Identify the different equipments needed, parts of i.v. set and should be able to prepare an i.v. infusion.
3. Demonstrate insertion of i.v. cannula in a controlled environment.
4. Should be able to start a i.v. drip in a controlled environment.

#### **Introduction**

Intravenous cannulation is a technique in which a cannula is placed inside a peripheral vein to provide venous access for the sampling of blood, as well as administration of fluids, medication, blood and blood products.

#### **Teaching Learning Method**

Demonstration on Intravenous simulator in skill lab.

#### **Prerequisites**

1. Anatomical knowledge about peripheral veins
2. Knowledge about the different equipment used.

#### **Indications**

1. Administration of i.v. fluids
2. Administration of medications
3. Administration of i.v. nutrition
4. Administration of blood and blood products.

#### **Contraindications**

1. Infection over the site of insertion
2. Phlebitis
3. Sclerosed veins
4. Previous intravenous infiltration
5. Burns or traumatic injury proximal to the insertion site
6. Arteriovenous fistula in an extremity
7. Surgical procedure over that extremity.

#### **Equipment required**

1. I.V. simulator
2. Pair of gloves
3. Tourniquet
4. Cotton swab
5. Clinical spirit
6. I.V. canula
7. NS filled 5ml syringe
8. I.V. set
9. I.V. fluid
10. Sticking for cannula fixation
11. Stand for hanging i.v. bottle.



### Steps in I.V. cannulation

1. Preparation of iv fluid and check for all equipments
2. Identification of vein
3. Performing actual procedure

### Preparation

1. Hand sanitization and wearing gloves
2. Preparation of i.v. fluid, de-airing of murphy's chamber, 5ml syringe with NS for flushing.

### Procedure

1. Apply tourniquet to arm to facilitate vein identification
2. Clean the skin over vein with spirit swab and allow it to air-dry
3. Remove i.v. cannula from packaging.
4. Stretch the skin distal to vein
5. Prick the skin over vein at 30° angle and introduce further till a flashback of blood is seen
6. Remove the stellate a bit and introduce the cannula further into vein
7. Release the tourniquet
8. Apply pressure over vein proximal to the cannula to prevent blood loss through canula while removing stellate completely
9. Flush the cannula with 5ml NS syringe and attach i.v. fluid. Check for free flow of fluid and no swelling over the tip of canula
10. Apply the stickings to fix the cannula in place
11. Dispose off the stellate and the gloves in respective waste disposal units.

### Complications

1. Counterpuncture of vein
2. Thrombophlebitis
3. Accidental arterial cannulation
4. Extravasation of fluid and limb oedema
5. Infection at site of insertion
6. Sepsis

### Assessment

#### OSCE

Sr. No.	Performance	Marks
1	Greets the patient and introduces himself	
2	Explains the procedure and obtain informed written consent	
3	Check the necessary equipments and makes necessary preparation for the procedure	
4	Sanitises hand and wears gloves	
5	Applies tourniquet	
6	Identifies a peripheral vein	
7	Cleanses skin over the vein	
8	Stretches the skin distal to vein and warns the patient about the prick	
9	Inserts cannula at 30° and observers for flashback of blood	





10	Withdraws stellate a bit and introduces the cannula further	
11	Releases tourniquet	
12	Applies pressure over proximal vein and removes the stellate completely	
13	Flushes the cannula with NS and attach i.v. fluid drip	
14	Fixes the cannula properly over skin	
15	Properly disposes the stellate and the used gloves	
	Total	

### Suggested reading

1. World Health Organization (2009). WHO guidelines on hand hygiene in health care. Retrieved from [http://whqlibdoc.who.int/publications/2009/9789241597906\\_eng.pdf](http://whqlibdoc.who.int/publications/2009/9789241597906_eng.pdf)
2. Trim, J. C. (2005). Peripheral intravenous catheters: Considerations in theory and practice. *British Journal of Nursing*, 14(12), 654– 658. <https://doi.org/10.12968/bjon.2005.14.12.18286>
3. Marsh, N., Webster, J., Mihala, G., & Rickard, C. M. (2015). Devices and dressings to secure peripheral venous catheters to prevent complications. *Cochrane Database of Systematic Reviews*, (6), CD011070. <https://doi.org/10.1002/14651858.CD011070.pub2>
4. Goudra, B. G., Galvin, E., Singh, P. M., & Lions, J. (2014). Effect of site selection on pain of intravenous cannula insertion: A prospective randomised study. *Indian Journal of Anaesthesia*, 58(6), 732. <https://doi.org/10.4103/0019-5049.147166>

### Annexure A Outline of a Session Plan

Name of the group

Facilitator/ Supervisor/ Faculty

Parameter	Description
Name of lesson	Intravenous Cannulation
Number of learners	
Objectives of the session	<p>Student should able to</p> <ol style="list-style-type: none"> <li>1. Identify and demonstrate a peripheral vein.</li> <li>2. Identify the different equipments needed, parts of i.v. set and should able to prepare an i.v. infusion.</li> <li>3. Demonstrate insertion of i.v. cannula in a controlled environment.</li> <li>4. Should able to start a i.v. drip in a</li> </ol>





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## **CENTRAL SKILL LABORATORY**

### **Module for Endotracheal Intubation**

#### **Student learning objectives:**

By completion of this module student should be able to:

- Describe the anatomical and physiological basis for the insertion and use of a tracheal tube
- Discuss indications and contraindications of endotracheal intubation
- Demonstrate insertion of endotracheal tube in a controlled environment

#### **Introduction**

Endotracheal intubation is the process by which a tube is inserted into the trachea. This may be accomplished through the larynx or through the skin of the neck. *Cricothyroidotomy* and *tracheostomy* are the terms for the latter approach.

**Teaching Learning Method:** Mannequin in a Skills Lab

#### **Pre-requisites**

1. Anatomical knowledge of larynx
2. Knowledge about airway equipments

#### **Indications**

1. Securing airway in elective cases during general anesthesia
2. Securing airway during resuscitation





### **Contraindications**

1. Severe airway trauma where airway is distorted
  2. Severe tracheal stenosis where surgical airway is indicated
- 

### **Equipment's required**

- 1. Airway mannequin
- 2. Gloves
- 3. Laryngoscope of adequate size
- 4. Endotracheal tube
- 5. 3ml syringe for cuff inflation
- 6. Lignocaine jelly
- 7. Bougie
- 8. stylete
- 9. Ambu bag and mask
- 10. Stethoscope

### **Steps in Endotracheal Intubation**

- 1. Checking cuff of endotracheal tube
- 2. Lubricating cuff of endotracheal tube
- 3. Preoxygenation with 100% oxygen
- 4. Bag mask ventilation
- 5. Laryngoscopy after muscle relaxation
- 6. Visualization of vocal cords
- 7. Passing endotracheal tube through vocal cords
- 8. Black mark on endotracheal tube should be beyond vocal cords
- 9. Cuff inflation
- 10. Ventilate with ambu bag
- 11. Auscultation to check bilateral equal air entry
- 12. Fixation of endotracheal tube at appropriate depth

### **Preparation**



- 1. Wearing gloves
- 2. Checking cuff of endotracheal tube
- 3. Lubricating cuff of endotracheal tube
- 4. Checking laryngoscope
- 5. Keeping dynaplast sticking ready
- 6. Keeping ambu bag and mask ready
- 7. Stethoscope for auscultation

**Procedure**

1. Laryngoscopy to visualise vocal cords
2. Insertion of the endotracheal tube of appropriate size
3. Inflation of the endotracheal tube cuff
4. Fixation of the endotracheal tube at appropriate depth

**Complications**

- 1. Trauma to teeth ,mucosa,tongue
- 2. Equipment failure
- 3. Failure to visualise vocal cords
- 4. Failure to intubate

**Assessment:**

- OSCE

Sr. No.	Performance	Marks
1	<b>Greets the patient and introduces himself</b>	
2	Explains the procedure and obtains informed consent	
3	<b>Check the necessary equipment and makes necessary preparations for the procedure</b>	
4	<b>Wears gloves</b>	
5	<b>Positions patient properly</b>	
6	<b>Preoxygenates</b>	



7	Bag mask ventilation	
8	Laryngoscopy	
9	Visualization of vocal cords	
10	Insertion of the endotracheal tube at adequate depth	
11	Inflation of cuff	
12	Ventilation with ambu	
13	Auscultation with stethoscope	
14	Fixation of the endotracheal tube	

**Suggested Reading:**

Books Recommended (latest edition)

1. Airway management. Miller's anesthesia 9th edition
2. Morgan and Mikhail's Clinical Anesthesiology 5th edition .Airway management

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## **CENTRAL SKILL LABORATORY**

### **Module for Airway Maintenance**

#### **Student learning objectives:**

By completion of this module student should be able to:

- Know what is airway (Anatomy)
- What is importance of airway management and indications of airway management
- What are different types of airways
- What are different methods of opening airways
- Equipments required for airway management
- What are different methods of airway management

#### **Introduction**

Airway Management includes a set of maneuvers and medical procedures performed to prevent and relieve airway obstruction. This ensures an open pathway for gas exchange between a patient's lungs and the atmosphere. This is accomplished by either clearing a previously obstructed airway; or by preventing airway obstruction in cases such as anaphylaxis, the obtunded patient, or medical sedation. Airway obstruction can be caused by the tongue, foreign objects, the tissues of the airway itself, and bodily fluids such as blood and gastric contents (aspiration).

**Teaching Learning Method:** Mannequin in a Skills Lab, Knowledge sessions/lectures, Video demonstration, Demonstration of use of different airway management devices on mannequin.

#### **Indications**

Indications of Airway maintenance include:

- Respiratory failure
- Apnea



- A reduced level of consciousness (sometimes stated as GCS less than or equal to 8)
- Rapid change of mental status
- Airway injury or impending airway compromise
- High risk for aspiration or 'trauma to the box(larynx)', which includes all penetrating injuries to the neck, abdomen or chest.

### **Contraindications**

Contraindications of Airway maintenance include:

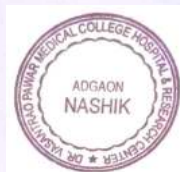
- Severe Airway trauma or obstruction that does not permit the safe placement
- Untreated pneumothorax- endotracheal intubations with positive pressure ventilation is contraindicated in untreated pneumothorax.

### **Equipment's required**

- Face mask
- OPA (Oropharyngeal airway)
- NPA (Nasopharyngeal airway)
- Laryngoscope with straight and curved blades
- Endotracheal tubes with different size
- Lubricants, Stylets, syringes, securing tapes, topical anaesthetic, Magill forceps, suction catheters, oxygen delivery systems

### **Steps in Airway Maintenance**

- Check for responsiveness
- Check for breathing
- Open the airway- head tilt chin lift method or jaw thrust method
- Use of Face mask or AMBU bags to ventilate the patient.
- If no effective ventilation- insert OPA/NPA
- If no effective ventilation with OPA or NPA – insert LMA
- Once expert available insert endotracheal tube and ventilate.





## Procedure

### Annexure A

#### Outline of a Session Plan

Name of the group: -

Facilitator/ Supervisor/ Faculty: -

Parameter	Description
Name of the lesson	Airway Maintenance
Number of learners	
Objectives of the session	By completion of this module student should be able to: <ul style="list-style-type: none"><li>➤ Know what is airway (Anatomy)</li><li>➤ What is importance of airway management and indications of airway management</li><li>➤ What are different types of airways</li><li>➤ What are different methods of opening airways</li><li>➤ Equipments required for airway management</li><li>➤ What are different methods of airway management</li></ul>
Primary teaching method chosen	Mannequin in a Skills Lab, Knowledge sessions/lectures, Video demonstration, Demonstration of use of different airway management devices on mannequin.



<b>Break up of the session</b>	Step 1: Introduction	10 min
	Step 2: Lecture on Airway Maneuvers and oxygenation	20 min
	Step 3: Lecture on Different methods of airway maintenance	20 min
	Step 4: Demo of use of face masks and AMBU bags	10 min
	Step 5: Demo of OPA/NPA Insertion On Mannequins	20 min
	Step 6: Demo of LMA Insertion	10 min
	Step 7: Demo of ET Insertion	10 min
	Step 8: Hands on session (Students divided into groups)  (Each group)	30min  (Each group)
<b>Teaching aids required</b>	Audio Visual teaching aids, Mannequins	
<b>Infrastructure required</b>	Skill Lab	





<b>Student preparation required/ prior reading required</b>	Students should be aware of anatomy and physiology of airways and oxygenation.
<b>Assessment method chosen</b>	DOPS(Direct Observation of Procedural Skills)
<b>Other comments</b>	

### Complications

- Trauma to oral cavity
- Airway trauma
- Bleeding
- Aspiration of gastric content
- Esophageal intubations
- Hypotention
- 

### Assessment:

- DOPS

## AIRWAY MAINTENACE SKILLS CHECKLIST

<b>DOPS: Direct Observation of Procedural Skills</b>		
	<b>Airway Management - checklist</b>	<b>✓ If done correctly</b>
1.	Performs head tilt , chin lift / jaw thrust maneuver	
2.	Administers oxygen	
3.	Insertion of OPA - Oropharyngeal Airway 1)Knows indications of OPA 2)Identification of proper size of OPA 3)lubrication of OPA before insertion 4) clears the mouth and pharynx 5) inserts OPA so that it curves upwards towards	



	the hard palette 6) As it enters the posterior wall of pharynx, rotate it 180 deg into proper position.	
4.	Insertion of NPA - Nasopharyngeal Airway 1) Knows indications of NPA 2) Selects proper size of NPA 3) Lubricate with lubricant 4) Insertion through nostril in a posterior direction perpendicular to the plane of face, passes it gently along the floor of Nasopharynx	
5.	Laryngeal Mask Airway – 1) Knows indications of LMA 2) Identifies proper size of LMA 3) Deflates the cough 4) Lubricates posterior LMA surface 5) Slight flexion of the head on the neck 6) Holds LMA like pen 7) Inserts the LMA until it rests on posterior pharyngeal wall 8) Checks for adequate chest rise	
6.	Bag Mask Ventilation 1) Positions himself above the victim's head 2) Places mask on the victim's face, using bridge of nose as a guide 3) Uses E-C clamp technique to hold the mask properly 4) Opens the airway and ventilates effectively 5) Knows functions of AMBU bag	

### Suggested Reading:

#### Books Recommended (latest edition)

- 1) Casey JD, Janz DR; Russell DW, et al. Bag-mask ventilation during tracheal intubation of critically ill adults.
- 2) Francois, B., Bellissant, E., Gissot, V., Desachy, A., Normand, S., Boulain, T,... Vignon, P. (2007). 12-h pretreatment with methylprednisolone versus placebo for prevention of postextubation laryngeal edema: a randomized double blind trial.





- 3) Frat J-P, Richard J-D, Quenot J-P, et al. Non-invasive ventilation versus high-flow nasal cannula oxygen therapy with apnoeic oxygenation for preoxygenation before intubation of patients with acute hypoxaemic respiratory failure.

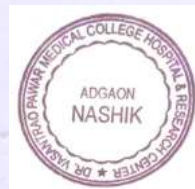
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**Department of Anaesthesiology  
CENTRAL SKILL LABORATORY**

### **Module for CPR**

#### **Student learning objectives:**

By completion of this module student should be able to:

- Tell the basic steps of CPR for adults.
- Show the basic steps of CPR for adults.
- Able to perform 1 rescuer, 2 rescuer CPR.
- List the steps common to the operation of AED.
- Show proper placement of AED pads.
- Able to show coordination of CPR and AED.

#### **Introduction**

Despite important advances in prevention, cardiac arrest remains a substantial public health problem and leading cause of death in many parts of world. It occurs both in and out of hospital. This skill module focuses on what health care providers need to know to perform CPR.

**Teaching Learning Method:** Mannequin in a Skills Lab, lecture, video demonstration.

#### **Pre-requisites**

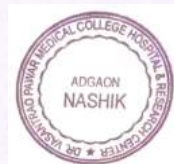
- Skill lab
- Mannequins
- Trained certified faculty

#### **Indications**

- Cardio pulmonary arrest

#### **Equipment's required**

- Mannequins
- AED (Automated External Defibrillator)
- Face Masks
- AMBU bags





### Steps in CPR

- Scene safety
- Check for responsiveness
- Call for help
- Check for breathing, check for carotid pulse
- Start high quality CPR
- Use AED once it is available

### Preparation

- Skill lab is required with mannequins for demonstration of airway breathing and chest compression
- Students will be divided into groups at the time of demonstration

### Procedure

#### Annexure A

#### Outline of a Session Plan

Name of the group: -

Facilitator/ Supervisor/ Faculty: -

Parameter	Description
Name of the lesson	CPR
Number of learners	
Objectives of the session	By completion of this module student should be able to: <ul style="list-style-type: none"><li>➤ Tell the basic steps of CPR for adults.</li><li>➤ Show the basic steps of CPR for adults.</li><li>➤ Able to perform 1 rescuer, 2 rescuer CPR.</li><li>➤ List the steps common to the operation of AED.</li><li>➤ Show proper placement of AED pads.</li><li>➤ Able to show coordination of CPR and AED.</li></ul>
Primary teaching method chosen	Mannequin in a Skills Lab



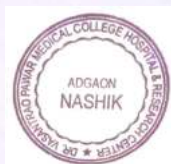
<b>Break up of the session</b>	Step 1: Introduction	10 min
	Step 2: PreTest	20 min
	Step 3: Lecture on Airway and breathing	30 min
	Step 4: Lecture on chest Compression	30 min
	Step 5 :Lecture on AED	30 min
	Step 6 : Video Demo	30 min
	Step 7: Hands on practice	
	Session	60 min
<b>Teaching aids required</b>	Audio Visual teaching aids, Mannequins, AED	
<b>Infrastructure required</b>	Skill Lab	
<b>Student preparation required/ prior reading required</b>	Students should be aware of importance of CPR. They should read ISA (Indian Society of Anaesthesia) guidelines of CPR.	
<b>Assessment method chosen</b>	By Direct observation of procedural skill method.	
<b>Other comments</b>		

### Complications

- Fracture of ribs or sternum
- Aspiration
- Lung injuries eg pneumothorax, lung contusion

### Assessment:

By Direct observation of procedural skill method.





**CPR**  
**SKILLS CHECKLIST**

<b>Sr. No</b>	<b><u>Checklist for CPR skill</u></b>	<b><u>Performed</u></b> Correct = ✓ Not Correct = ✗
1.	Check for responsiveness	
2.	Activates emergency response system	
3.	Checks breathing and carotid pulse(no more than 10-seconds)	
4.	Gives high quality CPR	
5.	Adequate rate at least 100 to 120 per minute	
6.	Depth (at least 2 inches)	
7.	Allows complete chest recoil	
8.	Maintains 30:2 ratio	
9.	Uses AED as soon as it arrives	
10.	Minimizes interruptions in chest compression	

**Suggested Reading:**

Books Recommended (latest edition)

- 1) ISA Guidelines for CPR

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Department of Pharmacology**

## **CENTRAL SKILL LABORATORY**

### **Module for Intramuscular Injection**

#### **Student Learning Objectives**

By the completion of the session, students should be able to-

1. Identify the sites of IM injections and demonstrate Intramuscular Injection.
2. Identify the different equipments needed, parts of Syringe, needle.
3. Should be able to prepare an IM injection.
4. Should be able to Take verbal consent before taking Prick.

#### **Introduction**

Intramuscular injection is a technique in which a needle with the help of syringe is inserted in Major muscle for the administration of the medicine for therapeutic purposes.

#### **Teaching Learning Method**

Demonstration on Intramuscular Injection simulator in skill lab.

#### **Prerequisites**

1. Anatomical knowledge about Major muscles used for injection.
2. Knowledge about the different equipment used.

#### **Indications**

1. Administration of Medicines for Therapeutic Purpose.

#### **Contraindications**

1. Infection over the site of insertion
2. Burns or traumatic injury over the insertion site
3. Surgical procedure over that extremity.

#### **Equipment required**

1. IM simulator
2. Pair of gloves
3. Cotton swab
4. Clinical spirit
5. 2ml syringe
6. Needle
7. Medication

#### **Steps in I.M. Injection**

1. Preparation of syringe with medication.
2. Identification of muscle
3. Performing actual procedure





## Preparation

1. Hand sanitization and wearing gloves
2. Preparation of Syringe with medicine,

## Procedure

1. Take the verbal consent.
2. Put the pair of gloves on.
3. Choose the muscle where to inject.
4. Apply spirit with the help of cotton.
5. Fill the syringe with medicine
6. Introduce needle with angle of 90 °
7. Gently push the medicine inside with the barrel.
8. Discard the needle and syringe .

## Complications

1. Severe pain at the site of injection
2. Tingling And Numbness
3. Redness and swelling
4. Signs of allergic reaction
5. Injury to nerve
6. Abscess Muscle Fibrosis
7. Injury to blood vessels
8. Cellulitis

## Assessment

### OSCE

No.	Performance	Marks
1	Greets the patient and introduces himself	
2	Explains the procedure and obtain informed written consent	
3	Check the necessary equipments and makes necessary preparation for the procedure	
4	Sanitize hand and wears gloves	
5	Identifies and choose the muscle	
6	Cleanses skin over the muscle	
7	Inserts needle at 90° and deep in the muscle	
8	Aspirate the blood	
9	Gently push medicine with barrel	
10	Withdraws syringe and put swab over the site	
11	Discard the needle, syringe and gloves	
	<b>Total</b>	

## Suggested reading

1. Una Hopkins, RN, FNP-BC, DNP; Claudia Y. Arias, RN, OCN Large-volume IM injections: A review of best practices oncology nurse advisor • January/February 2013
2. World Health Organization (2010) WHO Best Practices for Injections and Related Procedures Toolkit.
3. World Health Organization (2009) WHO Guidelines on Hand Hygiene in Health Care



## Annexure -A

### Outline of a Session Plan

Name of the group – IIMBBS Students

Facilitator/ Supervisor/ Faculty

<b>Parameter</b>	<b>Description</b>
Name of lesson	Intramuscular injection
Number of learners	20
Objectives of the session	Student should able to 1. Identify the sites of IM injections and demonstrate Intramuscular Injection. 2. Identify the different equipments needed, parts of Syringe, needle. 3. Should able to prepare an IM injection. 4. Should able to Take verbal consent before taking Prick.
Primary teaching method chosen	1. Explaining the procedure followed by demonstration by the faculty. 2. Procedure to be done by students after demonstration
Break up of session	Step 1 Hand sanitization and wearing gloves Step 2 Check for availability of equipments & preparation of Syring with medicine Step 3 Cleaning of skin over muscle Step 4 Aseptic precautions Step 5 I.V. Needle insertion Step 6 Discard needle and Syringe Step 9 Proper disposal of waste.
Teaching aids required	1. I.M. simulator 2. Pair of gloves 3. Syringe and Needle 4. Cotton swab 5. Clinical spirit 6. Medication bottle.
Infrastructure required	Skill lab with I.M. simulator.
Student participation required/ prior reading required	1. Anatomy of Large muscle. 2. Knowledge regarding IM injection.
Assessment method chosen	Demonstration followed by direct observation
Other comments	1. Need of explaining the procedure and obtaining informed written consent, when performing on patient emphasized. 2. Need of utmost aseptic precautions while performing.



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**CENTRAL SKILL LABORATORY  
Module for Sub Cutaneous Injection**

**Student Learning Objectives**

By the completion of the session, students should be able to-

1. Identify the sites of SC injections and demonstrate Subcutaneous Injection.
2. Identify the different equipments needed, parts of Syringe, needle.
3. Should be able to prepare an SC injection.
4. Should be able to Take verbal consent before taking Prick.

**Introduction**

Subcutaneous injection is a technique in which a needle with the help of syringe is inserted subcutaneously for the administration of medication for therapeutic as well as diagnostic purposes.

**Teaching Learning Method**

Demonstration on Subcutaneous Injection simulator in skill lab.

**Prerequisites**

1. Anatomical knowledge about Skin layers used for injection.
2. Knowledge about the different equipment used.

**Indications**

1. Administration of Medicines for Therapeutic as well as diagnostic Purpose.

**Contraindications**

1. Infection over the site of insertion
2. Burns or traumatic injury over the insertion site

**Equipment required**

1. SC simulator
2. Pair of gloves
3. Cotton swab
4. Clinical spirit
5. Insulin Syringe /Tuberculin Syringe with needle
6. Medication

**Steps in I.M. Injection**

1. Preparation of syringe with medication.
2. Identification of area where to inject.
3. Performing actual procedure



## Preparation

1. Hand sanitization and wearing gloves
2. Preparation of Syringe with medicine,

## Procedure

1. Take the verbal consent.
2. Put the pair of gloves on.
3. Choose the area of insertion where to inject.
4. Apply spirit with the help of cotton.
5. Fill the syringe with medicine
6. Introduce needle with angle of 45 °
7. Gently push the medicine inside with the barrel and plunger.
8. Discard the needle and syringe.

## Complications

1. Severe pain at the site of injection
2. Tingling And Numbness
3. Redness and swelling
4. Signs of allergic reaction

## Assessment

### OSCE

No.	Performance	Marks
1	Greets the patient and introduces himself	
2	Explains the procedure and obtain informed written consent	
3	Check the necessary equipments and makes necessary preparation for the procedure	
4	Sanitize hand and wears gloves	
5	Identifies and choose the area of skin	
6	Cleanses skin over the area	
7	Inserts needle at 45°	
8	Aspirate the blood	
9	Gently push medicine with barrel and plunger	
10	Withdraws syringe and put swab over the site	
11	Discard the needle, syringe and gloves	
	<b>Total</b>	

## Suggested reading

1. Una Hopkins, RN, FNP-BC, DNP; Claudia Y. Arias, RN, OCN Large-volume S.C. injections: A review of best practices oncology nurse advisor • January/February 2013
2. World Health Organization (2010) *WHO Best Practices for Injections and Related Procedures Toolkit*.
3. World Health Organization (2009) *WHO Guidelines on Hand Hygiene in Health Care*





## Annexure- A

### Outline of a Session Plan

Name of the group

Facilitator/ Supervisor/ Faculty

<b>Parameter</b>	<b>Description</b>
Name of lesson	Subcutaneous injection
Number of learners	20
Objectives of the session	Student should able to <ol style="list-style-type: none"><li>1. 1 Identify the sites of SC injections and demonstrate Subcutaneous Injection.</li><li>2. Identify the different equipments needed, parts of Syringe ,needle.</li><li>3. Should able to prepare an SC injection.</li><li>4. Should able to Take verbal consent before taking Prick.</li></ol>
Primary teaching method chosen	<ol style="list-style-type: none"><li>1. Explaining the procedure followed by demonstration by the faculty.</li><li>2. Procedure to be done by students after demonstration</li></ol>
Break up of session	Step 1 Hand sanitization and wearing gloves Step 2 Check for availability of equipments and preparation of Syring with medicine Step 3 Cleaning of skin over area Step 4 Aseptic precautions Step 5 SC Needle insertion Step 6 Discard needle and Syringe Step 7 Proper disposal of waste.
Teaching aids required	<ol style="list-style-type: none"><li>1. S.C. simulator</li><li>2. Pair of gloves</li><li>3. Syringe and Needle</li><li>4. Cotton swab</li><li>5. Clinical spirit</li><li>6. Medication bottle.</li></ol>
Infrastructure required	Skill lab with S.C. simulator.
Student participation required/ prior reading required	<ol style="list-style-type: none"><li>1. Anatomy of Skin.</li><li>2. Knowledge regarding S.C. injection.</li></ol>
Assessment method chosen	Demonstration followed by direct observation
Other comments	<ol style="list-style-type: none"><li>1. Need of explaining the procedure and obtaining informed written consent, when performing on patient emphasized.</li><li>2. Need of utmost aseptic precautions while performing.</li></ol>



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## **CENTRAL SKILL LABORATORY Module for Prescription Writing**

### **Student Learning Objectives**

By the completion of the session, students should be able to-

1. Identify the standard format of prescription .
2. Identify the different parts of prescription.
3. Should be able to write prescription.

### **Introduction**

When a doctor decides to give a particular drug to a patient, this decision has to be conveyed to the pharmacist and patient as a very clear and legible instruction in the form of a prescription. Prescription writing is a very important step in the medical field. It has its own legal aspects as well as good prescription writing can minimize prescribing-related risks or errors. So as a physician, it is very important to know the correct and legal prescription writing.

### **Teaching Learning Method**

Demonstration of prescription writing

### **Prerequisites**

1. Satisfactory knowledge about prescription.
2. Medical terminologies.
3. Medical Abbreviation.

### **Parts of Prescription**

#### **1 Superscription**

#### **2 Inscription**

#### **3 Subscription**

#### **4 Transcription**





## Steps In Prescription Writing

1. Write superscription – Place of Dispensing ,Doctors Name ,Degree, Date, Patients Name ,Age Gender, Address, Symbol Rx .
2. Write Inscription – Principal drug name , Dosage form, Dose , frequency , Duration.
3. Write Subscription- Direction to the pharmacist as to the mode of compounding , amount to be compounded .
4. Transcription – Directions to the patients regarding the methods of administration, ,dose ,time of administration other instructions regarding follow up, signature of physician and registration No.

## Assessment

### OSCE

No.	Performance	Marks
1	Explain the Medico legal aspects of Prescription	
2	Explain the parts of Prescription	
3	Explain about Superscription	
4	Explain about Inscription	
5	Explain about Subscription	
6	Explain about transcription	
7	Write standard prescription	
	<b>Total</b>	



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### Annexure -A

#### Outline of a Session Plan

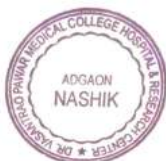
Name of the group- II MBBS –Batch A & B

Facilitator/ Supervisor/ Faculty—Dr.Hemanth Kumar & Dr.Vijay Bayaskar

<b>Parameter</b>	<b>Description</b>
Name of lesson	Prescription Writing
Number of learners	60
Objectives of the session	Student should able to 4. Identify the standard format of prescription . 5. Identify the different parts of prescription. 6. Should able write prescription.
Primary teaching method chosen	1. Explaining the prescription writing demonstration by the faculty. 2. Procedure to be done by students after demonstration
Break up of session	Step 1 Parts of prescription Step 2 Superscription Step 3 Inscription Step 4 Subscription Step 5 Transcription
Teaching aids required	1. Chock And Board 2. Laptop 3. Projector
Student participation required/ prior reading required	1. Medical Terminologies 2. Abbreviations used in prescription. 3. Parts of prescription
Assessment method chosen	Demonstration followed by direct observation
Other comments	1. Need to understand the basic concept behind Prescription writing. 2. Need to learn the Medicolegal aspects of prescription



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## Department of Surgery

### Wound Suturing

#### Student Learning Objectives

By the completion of this module, the student will be able to:

- Know the different techniques of wound suturing
- Identify different equipments needed along with different types of suture material.
- Enumerate the contraindications for closure of wound
- Identify causes for improper wound suturing

#### Introduction

Primary goals for wound suturing are: Closing dead space  
Supporting and strengthening wounds until healing increases their tensile strength  
Approximating skin edges for an aesthetically pleasing and functional result  
Minimizing the risks of bleeding and infection

#### Teaching Learning Method:

suturing pad in skill lab

#### Pre-requisites

- Anatomical knowledge about various layers of skin and fascia.
- Knowledge about the different type of suturing techniques

#### Indications

Various types of wounds  
Contused lacerated wounds  
Wounds over face, back, limb.  
Incised wounds.

#### Contraindications

Contaminated wounds  
When there is tissue loss, as in an avulsion injury, wound closure may be delayed  
Immediate closure of human bites and certain animal bites may induce wound infections  
After incision and drainage of abscess

#### Equipments required

Suture material  
Needle holder  
Forceps  
Suture scissor  
Dressing material

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## Wound Suturing

### Suturing techniques

1. Simple interrupted suture
2. Simple running suture
3. Running locked suture
4. Vertical mattress suture
5. Horizontal mattress suture
6. Dermal-subdermal suture
7. Running subcuticular suture
8. Running subcutaneous suture

### Steps in wound suturing

1. Painting of wound bed, giving local anaesthesia, wound debridement and washing .
2. check for all equipments
3. Performing actual procedure

### Preparation

1. Explaining steps to patient, taking proper history ,obtaining consent,.
2. Hand sanitization and wearing sterile gloves with no touch technique.
3. Preparation for giving local anaesthesia.

### Procedure

1. For small wounds local anaesthesia is given.
2. The choice of sutures and needles is determined by the location of the lesion, the thickness of the skin in that location, and the amount of tension exerted on the wound.
3. First, needle is grasped with right hand needle holder, then needle is passed through tissue and grasped with left hand grasper , then thread is pulled out from the edge with left hand grasper. Again needle is held with right hand needle holder , needle is passed through opposite edge of second tissue and needle pulled out by left hand grasper, till part of suture tail remains on the first tissue.
4. Then needle is held left hand and with that make the double-coiled clock wise throw on right hand grasper and grasp the suture tail using the right hand holder. Then, the right-hand needle holder is now pushed cephalad while the left-hand grasper is now pulled caudally, after tighten the suture, the suture tail is placed caudally for further throws. Finally, additional throws are added to secure the surgical knot.
5. Similarly additional sutures are taken to close wound completely
6. If wound is deep absorbable sutures are taken to obliterate cavity.

### Complications

1. Immediate complications include the formation of hematoma secondary to improper hemostasis technique and the development of a wound infection with wound dehiscence
2. Late complications include scar formation, which may be due to either improper suturing with excess tension or lack of eversion of the edges.
3. Hypertrophic scar and keloid formation.
4. Wound necrosis





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**Skill assessment**

1. Demonstration of successful suturing in a demo model (5 times).  
With OSCE

**Assessment**

OSCE

Sr. No	Performance	Marks
1	Greets the patient and introduces himself,,obtains history	
2	Hand sanitization and wearing sterile gloves with no touch technique	
3	Wound assessment .Explaining steps to patient, ,obtaining consent	
4	Communication with staff nurse Check the necessary equipments and makes necessary preparation for the procedure	
5	Painting and draping of the wound	
6	Preparation for giving local anaesthesia.	
7	wound wash with normal saline with debridement if required	
8	wound suturing with proper technique and good cosmesis	
9	wound dressing	
10	Explaining post operative care.	
11	Proper disposal of waste	
	Total	

**Suggested reading**

Pyes Handicraft of surgery

*Jha m.v.*

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**Annexure A**  
Outline of a Session Plan

Name of the group

Facilitator/ Supervisor/ Faculty

Parameter	Description
Name of lesson	Wound suturing
Number of learners	
Objectives of the session	Student should able to 1. Know the different techniques of wound suturing 2. Identify different equipments needed along with different types of suture material. 3. Enumerate the contraindications for closure of wound 4. Identify causes for improper wound suturing
Primary teaching method chosen	1. Explaining the procedure followed by demonstration by the faculty. 2. Procedure to be done by students after demonstration
Break up of session	Step 1 Taking proper history, Hand sanitization and wearing sterile gloves with no touch technique. Step 2 Wound assessment .Explaining steps to patient, ,obtaining consent., Step 3 Painting and draping of the wound Step 4 Preparation for giving local anaesthesia. Step 5 wound wash with normal saline with debridement if required Step 6 wound suturing with proper technique and good cosmesis Step 7 wound dressing Step 8 Explaining post operative care Step 9 Proper disposal of waste.
Teaching aids required	1. Wound suturing pads. 2. Pair of gloves 3. Suture material with needle 4. Instruments for suturing 5. Dressing material 6. Adhesive
Infrastructure required	Skill lab with suturing pad and instruments.
Student participation required/ prior reading required	1. Anatomy of local region. 2. Knowledge regarding use of different types of sutures.
Assessment method chosen	Demonstration followed by direct observation of procedural skills(DOPS)/OSCE
Other comments	1. Need of explaining the procedure and obtaining informed written consent, when performing on patient emphasized. 2. Need of utmost aseptic precautions while performing.



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	controlled environment.
Primary teaching method chosen	<ol style="list-style-type: none"> <li>1. Explaining the procedure followed by demonstration by the faculty.</li> <li>2. Procedure to be done by students after demonstration</li> </ol>
Break up of session	<p>Step 1 Hand sanitisation and wearing gloves</p> <p>Step 2 Check for availability of equipments and preparation of i.v. fluid</p> <p>Step 3 Tourniquet application</p> <p>Step 4 Aseptic precautions</p> <p>Step 5 I.V. cannula insertion</p> <p>Step 6 Release of tourniquet</p> <p>Step 7 Flushing of cannula and i.v. drip attachment</p> <p>Step 8 Cannula fixation</p> <p>Step 9 Proper disposal of waste.</p>
Teaching aids required	<ol style="list-style-type: none"> <li>1. I.V. simulator</li> <li>2. Pair of gloves</li> <li>3. Tourniquet</li> <li>4. Cotton swab</li> <li>5. Clinical spirit</li> <li>6. I.V. canula</li> <li>7. NS filled 5ml syringe</li> <li>8. I.V. set</li> <li>9. I.V. fluid</li> <li>10. Sticking for cannula fixation</li> <li>11. Stand for hanging i.v. bottle.</li> </ol>
Infrastructure required	Skill lab with i.v. simulator.
Student participation required/ prior reading required	<ol style="list-style-type: none"> <li>1. Anatomy of peripheral veins.</li> <li>2. Knowledge regarding i.v. canula and i.v. fluids.</li> </ol>
Assessment method chosen	Demonstration followed by direct observation
Other comments	<ol style="list-style-type: none"> <li>1. Need of explaining the procedure and obtaining informed written consent, when performing on patient emphasized.</li> <li>2. Need of utmost aseptic precautions while performing.</li> </ol>

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### Skill Module Of Demonstration of Mechanism of Normal Labour

#### **Introduction:**

A student should be able to demonstrate different stages of mechanism of Normal Labour;  
As well as detect abnormal labour conditions.

#### **Objectives:**

By the completion of this Module, student should be able to

1. Demonstrate different stages of mechanism of Normal Labour.
2. Select the appropriate instruments and material required during demonstration of mechanism of normal labour.
3. Detect abnormal labour conditions.

#### **Suggested teaching learning method:**

Lecture and demonstration of Procedure.

#### **Pre-requisites:**

1. Knowledge of different stages of normal labour.
2. Knowledge of malpresentation and malpositions.

#### **Equipment:**

1. Maternal bony pelvis
2. Fetal skull
3. Mannequin of baby

#### **Procedure-**

Definition - The series of movements that occur on the head in the process of adaptation during its journey through the pelvis is called mechanism of labor.

#### **1) Engagement – Fetal head crosses pelvic brim.**

Diameter of engagement : Available transverse diameter of the inlet.

Engaging transverse diameter of head - Biparietal(9.5 cm)

Engaging anteroposterior diameter of head : Suboccipitobregmatic (9.5cm) Or  
Suboccipitofrontal (10cm)

Asynclitism - posterior asynclitism or posterior parietal presentation - more frequently found in primigravidae because of good uterine tone and a tight abdominal wall.

anterior parietal presentation or anterior asynclitism - more commonly found in multiparae.



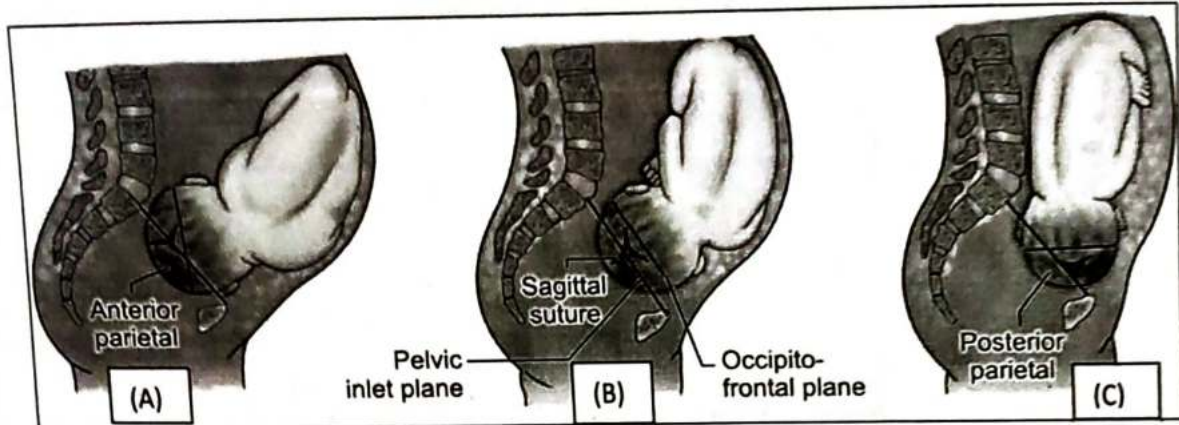
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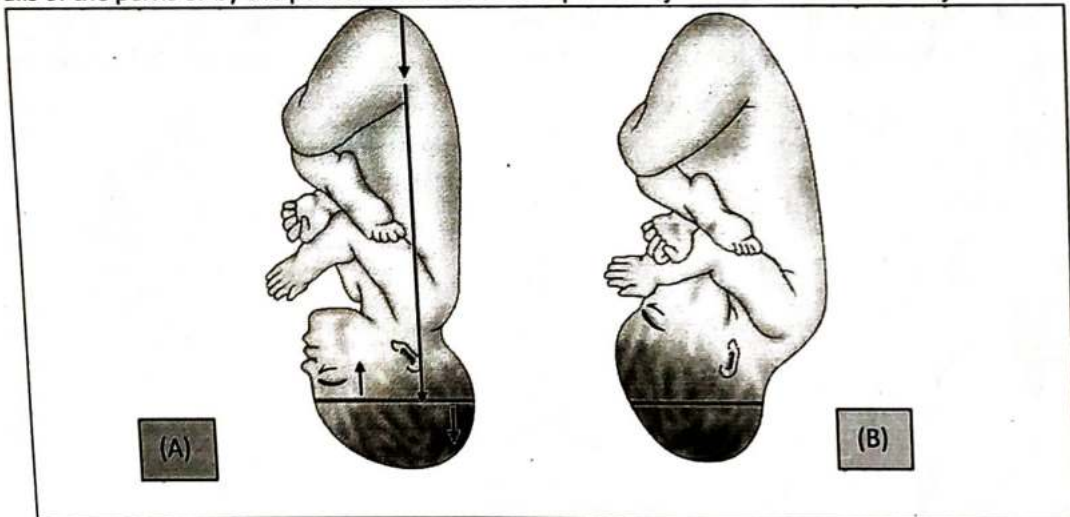


Head brim relation prior to engagement: (A) Anterior parietal presentation; (B) Head in synclitism; (C) Posterior parietal presentation

**2) Descent** - Factors facilitating descent are—

- (1) uterine contraction and retraction
- (2) bearing down efforts
- (3) straightening of the ovoid fetal especially after rupture of the membranes.

**3) Flexion** - Flexion is achieved either due to the resistance offered by the unfolding cervix, the walls of the pelvis or by the pelvic floor. Flexion is explained by the two-arm lever theory



Lever action producing flexion of the head reducing the engaging diameter of the head from — (A) occipitofrontal to (B) suboccipitobregmatic

**4) Internal rotation** - The theories which explain the anterior rotation of the occiput are: -

- a) Slope of pelvic floor - rotation by law of pelvic floor (Hart's rule).
- b) Pelvic shape
- c) Law of unequal flexibility (Sellheim and Moir)

In occipitolateral position, there will be anterior rotation by two-eighths of a circle of the occiput whereas in oblique anterior position, rotation will be one-eighth of a circle forward, placing the occiput behind the symphysis pubis.



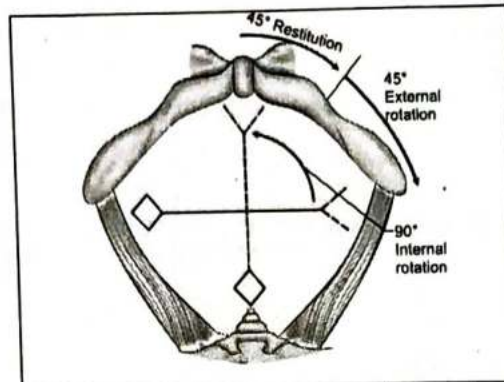
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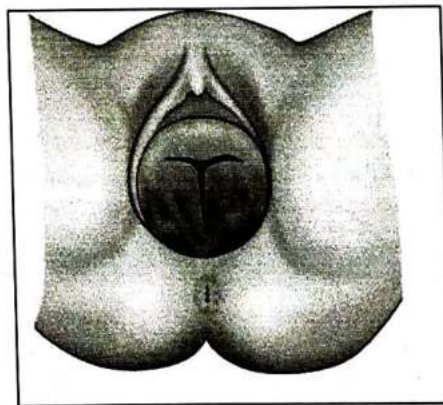
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Degree of internal rotation, restitution and external rotation  
of the head in left occipitolateral position

**Torsion of the neck:** During internal rotation of the head, if the shoulders remain in the anteroposterior diameter, the neck has to sustain a torsion of two-eighths of a circle. But the neck fails to withstand such major degree of torsion and as such there will be some amount of simultaneous rotation of the shoulders in the same direction to the extent of one-eighth of a circle. Thus, the shoulders move to occupy the left oblique diameter in left occipitolateral position and right oblique diameter in right occipitolateral position.

**5) Crowning** - further descent occurs until the subocciput lies underneath the pubic arch. At this stage, the maximum diameter of the head (biparietal diameter) stretches the vulval outlet without any recession of the head even after the contraction is over— called “crowning of the head”.



Crowning of the head

**6) Extension** - Delivery of the head takes place by extension through “couple of force” theory. The driving force pushes the head in a downward direction while the pelvic floor offers a resistance in the upward and forward direction. The downward and upward forces neutralize and remaining forward thrust helping in extension. The successive parts of the fetal head to be born through the stretched vulval outlet are vertex, brow and face.

**7) Restitution** - It is the visible passive movement of the head due to untwisting of the neck sustained during internal rotation. The occiput thus points to the maternal thigh of the corresponding side to which it originally lay.



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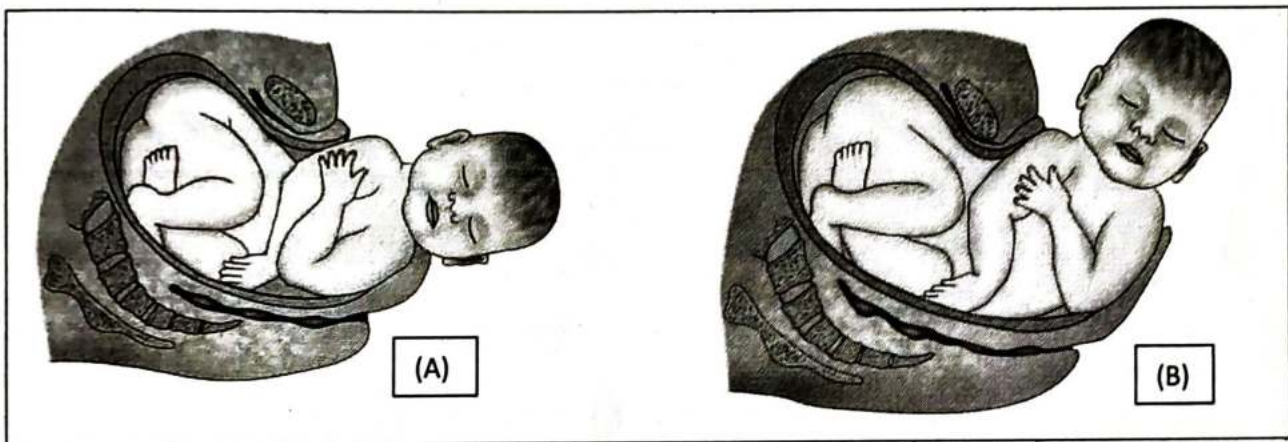
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**8) External rotation** - It is the movement of rotation of the head visible externally due to internal rotation of the shoulders. The shoulders now lie in the anteroposterior diameter. The occiput points directly toward the maternal thigh corresponding to the side to which it originally directed at the time of engagement.

**9) Expulsion -**

By a movement of lateral flexion of the spine, the posterior shoulder sweeps over the perineum. Rest of the trunk is then expelled out by lateral flexion.



Delivery of the shoulders by lateral flexion. (A) Anterior shoulder; (B) Posterior shoulder

**Complicated labour -**

- Malpresentation – Breech Presentation, Transverse Lie, Compound Presentation
- Malposition – Occiputoposterior position, Face Presentation, Brow Presentation

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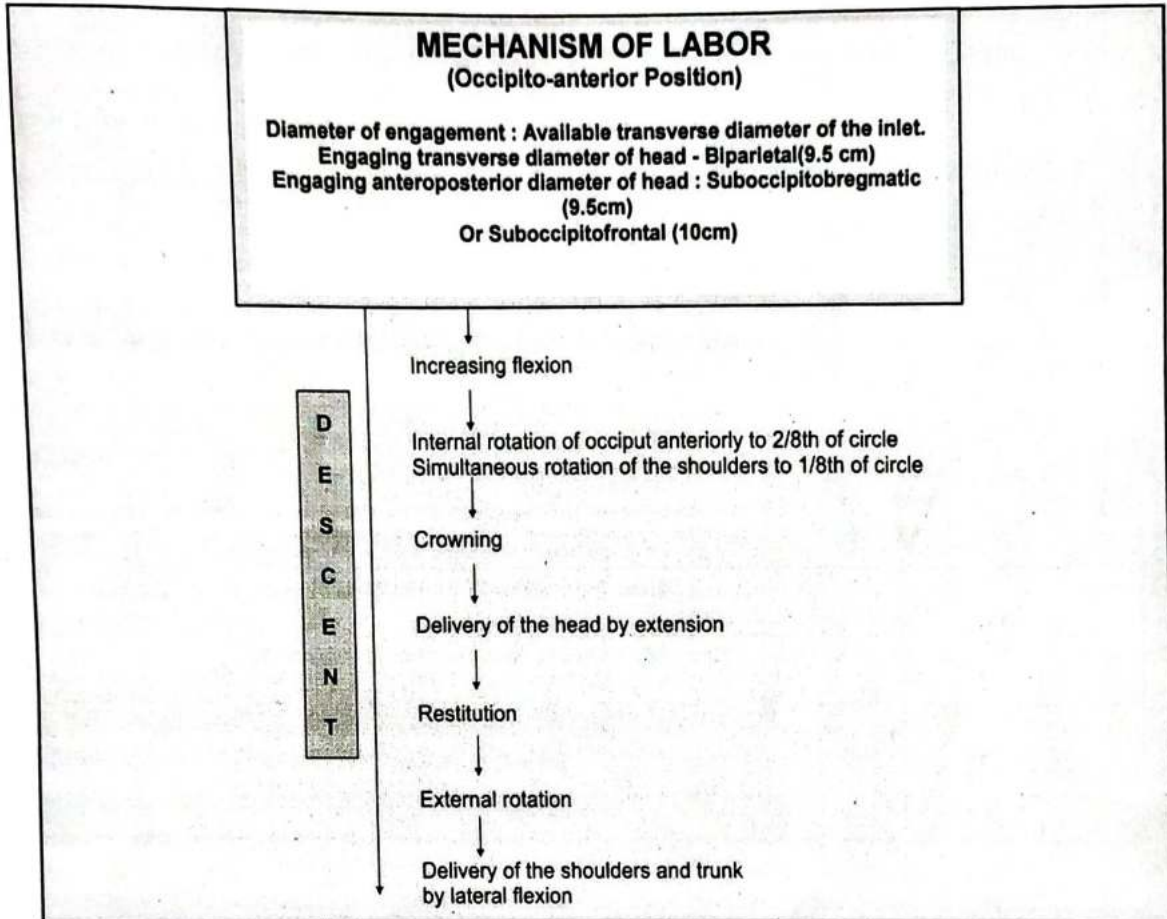






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### ASSESSMENT-

- 1) The students are initially guided and explained by the teacher about mechanism of labor.
- 2) Student observes teacher demonstrating mechanism of labor.
- 3) Student demonstrates labor under teacher's guidance.
- 4) The student independently demonstrates labor while teacher observes.
- 5) Teacher finally gives feedback regarding the student's performance.

### Checklist:

Sr. No	Steps	Yes/No
1	Is pelvis held in anatomical position?	
2	Is student able to demonstrate engagement?	
3	Is student able to demonstrate flexion?	
4	Is student able to demonstrate internal rotation?	
5	Is student able to demonstrate extension?	
6	Is student able to demonstrate restitution?	

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**Skill Module Of Demonstration of Ventouse Delivery**

**Introduction:**

A student should be able to demonstrate ventouse delivery.

**Objectives:**

By the completion of this Module, student should be able to

1. Demonstrate application of ventouse delivery.
2. Select the appropriate instruments and material required during demonstration of ventouse delivery.

**Suggested teaching learning method:**

Lecture and demonstration of ventouse delivery.

**Pre-requisites:**

1. Knowledge of different types of ventouse delivery.
2. Knowledge of pre-requisites for ventouse delivery.

**Equipment:**

1. Maternal bony pelvis
2. Fetal skull
3. Mannequin of baby
4. Ventouse

  
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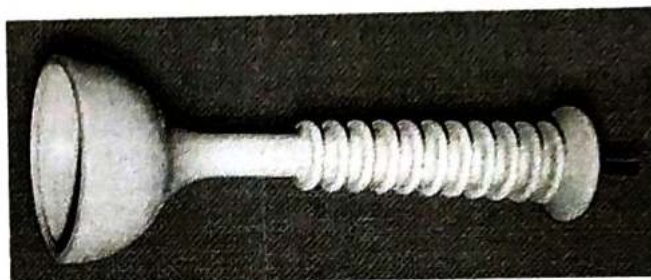


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### PROCEDURE - VENTOUSE

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

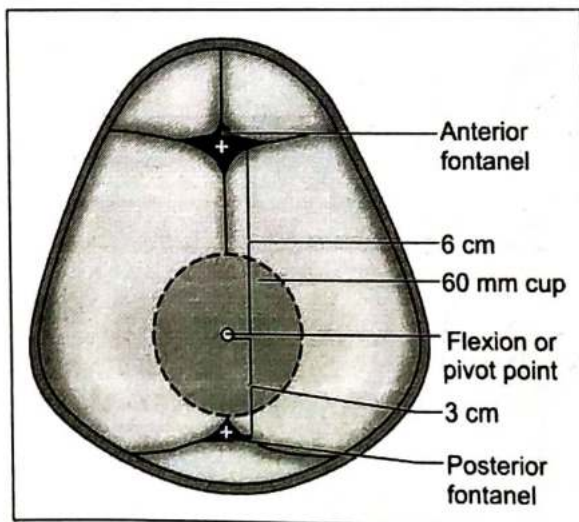


The parts of the device are:

- (1) Suction cups with four sizes (30 mm, 40 mm, 50 mm and 60 mm)
- (2) a vacuum generator
- (3) traction tubings

The instrument should be assembled and the vacuum is tested prior to its application.

**Step I: Application of the cup** - largest possible cup is to be selected. The cup is placed against the fetal head near the occiput - Flexion or pivot point.



Ventouse cup should be placed on the flexion or pivot point

**Step II: Traction** - 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 to note the correct angle of



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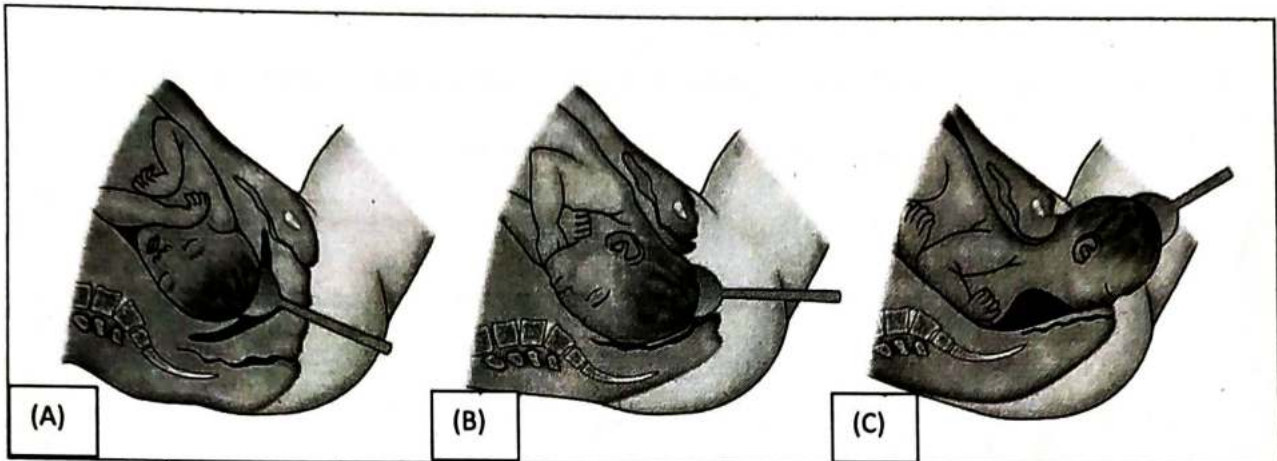




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traction, rotation and advancement of the head. As soon as the head is delivered, the vacuum is reduced by opening the screw-release valve and the cup is then detached. The delivery is then completed in the normal way.



Application of vacuum extractor; (A to C) indicating the directions of traction at different stations of the fetal head. Traction over this flexion or pivot point either by ventouse or forceps promotes flexion and presents smaller diameter to the pelvis

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### ASSESSMENT-

- 1) The students are initially guided and explained by the teacher about instrumental delivery.
- 2) Student observes teacher demonstrating instrumental delivery.
- 3) Student demonstrates instrumental delivery under teacher's guidance.
- 4) The student independently demonstrates instrumental delivery while teacher observes.
- 5) Teacher finally gives feedback regarding the student's performance.

### Checklist:

Sr. No	Steps	Yes/No
1	Is student able to place ventouse properly?	
2	Is student able to demonstrate phantom application of ventouse?	
3	Is student able to demonstrate instrumental delivery by using ventouse?	

  
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**Dr. Vasant Rao Pawar Medical College, Hospital &  
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**Department of Obstetrics & Gynaecology**

### Skill Module Of Demonstration of Forceps Delivery

#### **Introduction:**

A student should be able to demonstrate instrumental delivery.

#### **Objectives:**

By the completion of this Module, student should be able to

1. Demonstrate application of instrumental delivery.
2. Select the appropriate instruments and material required during demonstration of instrumental delivery.

#### **Suggested teaching learning method:**

Lecture and demonstration of instrumental delivery.

#### **Pre-requisites:**

1. Knowledge of different types of instrumental delivery.
2. Knowledge of pre-requisites for instrumental delivery.

#### **Equipment:**

1. Maternal bony pelvis
2. Fetal skull
3. Mannequin of baby
4. Forceps

### **PROCEDURE- FORCEPS**

**Definition** - Obstetric forceps is a pair of instruments, especially designed to assist extraction of the fetal head and thereby accomplishing delivery of the fetus.

#### **Types of Forceps used -**

- Long-curved forceps.
- Outlet forceps (Wrigley)
- Kielland's forceps



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## **OUTLET FORCEPS OPERATION**

The operation consists of the following steps:

- **Identification of the blades and their application –**
  - ✓ Four fingers of the semi-supinated right hand are inserted along the left lateral vaginal wall. The blade is introduced.
  - ✓ As the blade is pushed up and up, the handle is carried downwards and backwards, traversing wide arc of a circle towards the left until the shank is to lie straight on the perineum.
  - ✓ The two fingers of the left hand are now introduced into the right lateral wall of the vagina alongside the baby's head. The right blade is introduced in the same manner as with left one but holding it with the right hand.
- **Locking of the blades -** When correctly applied (bimolar, biparietal placement), the blades should be articulated with ease.
- **Correct application is evidenced by:**
  - (a) easy locking
  - (b) the blades are equidistant from the lambdoid suture
  - (c) firm gripping of the head on the biparietal diameter – as judged by a few tentative pulls.
- **Traction -** Steady but intermittent traction should be given. The direction of the pull corresponds to the axis of the birth canal and is gradually changed to upwards and forwards, towards the mother's abdomen to deliver the head by extension.
- **Removal of the blades -** The blades are removed one after the other, the right one first.

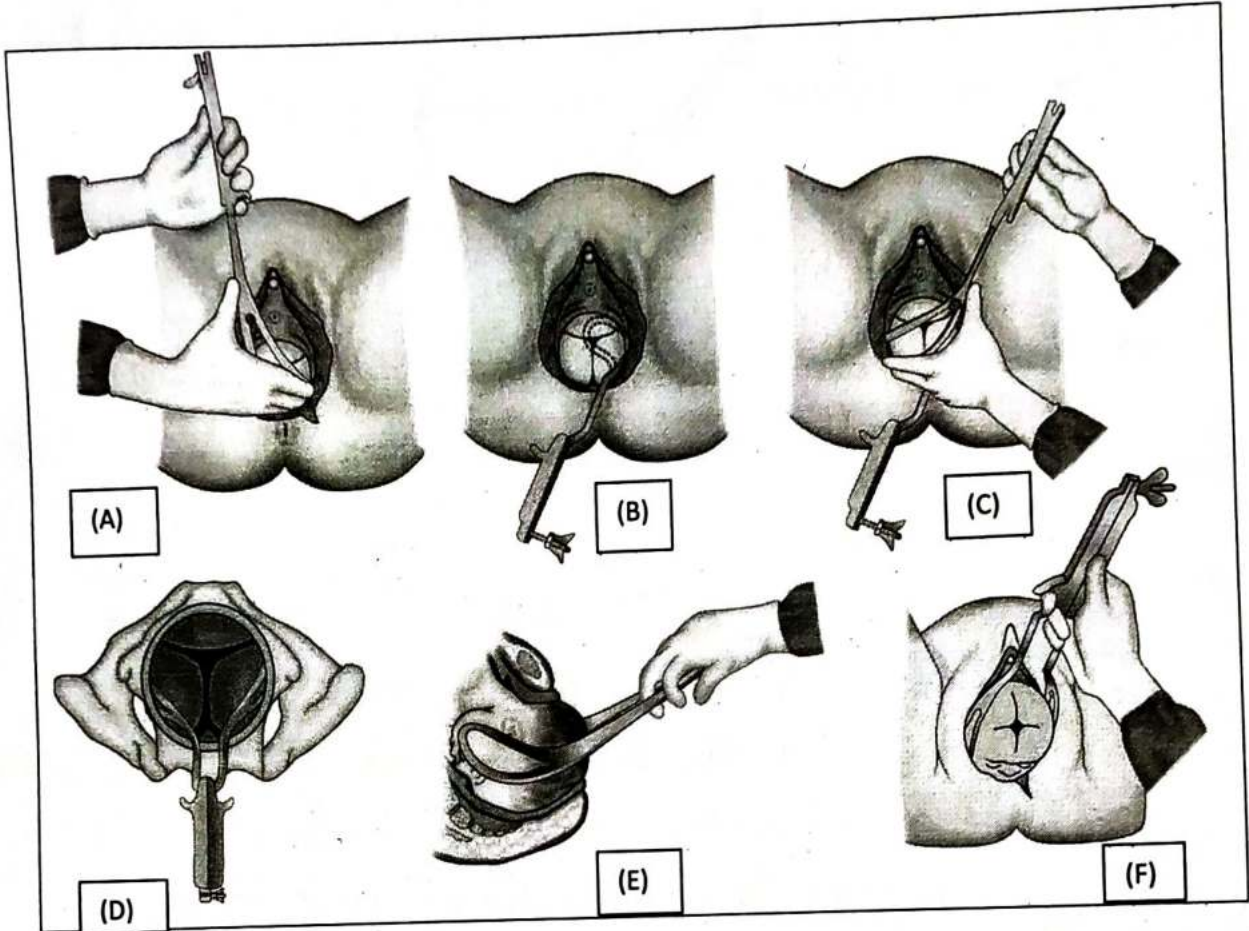
  
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Steps of low forceps operation — (A) Introduction of the left blade; (B) The handle lying flat on the perineum after introduction; (C) Introduction of the right blade; (D) Showing perfect apposition and locking of the blades; (E) Bimalar, biparietal placement of blades and position of the fingers during traction; (F) Change in the grip in the final stage of delivery

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### ASSESSMENT-

- 1) The students are initially guided and explained by the teacher about instrumental delivery.
- 2) Student observes teacher demonstrating instrumental delivery.
- 3) Student demonstrates instrumental delivery under teacher's guidance.
- 4) The student independently demonstrates instrumental delivery while teacher observes.
- 5) Teacher finally gives feedback regarding the student's performance.

#### Checklist:

Sr. No	Steps	Yes/No
1	Is student able to hold forceps properly?	
2	Is student able to identify right/left blade?	
3	Is student able to demonstrate phantom application of forceps?	
4	Is student able to demonstrate instrumental delivery by using forceps?	

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**Department of Otorhinolaryngology**

### **Skill Module for Temporal Bone Dissection**

#### **Competency:**

- Demonstrate the steps of various ear surgeries on cadaveric temporal bone.

#### **Background knowledge:**

- Detailed surface anatomy of temporal, squamous, petrous and mastoid bones.
- Detailed anatomy of external, middle and inner ear and its surrounding structures.
- Detailed knowledge of various ear diseases and its complications.

#### **Suggested teaching and learning methods:**

- Lecture video and demonstration on cadaveric temporal bone in skill lab.

#### **Pre-requisites:**

- Knowledge of surface anatomy of temporal bone.
- Knowledge of external, middle and inner ear anatomy.
- Knowledge of ear diseases and its spread.

#### **Indications:**

- Mastoid surgeries
- Middle ear surgeries
- Skull Base surgeries

#### **Equipment:**

- Wet temporal bone
- Operating microscope
- Drill with burrs
- Suction machine
- Temporal bone holder
- Irrigation Cannula
- Few ear micro-instruments

#### **Steps:**

1. Fixing of temporal bone in bone holder, focussing of microscope with binocular vision.
2. Identification of surface landmarks like
  - External Auditory Meatus
  - Spine of Henle
  - Zygomatic Process
  - Mastoid Process
  - MacEwan's Triangle





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**3. Cortical Mastoidectomy**

- Superior border of MacEwan's triangle i.e. Suprameatal crest delineation.
  - Anterior border of MacEwan's triangle i.e. Posterior Canal Wall delineation.
  - Joining of endpoints of superior and anterior borders.
- a. Removal of cortex and air cells within the triangle.
  4. Identification of lateral semicircular canal, fossa incudis and aditus.
  5. Identification of mastoid tip and digastric ridge.
  6. Delineation of sinus plate and tegmen plate
  7. Thinning of posterior canal wall
  8. Identification of facial nerve, chorda tympani nerve
  9. Posterior Tympanotomy
  10. Identification of pyramid, Stapedius tendon and all ossicles
  11. Stapedectomy
  12. Removal of bridge and lowering of facial ridge
  13. Atticotomy
  14. Modified Radical Mastoidectomy
  15. Radical Mastoidectomy

**Assessment:**

- Observation by faculty members

**Suggested Reading:**

- Temporal bone dissection manual
- Shambaugh
- Scott Brown's Otology
- Cummins



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