2.5.3

Respiratory Medicine department Reforms

2.5.3

Reforms :-

- Skill Lab Module:

PG-

1.Bronchoscopy
2.Endotracheal Intubation
3. ICD
4. PFT
5.Pleural Aspiration

UG-

1.Oxygen Therapy
2.Pleural Aspiration
3.Nebulization

- Blue Printing of PG question papers

- OSCE

Module of Bronchoscopy for PG students:

Introduction

bronchoscopy is an invasive procedure that is utilized to visualize the nasal passages, pharynx, larynx, vocal cords, and tracheal bronchial tree. It is utilized for both the diagnosis and treatment of lung disorders. The procedure may be performed in an endoscopy suite, the operating room, the emergency department, a radiology suite, or at the bedside in the ICU.

Objectives:

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

a. List the indications for bronchoscopy.

b. Select the equipment for bronchoscopy.

c. Enumerate the risks associated with bronchoscopy.

d. Communicate to the patient about the procedure and post procedure care.

e. Demonstrate correct method of bronchoscopy with strict aseptic

technique in mannequin as well as in patients

Pre requisites

Knowledge of Anatomy of the respiratory tract starting from the oral or nasal cavity to the sub-segmental bronchi.

Knowledge of indications/ contraindications of bronchoscopy.

Indications

- Hemoptysis
- chronic unexplained cough
- mediastinal or hilar lymphadenopathy
- pulmonary infiltrates
- pneumonia
- atelectasis
- suspected tracheomalacia
- tracheoesophageal fistula
- post lung transplant surveillance.

Contraindications

- severe baseline hypoxia
- hemodynamic instability
- recent myocardial infarction
- severe hypoxia
- uncooperative patient
- severe bleeding disorder or an inexperienced operator.

Equipment's required:

- Bronchoscope
- Light source
- Cytology brushes
- biopsy forceps
- needle aspiration catheters
- suction apparatus
- supplemental oxygen
- , pulse oximetry
- sphygmomanometer
- Equipment for resuscitation including an endotracheal tube. A video monitor is a useful accessory, but not required.
- Fluoroscopy may be needed to facilitate certain transbronchial biopsy procedures.

Preparation

- Informed consent should be obtained from the patient or the patient's health care power of attorney.
- A focused history and physical examination should be obtained to ensure the procedure is clinically indicated and to evaluate for potential contraindications.
- The patient should fast (nothing by mouth) for six to eight hours before the procedure. Hemodynamic monitoring, pulse oximetry, and intravenous access should be assured before the start of the procedure.
- Patient's medication list and allergies, and laboratory results should always be checked.
- An ECG may be performed if clinically indicated. A 'time out' is performed at the start of the procedure.
- Although bronchoscopy can be done without sedation, most procedures are done under moderate conscious sedation with the use of various sedatives based on the clinician's preference (e.g., benzodiazepines, opioids, dexmedetomidine).
- Certain procedures may require more deep sedation or general anesthesia. Regardless of the sedation or anesthesia used the physicians should be aware of the potential side effects and how to manage patients receiving these medications.

PROCEDURE

- The bronchoscope may be introduced into the nasal cavity or the mouth (or through an endotracheal tube or laryngeal mask airway) and advanced to the level of the vocal cords.
- Assessment of the appearance and movement of the cords is done. As the bronchoscope is advanced beyond the vocal cords, a careful inspection of the entire airway is performed.
- In particular, abnormal endobronchial lesions or mucosal abnormalities, as well as any evidence of narrowing or dynamic collapse, is assessed. Pictures or videos can be recorded for future reference.
- Effort should be made to avoid unnecessary contact with the mucosa to avoid trauma.
- Based on the indication of the procedure, appropriate tools are selected to accomplish specific tasks such as tissue sampling or tumor debulking.
- At the conclusion of the procedure, a final assessment of the airway should be performed ensure adequate hemostasis.
- A post-procedural chest x-ray may be needed to evaluate for the presence of a pneumothorax.
- All patients should be monitored before, during and after the procedure. After uneventful recovery and in the absence of complications the patient may be discharged on the same day.
- Appropriate follow up is scheduled, and the patient is advised not to drive, operate heavy machinery for the rest of the day, or participate in any activity that requires full consciousness as the effect of the medications may last many hours.

COMPLICATIONS:

- Bleeding
- Pneumothorax
- Cardiac arrhythmias
- Other potential complications of the procedure include trauma to the vocal cords, pneumomediastinum, hypoxia, and rarely death.

Skill assessment:

i. Formative: Demonstration of successful bronchoscopy in a
mannequin with demonstration of all aseptic precautions (5 times).
ii. Summative: Demonstration of successful bronchoscopy in patients with demonstration of all aseptic precautions (5 times each).

Suggested Reading:
Books Recommended (latest edition)
1. Fishman's textbook of pulmonary medicine
2. Textbook on Pulmonary disease by Fraser
3. Harrison's principles of internal medicine

HOD
Department of Respiratory Medicine
Dr. VPMCH&RC Adgaon, Nashik

Professor and HOD
Dept. of Respiratory Medicine
Dr. Vasantrao Pawar Medical College
Hospital and Research Centre, Adgaon,
Nashik-422 003

DR. VASANTRAO PAWAR MEDICAL COLLEGE HOSPITAL & RESEARCH CENTER
ADGAON
NASHIK

Module of Endotracheal Intubation for PG students

Introduction

Endotracheal intubation (EI) is often an emergency procedure that's performed on people who are unconscious or who can't breathe on their own. EI maintains an open airway and helps prevent suffocation.

Pre requisites

Knowledge of Anatomy of vocal cords, trachea.

Knowledge of indications/ contraindications of intubation.

Objectives:

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

a. List the indications for endotracheal intubation.

b. Select the equipment for endotracheal intubation. and choose appropriate endotracheal blade.

c. Enumerate the risks associated with endotracheal intubation.

d. Communicate to the patient about the procedure.

e. Demonstrate correct method of endotracheal intubation with strict aseptic technique in mannequin as well as in patients (male & female)

Suggested Teaching Learning method: At least 5 successful supervised practice sessions on mannequin.

Indications

1. Respiratory arrest.
2. Cardiac arrest
3. Patients where complete obstruction of the airway is imminent, i.e. respiratory burns, anaphylaxis.
4. Inability of the conscious patient to breathe adequately.
5. Inability of the unconscious patient to protect their airway, i.e. overdose, ETOH, coma

Contraindications

1. Severe airway trauma or obstruction that does not permit safe passage of an endotracheal tube. Emergency cricothyrotomy is indicated in such cases.
2. Cervical spine injury, in which the need for complete immobilization of the cervical spine makes endotracheal intubation difficult.
3. Mallampati Classification of class III / IV or other determination of potential difficult airway

Equipments required:
Laryngoscope
Endotracheal (ET) tube
Stylet
Syringe, 10 mL (to inflate ET tube balloon)
Suction catheter (eg, Yankauer)
Carbon dioxide detector (eg, Easycap)
Oral and nasal airways
Ambu bag and mask attached to oxygen source
Nasal cannula

Preparation
Explain the procedure to the relatives and the need for intubation.
Obtain informed or implied consent, following procedure discussion, risks, and benefits.
Assess clinical necessity for intubation. If informed consent is indicated this must be granted before sedation begins. A directed history and physical should be performed that includes:
1. Relevant history of acute and chronic diseases
2. Clarification of code status
3. History of prior intubation
4. Physical exam with attention to anatomical defects of the airway and evidence of respiratory compromise
5. Current medications and allergies
6. Time of last oral intake
7. Assess airway using Mallampati classification, extent of mouth opening, thyromental distance, palate width, and neck mobility

PROCEDURE
Step 1 Check the equipment (laryngoscope, curved (Macintosh type) and straight (Miller type) blades of an appropriate size for the patient and assure that the light works, check ETT cuff for leaks).
Step 2 Assemble all materials close at hand (laryngoscope handle, blades, assorted ET tube sizes, 10mL syringe, water-soluble lubricant, securing device, BVM, suction equipment, stethoscope).
Step 3 Position of the patient: Unless contraindicated – ie. Trauma. Elevating the patient's head about 10cm with pads under the occiput and extension of the head into the sniffing position serve to align the oral, pharyngeal and laryngeal axis, so that the passage from the lips to the glottic opening is almost a straight line. This position permits better visualization of the glottis and vocal cords and allows easier passage of the endotracheal tube.
Step 4 Curved blade technique: a. Hyper-oxygenate the patient with 100% oxygen for 2 minutes. b. Open the patient's mouth with the right hand, and remove any dentures. c. Grasp the laryngoscope in the left hand. d. Spread the patient's lips, and insert the blade between the teeth, being careful not to break a tooth. e. Pass the blade to the right of the tongue, and advance the blade into the hypopharynx, pushing the tongue to the left. f. Lift the laryngoscope upward and forward, without cha gle of the

blade, to expose the vocal cords. The cricoid pressure is used to lower the trachea to facilitate tube passage and to compress the epiglottis and prevent aspiration. A crewmember should apply gentle downward pressure on the cricoid cartilage, start off slowly and then gradually increase the downward force. g. Pass the tube through the vocal cords. Straight blade technique: Follow the steps outlined above, but advance the blade down the hypopharynx, and lift the epiglottis with the tip of the blade to expose the vocal cords.

Step 5: Withdraw the stylet.

Step 6: Connect the bag-valve mask and begin ventilation with 100% oxygen.

Step 7: Verify tube placement.

Step 8: Secure the tube in place with tape or a commercial device.

COMPLICATIONS:

Aspiration

Malpositioning

Dental damage

Injury to lips and gums

Esophageal intubation

Skill assessment:

i. Formative: Demonstration of successful endotracheal intubation in a mannequin with demonstration of all aseptic precautions (5 times).

ii. Summative: Demonstration of successful endotracheal intubation patients with demonstration of all aseptic precautions (5 times each).

ENDOTRACHEAL INTUBATION SKILLS CHECKLIST

☑		EXPECTED STEP	COMENTS
	1.	Operator ensures that all necessary parties are present and ready to begin procedure	
	2.	Necessary equipment gathered and prepared: a. Operator correctly identifies appropriate ETT size, depth, and, laryngoscope size based on weight b. Equipment checked to ensure working properly (laryngoscope light, etc). Operator ensures Ambu bag/suction in place and working properly c. Any other necessary equipment gathered: stylet (if used), surfactant (if necessary), etc.	
	3.	Time out performed	
	4.	Patient's head positioned properly; pt suctioned if necessary	
	5.	Laryngoscope blade inserted properly	
	6.	ETT inserted to appropriate depth and stylet removed (if used)	
	7.	Operator ensures that ETT placement verified using CO2 monitor/auscultation/chest rise and fall	
	8.	Operator ensures patient extubated appropriately or placed on vent at termination of procedure	
	9.	XRay ordered to confirm ETT placement, if necessary	

Suggested Reading:

Books Recommended (latest edition)

1. Fishman's textbook of pulmonary medicine
2. Textbook on Pulmonary disease by Fraser
3. Harrison's principles of internal medicine

HOD
Department of Respiratory Medicine
Dr. VPMCH&RC Adgaon, Nashik

Professor and HOD
Dept. of Respiratory Medicine
Dr. Vasantrao Pawar Medical College
Hospital and Research Centre, Adgaon,
Nashik-422 003

DR. VASANTRAO PAWAR MEDICAL COLLEGE HOSPITAL & RESEARCH CENTER
ADGAON
NASHIK

MVPS VASANTRAO PAWAR MEDICAL COLLEGE,HOSPITAL AND RESEARCH CENTRE VASANTDADA NAGAR, ADGAON,NASHIK.422003

Department of Respiratory Medicine

Module of ICD Insertion for PG students

Introduction

Chest tube insertion is a common therapeutic procedure used to provide evacuation of abnormal collections of air or fluid from the pleural space. Tube thoracostomy may be indicated for pleural effusions associated with malignancy, infection, or hemothorax in the post-surgical setting. In these situations, drainage is imperative to allow for lung re- expansion

2. **Objectives:**
By the completion of this module, the student will be able to:
a. List the indications for ICD Insertion
b. Select the equipment for and choose ICD of appropriate size
c. Enumerate the risks associated with procedure
d. Communicate to the patient about the procedure and care of ICD, including the need for aseptic care
e. Demonstrate correct method of ICD Insertion with strict aseptic technique in patients .

Suggested Teaching Learning method: Observation of procedure performed by senior resident

Pre-requisites
Knowledge of safe triangle and anatomy of thorax
Knowledge of indications/ contraindications ICD
Knowledge of mechanism of drainage of fluid
At least 5 successful supervised observation of procedure.

Indications

1. Pneumothorax (especially if it is large or progressive, or if the patient is symptomatic).
2. Tension pneumothorax.
3. Penetrating chest trauma.
4. Hemothorax.
5. Chylothorax
6. Empyema.
7. Drainage of pleural effusions.
8. Prevention of hydrothorax after cardiothoracic surgery.
9. Bronchopleural fistula

Contraindications

Anticoagulation of a bleeding dyscrasia.
2. Systemic anticoagulation.
3. Small, stable pneumothorax (may spontaneously resolve).
4. Empyema caused by acid-fast organisms.
5. Loculated fluid accumulations

Equipments required:

1. Fentanyl or other pain medication
2. 1% Lidocaine with Epinephrine, 10 ml syringe with 25 gauge needle
3. ChloraPrep
4. Sterile gloves, masks, and hat (gown optional)
5. Sterile tray to include:

a. 4 x 4's b. 2 x 2's c. Drapes
d. Curved mosquito hemostat e. Curved Kelly clamp
f. Scissors
g. Needle holder

6 Sterile thoracotomy tube, Available sizes are 28 F, 32 F, or 36 F. Choose the tube best suited for the patient, or use a sterile 8.5 Fuhrman pigtail catheter if a pigtail catheter is indicated.

7. Scalpel
8. 4-0 silk suture on cutting needle
9. Petroleum-soaked gauze
10. Underwater sealed drainage system or a "Heimlich" valve.

Clinical waste dustbin.

Steps in Adult ICD insertion

Preparation

- Explain the procedure to the paatient and the family without using technical jargon. Tell about the indication for procedure.
- Obtain informed or implied consent, following procedure discussion,
- risks, and benefits.
- Select the site to be punctured
- Physical examination
- Diagnostic – Chest X ray PA and Lateral to confirm
- Always apply universal precautions.
- Current CBC with platelets and differential, serum LDH, albumin, glucose, PT/PTT,
- Have all the equipments on an autoclaved tray.

Procedure

- Identify the insertion site, which is usually the fourth or fifth intercostal space in the mid-to-anterior axillary line (just lateral to the nipple in males), immediately behind the lateral edge of the pectoralis major muscle.
- Assemble the suction-drain system according to manufacturer’s recommendations. Connect the suction system to a wall suction outlet. Adjust the suction as needed until a small, steady stream of bubbles is produced in the water column.
- Prep the skin with povidone-iodine or Chlorhexidine solution and allow to dry. Drape the site with fenestrated sheet. Using the 10 ml syringe and 25 gauge needle, raise a skin wheal at the incision area (in the interspace one rib below the interspace chosen for the pleural insertion) with 1% solution of Lidocaine with Epinephrine.
- Liberally infiltrate the subcutaneous tissue and intercostal muscles, including the tissue above the middle aspect of the inferior rib to the interspace where pleural entry will occur and down to the parietal pleura. Using the anesthetic needle and syringe, aspirate the pleural cavity, and check for the presence of fluid or air. If none is obtained, change the insertion site. Be careful to keep away from the inferior border of the rib to avoid the intercostal vessels.
- Make a 2 to 3 cm transverse incision through the skin and the subcutaneous tissues overlying the interspace. Extend the incision by blunt dissection with a Kelly clamp through the fascia toward

the superior aspect of the rib above. After the superior border of the rib is reached, close and turn the Kelly clamp, and push it through the parietal pleura with steady, firm, and even pressure. Open the clamp widely, close it, and then withdraw it. Be careful to prevent the tip of the clamp from penetrating the lung, especially if no chest radiograph was obtained or if the x-ray film does not clearly show that the lung is retracted from the chest wall

- Insert an index finger to verify that the pleural space, not the potential space between the pleura and chest wall, has been entered. Check for unanticipated findings, such as pleural adhesions, masses, or the diaphragm.
- Grasp the chest tube so that the tip of the tube protrudes beyond the jaws of the clamp, and advance it through the hole into the pleural space using your finger as a guide. Direct the tip of the tube posteriorly for fluid drainage or anteriorly and superiorly for pneumothorax evacuation. Advance it until the last side hole is 2.5 to 5 cm (1 to 2 inches) inside the chest wall. Attach the tube to the previously assembled suction-drainage system. The chest tube should be inserted with the proximal hole at least 2 cm beyond the rib margin. Position of the chest tube with all drainage holes in the pleural space should be assessed by palpation. Confirm the correct location of the chest tube by the visualization of condensation within the tube with respiration or by drained pleural fluid seen within the tube. Ask the patient to cough, and observe whether bubbles form at the water-seal level. If the tube has not been properly inserted in the pleural space, no fluid will drain, and the level in the water column will not vary with respiration.
- Suture the tube in place with 1-0 or 2-0 silk or other nonabsorbent sutures. The two sutures are tied so as to pull the soft tissues snugly around the tube and provide an airtight seal. Tie the first suture across the incision, and then wind both suture ends around the tube, starting at the bottom and working toward the top. Tie the ends of the suture very tightly around the tube, and cut the ends.
- Place a second suture in a horizontal mattress or purse-string stitch around the tube at the skin incision site. Pull the ends of this suture together, and tie a surgeon's knot to close the skin around the tube. Wind the loose ends tightly around the tube, and finish the suture with a bow knot. The bow can be later undone and used to close the skin when the tube is removed. Alternatively, some choose to only use the purse-string to secure the chest tube. This usually involves wrapping the suture around the tube several more times than in the other method to ensure that the tube does not slip from location.
- Place petroleum gauze around the tube where it meets the skin. Make a straight cut into the center of two additional 4 X 4 inch sterile gauze pads, and place them around the tube from opposite directions. Tape the gauze and tube in place, and tape together the tubing connections. Obtain postero-anterior and lateral chest radiographs to check the position of the chest tube and the amount of residual air or fluid as soon as possible after the tube is inserted.
- Use serial chest auscultation, chest radiographs, volume of blood loss, and amount of air leakage to assess the functioning of the chest tube. If a chest tube becomes blocked, it usually may be replaced through the same incision. Chest tubes are generally removed when there has been air or fluid drainage of < 100 ml in 24 hours for more than 24 hours.

Complications

1. Injury to the heart, great vessels, or lung
2. Diaphragmatic perforation
3. Subdiaphragmatic placement of the tube
4. Open or tension pneumothorax
5. Subcutaneous emphysema
6. Unexplained or persistent air leakage
7. Hemorrhage (especially from intercostal artery injury)

8. Recurrent pneumothorax
9. Empyema
10. Lung parenchyma perforation
11. Subcutaneous placement
12. Cardiogenic shock (from chest tube compression of the right ventricle)
13. Infection

Assessment:
The procedure is to be assessed by a faculty member using DOPS format and feedback provided.

Skill assessment:
i. **Formative:** Demonstration of successful ICD insertion with all aseptic precautions in a patient under supervision of senior resident and lecturer.
ii. **Summative:** Demonstration of successful ICD insertion with demonstration of all aseptic precautions during residency.

Suggested Reading:
Books Recommended (latest edition)
1. Fishman's textbook of pulmonary medicine
2. Textbook on Pulmonary disease by Fraser
3. Harrison's principles of internal medicine

HOD
Department of Respiratory Medicine
Dr. VPMCH&RC Adgaon, Nashik

Professor and HOD
Dept. of Respiratory Medicine
Dr. Vasantrao Pawar Medical College
Hospital and Research Centre, Adgaon,
Nashik-422 003

DR. VASANTRAO PAWAR MEDICAL COLLEGE HOSPITAL & RESEARCH CENTER
ADGAON
NASHIK

MVPS VASANTRAO PAWAR MEDICAL COLLEGE,HOSPITAL AND RESEARCH CENTRE VASANTDADA NAGAR, ADGAON,NASHIK.422003

Department of Respiratory Medicine

Module of Pulmonary Function test for PG students

Introduction

Pulmonary function test (PFT) is a complete evaluation of the respiratory system including patient history, physical examinations, and tests of pulmonary function. The primary purpose of pulmonary function testing is to identify the severity of pulmonary impairment.[1] Pulmonary function testing has diagnostic and therapeutic roles and helps clinicians answer some general questions about patients with lung disease.

Pre requisites

Knowledge of Anatomy of the respiratory tract

Knowledge of Physiology of the respiratory tract

Objectives:

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

a. List the indications for Pulmonary function test (PFT).

b. Select the equipment for Pulmonary function test (PFT).

c. Enumerate the contra-indications associated with Pulmonary function test (PFT).

d. Communicate to the patient about the procedure and proper method of doing PFT.

e. Demonstrate correct method of doing Pulmonary function test (PFT).

Suggested Teaching Learning method: Observation of procedure performed by senior resident

Indications

Interstitial fibrosis

• COPD

• Asthma

• Pulmonary vascular disease

Connective tissue disorders

• Neuromuscular diseases

Lung resection

• Abdominal surgery

• Cardiothoracic surgery

Contraindications

Myocardial infarction within the last month

Unstable angina

Recent thoraco-abdominal surgery

Recent ophthalmic surgery

Thoracic or abdominal aneurysm

Current pneumothorax

Pregnancy

Equipments required:

Spirometry

PREPARATION

If you're on medications that open your airways, such as those used for asthma or chronic bronchitis, then not to be used.

It's important that you don't eat a large meal before testing. A full stomach can prevent your lungs from inhaling fully. You should also avoid food and drinks that contain caffeine, such as chocolate, coffee, and tea, before your test. Caffeine can cause your airways to be more open which could affect the results of your test. You should also avoid smoking at least an hour before the test, as well as strenuous exercise before the test.

PROCEDURE

For this test, you'll sit in front of a machine and be fitted with a mouthpiece. It's important that the mouthpiece fits snugly so that all the air you breathe goes into the machine. You'll also wear a nose clip to keep you from breathing air out through your nose. The respiratory technologist will explain how to breathe for the test.

You may then breathe normally. Your doctor will ask you to breathe in and out as deeply or as quickly as you can for several seconds. They may also ask you to breathe in a medication

that opens your airways. You'll then breathe into the machine again to see if the medication affected your lung function.

COMPLICATIONS

Nosocomial infecions

Syncope

Chest pain, muscle cramps, dizziness

Bronchospasm

Skill assessment:

i. Formative: Demonstration of Pulmonary function test (PFT) inn patients.

ii. Summative: Demonstration of Pulmonary function test (PFT) in male and female patients.

HOD
Department of Respiratory Medicine
Dr. VPMCH&RC Adgaon, Nashik

Professor and HOD
Dept. of Respiratory Medicine
Dr. Vasantrao Pawar Medical College
Hospital and Research Centre, Adgaon,
Nashik-422 003

DR. VASANTRAO PAWAR MEDICAL COLLEGE HOSPITAL & RESEARCH CENTER
ADGAON
NASHIK

SPIROMETRY CHECK List

Patient checks prior to spirometry test			
Wearing loose fitting clothing?	Yes/No	Bladder empty?	Yes/No
No large meal in past 2 hours	Yes/No	No smoking for 24 hours?	Yes/No
No vigorous exercise past 30 minutes	Yes/No		
Prior to reversibility testing, withhold inhalers where possible a) Short-acting bronchodilators and anticholinergics for 4-6 hours b) Long-acting brocholdilators for at least 12 hours c) Long-acting anicholinergics for at least 24 hours d) Sustained release oral bronchodilators for 24 hours NB This is not necessary when undertaking post bronchodilator spirometry or for annual review when all normal inhalers should be taken as usual			 Yes/No/NA Yes/No/NA Yes/No/NA Yes/No/NA
Within past 6 weeks has patient had any of the following. If yes, Spirometry not to be undertaken			
Myocardial Infarction	Yes/No	Stroke or TIA	Yes/No
Abdominal/thoracic/brain surgery	Yes/No	Pulmonary Embolism	Yes/No
Any eye or ear problems or surgery	Yes/No	Chest Infection	Yes/No
Worsening angina/unstable angina	Yes/No	Coughing up blood in sputum	Yes/No
Postpone Spirometry if any of the following present today or past week			
Blood Pressure > 160/100 today	Yes/No	Any nausea or vomiting	Yes/No
Any neck or spine problems	Yes/No		
Has patient any of the following? If yes, do not perform Spirometry without expert advice			
Abdominal or cerebral aneurysms	Yes/No	Previous pneumothorax	Yes/No

COMPLETE SPIROMETRY

Complete patient details on spirometer including
a) Height – measure accurately. If not possible (wheelchair, kyphoscoliosis etc) measure arms span from middle finger tip to middle finger tip b) Weight (if required) c) Sex
d) Record correct ethnicity e) Record correct date of birth

Preparation of patient - Sitting upright in chair with arms (standing if child)

Full explanation of SVC/RVC procedure to patient including
a) Full deep inspiration until lungs full b) Pinching nose/nose clip
c) Sealing mouthpiece with lips d) Steady long breath out until unable to blow out any more
e) Do not bend forward at waist whilst blowing

Demonstration by practitioner of SVC/RVC blow

Procedure completed by patient
a) Give lots of encouragement b) Ensure good technique, no coughing etc
c) At least 3 good blows completed ensuring the best 2 are within 100ml or 5%

Full explanation of FVC procedure to patient
a) Full deep inspiration until lungs full b) Pinching nose etc not usually required
c) Sealing mouthpiece with lips d) Forced fast breath out until unable to blow out any more
e) Do not bend forward at waist whilst blowing

Demonstration by practitioner of FVC blow

Procedure completed by patient
a) Encouragement given throughout b) Ensure good technique, no coughing etc
c) At least 3 good blows completed (maximum 8) ensuring the best 2 are within 100ml or 5%

Reversibility testing
a) Perform SVC and FVC as above
b) Give appropriate drug e.g. 4 individual puffs 100mcg Salbutamol via large volume spacer
c) Ensure wait 15 minutes for bronchodilation effect
d) Repeat FVC procedure. Ensure minimum 3 blows e) Best 2 blows to be within 100ml or 5%

CHECK TRACING

Check list for spirometry tracing a) Check name, age, date of birth, height, weight, sex and ethnicity correct b) SVC Minimum 3 good blows. Best 2 are within 100ml or 5% c) FVC Minimum 3 good blows (max 8). Best 2 are within 100ml or 5% d) If reversibility test done, ensure at least 15 minutes after baseline FVC e) Post bronchodilator FVC minimum 3 good blows. Best 2 are within 100ml or 5%	Yes/No Yes/No/NA Yes/No Yes/No/NA Yes/No/NA
Volume time curve – ensure traces smooth, convex, rise steeply upwards, free from irregularities and have reached a plateaux	Yes/No/NA
Flow volume trace must reach a peak and then merge with baseline	Yes/No/NA

RESULTS

	SVC	FVC	FEV1	FEV1/FVC	Post FVC	Post FEV1	Post FEV1/FVC
Predicted							
Actual							
% predicted							
Change mls							
Change %							

Module of Pleural Aspiration for PG students

Introduction

A thoracentesis is a surgical puncture of the chest wall to aspirate fluid or air from the pleural cavity. A pleural effusion is an abnormal accumulation of fluid in the pleural space.

2. **Objectives:**
By the completion of this module, the student will be able to:
a. List the indications for Pleural aspiration
b. Select the equipment for pleural aspiration
c. Enumerate the risks associated with procedure
d. Communicate to the patient about the procedure, including the need for aseptic care
e. Demonstrate correct method of pleural aspiration with strict aseptic technique in patients

Suggested Teaching Learning method: Observation of procedure under senior resident and lecturer

Pre-requisites
Knowledge of lymphatic , venous drainage of pleura , anatomy of pleura
Knowledge of indications/ contraindications of pleural aspiration,
At least 5 successful supervised practice sessions on arm of rubber mannequin.

Indications

Pleural effusion
Pleural fluid therapeutically in the event of respiratory distress

Contraindications

1. Thrombocytopenia, platelets < 50,000
2. Clotting abnormalities (Prothrombin time (PT), partial thromboplastin time prolongation >1.5 times normal), or anticoagulation therapy
3. Severe cough or hiccups (uncontrolled)
4. patient on mechanical ventilation

Equipments required:

1. Sterile gloves,
2. Prepared thoracentesis tray or:
a. Stopcock
b. Blood transfer set
c. 18-20 gauge 2” angiocatheter
d. 4X4 gauze pads, 5 ml syringe with 25- 27 gauge 55//8” needle & 22 gauge needle
3. 1% lidocaine
4. Chlorhexadine solution
5. Hemostat

6. 1 liter evacuated containers
7. (2) specimen containers
8. Sterile drapes
9. Sterile occlusive dressing
Clinical waste dustbin.

Steps in Pleural Aspiration
Preparation

- Explain the procedure to the paatient and the family without using technical jargon. Tell about the indication for procedure.
- Obtain informed or implied consent, following procedure discussion,
- risks, and benefits.
- Select the site to be punctured
- Physical examination
- Diagnostic – Chest X ray PA and Lateral to confirm
- Always apply universal precautions.
- Current CBC with platelets and differential, serum LDH, albumin, glucose, PT/PTT,
- Have all the equipments on an autoclaved tray.

Procedure
1. Position patient in the sitting position with arms and head resting supported on a bedside adjustable table. If unable to sit, the patient should lie at the edge of the bed on the affected side with the ipsilateral arm over the head and the midaxillary line accessible for the insertion of the needle. Elevating the head of the bed to 30 degrees may help.
2. The usual site for insertion of the thoracentesis needle is the posteriolateral aspect of the back over the diaphragm, but under the fluid level. Confirm site by counting the ribs based on chest x-ray and percussing out the fluid level. Mark the top of the dullness by washable ink mark or indenting the skin.
3. Select the thoracentesis site in an interspace below the point of dullness to percussion in the midposterior line (posterior insertion) or midaxillary line (lateral insertion).
4. Sterile technique should be used including gloves, Chlorhexadine prep and drapes.
5. Anesthetize the skin over the insertion site with 1% lidocaine using the 5 ml syringe with 25 or 27-gauge needle. Next anesthetize the superior surface of the rib and the pleura. The needle is inserted over the top of rib (superior margin) to avoid the intercostals nerves and blood vessels that run on the underside of the rib (the intercostals nerve and the blood supply are located near the inferior margin). As the needle is inserted, aspirate back on the syringe to check for pleural fluid. Once fluid returns, note the depth of the needle and mark it with a hemostat. This gives an approximate depth for insertion of the angiocatheter or thoracentesis needle. Remove the anesthetizing needle. 6. Use a hemostat to measure the same depth on the thoracentesis needle or angiocath as the first needle. While exerting steady pressure on the patient's back with the nondominant hand, use a hemostat to measure the 15- to 18-gauge thoracentesis needle to the same depth as the first needle. While exerting steady pressure on the patient's back with the nondominant hand, insert the needle through the anesthetized area with the thoracentesis needle. Advance the needle until it encounters the superior aspect of the rib. Continue advancing the needle over the top of the rib and through the pleura, maintaining constant gentle suction on the syringe. Make sure you march over the top of the rib to avoid the neurovascular bundle that runs below the rib.
7. Attach the three way stopcock and tubing, and aspirate the amount needed. Turn the stopcock and evacuate the fluid through the tubing.
8. Remove the necessary amount of pleural fluid (usually 100 mL for diagnostic studies), but generally not remove more than 1500 mL of fluid at any one time because of increased risk of pleural edema or

hypotension. A pneumothorax from needle laceration of the visceral pleura is more likely to occur if an effusion is completely drained.
9. When draining of fluid is completed, have the patient take a deep breath and hum, and gently remove the needle. This maneuver increases intrathoracic pressure and decreases the chance of pneumothorax. Cover the insertion site with a sterile occlusive dressing.

Complications

- Pain
- Bleeding
- Pneumothorax
- Infection
- Reexpansion pulmonary edema
-

Assessment:
The procedure is to be assessed by a faculty member using DOPS format and feedback provided.

Skill assessment:
i. **Formative:** Demonstration of successful pleural aspiration with all aseptic precautions under supervision of senior resident and lecturer.
ii. **Summative:** Demonstration of successful pleural aspiration with demonstration of all aseptic precautions during residency , performed independently in second and third year

Suggested Reading:
Books Recommended (latest edition)
1. Fishman's textbook of pulmonary medicine
2. Textbook on Pulmonary disease by Fraser
3. Harrison's principles of internal medicine

HOD
Department of Respiratory Medicine
Dr. VPMCH&RC Adgaon, Nashik

Professor and HOD
Dept. of Respiratory Medicine
Dr. Vasantrao Pawar Medical College
Hospital and Research Centre, Adgaon,
Nashik-422 003

DR. VASANTRAO PAWAR MEDICAL COLLEGE HOSPITAL & RESEARCH CENTER
ADGAON
NASHIK

MVPS VASANTRAO PAWAR MEDICAL COLLEGE,HOSPITAL AND RESEARCH CENTRE VASANTDADA NAGAR, ADGAON,NASHIK.422003

Department of Respiratory Medicine

Module of Pleural Aspiration for UG students

Introduction

A thoracentesis is a surgical puncture of the chest wall to aspirate fluid or air from the pleural cavity. A pleural effusion is an abnormal accumulation of fluid in the pleural space.

2. **Objectives:**
By the completion of this module, the student will be able to:
a. List the indications for Pleural aspiration
b. Select the equipment for pleural aspiration
c. Enumerate the risks associated with procedure
d. Communicate to the patient about the procedure, including the need for aseptic care
e. Observe correct method of pleural aspiration with strict aseptic
technique in patient under senior resident and lecturer

Suggested Teaching Learning method: Lecture and demonstration of procedure

Pre-requisites

Knowledge of lymphatic , venous drainage of pleura , anatomy of pleura
Knowledge of indications/ contraindications of pleural aspiration,
At least 5 successful supervised practice sessions on arm of rubber mannequin.

Indications

Pleural effusion
Pleural fluid therapeutically in the event of respiratory distress

Contraindications

1. Thrombocytopenia, platelets < 50,000
2. Clotting abnormalities (Prothrombin time (PT), partial thromboplastin time prolongation >1.5 times normal), or anticoagulation therapy
3. Severe cough or hiccups (uncontrolled)
4. patient on mechanical ventilation

Equipment's required:

1. Sterile gloves,
2. Prepared thoracentesis tray or:
a. Stopcock
b. Blood transfer set
c. 18-20 gauge 2" angiocatheter
d. 4X4 gauze pads, 5 ml syringe with 25- 27 gauge 55//8" needle & 22 gauge needle
3. 1% lidocaine
4. Chlorhexidine solution
5. Haemostat

6. 1 liter evacuated containers
7. (2) specimen containers
8. Sterile drapes
9. Sterile occlusive dressing
Clinical waste dustbin.

Steps in Pleural Aspiration
Preparation

- Explain the procedure to the patient and the family without using technical jargon. Tell about the indication for procedure.
- Obtain informed or implied consent, following procedure discussion,
- risks, and benefits.
- Select the site to be punctured
- Physical examination
- Diagnostic – Chest X ray PA and Lateral to confirm
- Always apply universal precautions.
- Current CBC with platelets and differential, serum LDH, albumin, glucose, PT/PTT,
- Have all the equipment's on an autoclaved tray.

Procedure
1. Position patient in the sitting position with arms and head resting supported on a bedside adjustable table. If unable to sit, the patient should lie at the edge of the bed on the affected side with the ipsilateral arm over the head and the midaxillary line accessible for the insertion of the needle. Elevating the head of the bed to 30 degrees may help.
2. The usual site for insertion of the thoracentesis needle is the posterolateral aspect of the back over the diaphragm, but under the fluid level. Confirm site by counting the ribs based on chest x-ray and percussing out the fluid level. Mark the top of the dullness by washable ink mark or indenting the skin.
3. Select the thoracentesis site in an interspace below the point of dullness to percussion in the midposterior line (posterior insertion) or midaxillary line (lateral insertion).
4. Sterile technique should be used including gloves, Chlorhexadine prep and drapes.
5. Anesthetize the skin over the insertion site with 1% lidocaine using the 5 ml syringe with 25 or 27-gauge needle. Next anesthetize the superior surface of the rib and the pleura. The needle is inserted over the top of rib (superior margin) to avoid the intercostals nerves and blood vessels that run on the underside of the rib (the intercostals nerve and the blood supply are located near the inferior margin). As the needle is inserted, aspirate back on the syringe to check for pleural fluid. Once fluid returns, note the depth of the needle and mark it with a haemostat. This gives an approximate depth for insertion of the angiocatheter or thoracentesis needle. Remove the anesthetizing needle. 6. Use a hemostat to measure the same depth on the thoracentesis needle or angiocath as the first needle. While exerting steady pressure on the patient's back with the nondominant hand, use a hemostat to measure the 15- to 18- gauge thoracentesis needle to the same depth as the first needle. While exerting steady pressure on the patient's back with the nondominant hand, insert the needle through the anesthetized area with the thoracentesis needle. Advance the needle until it encounters the superior aspect of the rib. Continue advancing the needle over the top of the rib and through the pleura, maintaining constant gentle suction on the syringe. Make sure you march over the top of the rib to avoid the neurovascular bundle that runs below the rib.
7. Attach the three way stopcock and tubing, and aspirate the amount needed. Turn the stopcock and evacuate the fluid through the tubing.

8. Remove the necessary amount of pleural fluid (usually 100 mL for diagnostic studies), but generally not remove more than 1500 mL of fluid at any one time because of increased risk of pleural edema or hypotension. A pneumothorax from needle laceration of the visceral pleura is more likely to occur if an effusion is completely drained.
9. When draining of fluid is completed, have the patient take a deep breath and hum, and gently remove the needle. This maneuver increases intrathoracic pressure and decreases the chance of pneumothorax. Cover the insertion site with a sterile occlusive dressing.

Complications

- Pain
- Bleeding
- Pneumothorax
- Infection
- Re expansion pulmonary edema
-

Assessment:
The procedure is to be assessed by a faculty member using DOPS format and feedback provided.
Skill assessment:
Viva and assessment by checklist of procedure

Suggested Reading:
Books Recommended (latest edition)
1. Fishman's textbook of pulmonary medicine
2. Textbook on Pulmonary disease by Fraser
3. Harrison's principles of internal medicine

HOD
Department of Respiratory Medicine
Dr. VPMCH&RC Adgaon, Nashik

Professor and HOD
Dept. of Respiratory Medicine
Dr. Vasantrao Pawar Medical College
Hospital and Research Centre, Adgaon,
Nashik-422 003

DR. VASANTRAO PAWAR MEDICAL COLLEGE HOSPITAL & RESEARCH CENTER
ADGAON
NASHIK

Module for Nebulisation for UG students

Introduction

The aim of nebuliser therapy is to safely and effectively deliver a therapeutic dose of the required drug to the patient as an aerosol in the form of respiratory particles within a fairly short time usually 5 – 10 minutes.

2. **Objectives:**

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

a. List the indications for nebulisation

b. Select the equipment and appropriate drugs for nebulisation.

c. Communicate to the patient about the nebulisation.

d. Demonstrate correct method of nebulisation with due technique in patients.

Suggested Teaching Learning method: Demonstration and group discussion

Pre-requisites

Knowledge of nebuliser machine

Knowledge of indications/ contraindications of nebulisation

Knowledge of medications to use in nebulisation

Indications

Nebulisers are preferable to hand held inhalers when:

- Large drug doses are needed;
- Controlled co-ordinated breathing is difficult, e.g. in sick patients with acute severe asthma or an exacerbation of chronic obstructive pulmonary disease (COPD);
- The patient has chronic lung disease and hand held inhalers have been found ineffective in these circumstances;
- Drugs such as antibiotics are unavailable as an inhaler or nebuliser administration is preferred.

Contraindications

Drug insensitivity.

Equipment's required:

A Compressor at a flow rate of 6-8 litres/minute. Nursing staff should make sure they are competent to use this device

- Nebuliser chamber and mouthpiece/face mask set. Please note: **These are for single patient use only.**

- Straight tubing must be used in order to maintain the correct flow and to avoid disconnection. Bubble tubing should never be used, as it does not maintain a constant flow rate. Tubing is also **single patient use only.**

- Prescription chart

- Prescribed medication

Steps

Preparation

Treatment should be given using either an electrical compressor or compressed air. In acute severe asthma, oxygen as prescribed should be used as the driving gas whenever possible

- The volume of fluid in the nebuliser chamber is usually 2-4.5mls, although this may vary depending on the drug to be administered.

- Bronchodilators such as salbutamol (2.5mls) and ipratropium bromide (2mls) may be combined to make up to 4.5mls

The normal nebulising time is approximately 5-10 minutes. However, owing to the viscosity of antibiotics and steroids, nebulising time may need to be increased.

- The nebulisation of particles to 1-5 microns is more likely to penetrate to the smaller conducting airways thus producing an optimal treatment effect

- Bronchodilator responses are the same whether a mask or a mouthpiece is used. Face masks are better for children and for emergencies. Mouthpieces are recommended when steroids, antibiotics or antimuscarinic bronchodilators (anticholinergics) are being nebulised. If a face mask is used, it should be close fitting and not held away from the face

- Nebulisers just before meals may spoil an already small appetite, but other patients who are severely breathless may need the bronchodilation to give them breath to eat.

Procedure

- Check prescription chart according to the local drug administration policy to ascertain type of medication and correct dosage needed. Check drug and expiry date. Undertake positive patient identification in accordance with Trust policy.
- Assist the patient into a comfortable position, preferably sitting upright, and advise to take normal steady breaths (tidal breathing).
- An explanation about the nebuliser and its effects may be necessary.
- If appropriate, measure peak flow and record on chart.
- Wash and dry hands Place medication into nebuliser

Chamber.

- Connect one end of the tubing to the gas delivery system and the other end to the nebuliser chamber.
- Select mouthpiece or face mask and connect to the nebuliser chamber.
- Fit the mask to the patient or ensure the mouthpiece is ready for use prior to starting the nebuliser
- Switch Compressor on Only when specified by medical

advice use oxygen. Set the oxygen flow meter to 6-8 litres/minute. Additional monitoring is required to avoid potential for hypercapnic respiratory failure in patients with COPD

- Observe the patient during the procedure for any change in condition.

- Occasionally tap the nebuliser pot during nebulisation. The patient could be encouraged to do this if able.
- Keep the nebuliser chamber upright.
- Nebulisation should be complete within 5-10 minutes. There will always be a small amount of fluid left in the chamber.
- Switch off the compressor.
- Ensure that the nebuliser mask and chamber are rinsed with sterile water, between doses, when administering more than one type of medication via the nebuliser.

Complications
Mask discomfort and facial soreness
Oronasal drying
Sinus congestion
Infection
Over hydration leading to pulmonary edema
Wheezing
Ultra fine particulatrs can act as irritant to cause bronchospasms

Skill assessment:
Ask to perform the correct technique on healthy subject or patient
Ask the student to prepare checklist of procedure

Suggested Reading:
Books Recommended (latest edition)
1. Fishman's textbook of pulmonary medicine
2. Textbook on Pulmonary disease by Fraser
3. Harrison's principles of internal medicine

HOD
Department of Respiratory Medicine
Dr. VPMCH&RC Adgaon, Nashik

Professor and HOD
Dept. of Respiratory Medicine
Dr. Vasantrao Pawar Medical College
Hospital and Research Centre, Adgaon,
Nashik-422 003

DR. VASANTRAO PAWAR MEDICAL COLLEGE HOSPITAL & RESEARCH CENTER
ADGAON
NASHIK

Module for Nebulisation for UG students

Introduction

The aim of nebuliser therapy is to safely and effectively deliver a therapeutic dose of the required drug to the patient as an aerosol in the form of respiratory particles within a fairly short time usually 5 – 10 minutes.

2. **Objectives:**

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

a. List the indications for nebulisation

b. Select the equipment and appropriate drugs for nebulisation.

c. Communicate to the patient about the nebulisation.

d. Demonstrate correct method of nebulisation with due technique in patients.

Suggested Teaching Learning method: Demonstration and group discussion

Pre-requisites

Knowledge of nebuliser machine

Knowledge of indications/ contraindications of nebulisation

Knowledge of medications to use in nebulisation

Indications

Nebulisers are preferable to hand held inhalers when:

- Large drug doses are needed;
- Controlled co-ordinated breathing is difficult, e.g. in sick patients with acute severe asthma or an exacerbation of chronic obstructive pulmonary disease (COPD);
- The patient has chronic lung disease and hand held inhalers have been found ineffective in these circumstances;
- Drugs such as antibiotics are unavailable as an inhaler or nebuliser administration is preferred.

Contraindications

Drug insensitivity.

Equipment's required:

A Compressor at a flow rate of 6-8 litres/minute. Nursing staff should make sure they are competent to use this device

- Nebuliser chamber and mouthpiece/face mask set. Please note: **These are for single patient use only.**

- Straight tubing must be used in order to maintain the correct flow and to avoid disconnection. Bubble tubing should never be used, as it does not maintain a constant flow rate. Tubing is also **single patient use only.**

- Prescription chart

- Prescribed medication

Steps

Preparation

Treatment should be given using either an electrical compressor or compressed air. In acute severe asthma, oxygen as prescribed should be used as the driving gas whenever possible

- The volume of fluid in the nebuliser chamber is usually 2-4.5mls, although this may vary depending on the drug to be administered.

- Bronchodilators such as salbutamol (2.5mls) and ipratropium bromide (2mls) may be combined to make up to 4.5mls

The normal nebulising time is approximately 5-10 minutes. However, owing to the viscosity of antibiotics and steroids, nebulising time may need to be increased.

- The nebulisation of particles to 1-5 microns is more likely to penetrate to the smaller conducting airways thus producing an optimal treatment effect

- Bronchodilator responses are the same whether a mask or a mouthpiece is used. Face masks are better for children and for emergencies. Mouthpieces are recommended when steroids, antibiotics or antimuscarinic bronchodilators (anticholinergics) are being nebulised. If a face mask is used, it should be close fitting and not held away from the face

- Nebulisers just before meals may spoil an already small appetite, but other patients who are severely breathless may need the bronchodilation to give them breath to eat.

Procedure

- Check prescription chart according to the local drug administration policy to ascertain type of medication and correct dosage needed. Check drug and expiry date. Undertake positive patient identification in accordance with Trust policy.
- Assist the patient into a comfortable position, preferably sitting upright, and advise to take normal steady breaths (tidal breathing).
- An explanation about the nebuliser and its effects may be necessary.
- If appropriate, measure peak flow and record on chart.
- Wash and dry hands Place medication into nebuliser

Chamber.

- Connect one end of the tubing to the gas delivery system and the other end to the nebuliser chamber.
- Select mouthpiece or face mask and connect to the nebuliser chamber.
- Fit the mask to the patient or ensure the mouthpiece is ready for use prior to starting the nebuliser
- Switch Compressor on Only when specified by medical

advice use oxygen. Set the oxygen flow meter to 6-8 litres/minute. Additional monitoring is required to avoid potential for hypercapnic respiratory failure in patients with COPD

- Observe the patient during the procedure for any change in condition.

- Occasionally tap the nebuliser pot during nebulisation. The patient could be encouraged to do this if able.
- Keep the nebuliser chamber upright.
- Nebulisation should be complete within 5-10 minutes. There will always be a small amount of fluid left in the chamber.
- Switch off the compressor.
- Ensure that the nebuliser mask and chamber are rinsed with sterile water, between doses, when administering more than one type of medication via the nebuliser.

Complications
Mask discomfort and facial soreness
Oronasal drying
Sinus congestion
Infection
Over hydration leading to pulmonary edema
Wheezing
Ultra fine particulatrs can act as irritant to cause bronchospasms

Skill assessment:
Ask to perform the correct technique on healthy subject or patient
Ask the student to prepare checklist of procedure

Suggested Reading:
Books Recommended (latest edition)
1. Fishman's textbook of pulmonary medicine
2. Textbook on Pulmonary disease by Fraser
3. Harrison's principles of internal medicine

HOD
Department of Respiratory Medicine
Dr. VPMCH&RC Adgaon, Nashik

Professor and HOD
Dept. of Respiratory Medicine
Dr. Vasantrao Pawar Medical College
Hospital and Research Centre, Adgaon,
Nashik-422 003

DR VASANTRAO PAWAR MEDICAL COLLEGE,HOSPITAL AND RESEARCH CENTRE,

VASANTDADA NAGAR, ADGAON, NASHIK 422003

Department of Respiratory Medicine

Blue Printing of PG question papers

Skeleton of the assessment tool

Question pattern/type	No. of items	Marks	Marks including options
LAQs	2 (25 marks each)	50	50
SAQs	5 out of **6** (10 marks each)	50	60
Total	8	100	110

DR VASANTRAO PAWAR MEDICAL COLLEGE HOSPITAL & RESEARCH CENTER ★ ADGAON NASHIK

Calculation of weightage of each topic
Paper 1

Sr. No.	Topic	Impact (I)	Frequency (F)	W = I X F
1	Anatomy			3
2	Physiology			2
3	Pathology			2
4	Microbiology			2
5	Tuberculosis	2	3	6
6	Public Health			3
7	Surgical aspects	2	2	4

Calculate the marks allotted to each topic
Paper1

Sr. No.	Topic	W = I X F	Marks allotted
1	Anatomy	3	15
2	Physiology	2	10
3	Pathology	2	10
4	Microbiology	2	10
5	Tuberculosis	6	30
6	Public Health	3	15
7	Surgical aspects	4	20
	TOTAL	22	110

Decide the types of questions as per allotted marks

Paper 1

Sr. No.	Topic	W = I X F	Marks allotted	LAQs	SAQs
1	Anatomy	3	15	1	1
2	Physiology	2	10		1
3	Pathology	2	10		1
4	Microbiology	2	10		1
5	Tuberculosis	6	30	1	1
6	Public Health	3	15		
7	Surgical aspects	4	20	1	1
8	TOTAL	22	110	3 (any 2 out of 3)	6

Calculation of weightage of each topic
Paper 2

Sr. No.	Topic	Impact (I)	Frequency (F)	W = I X F
1	Pneumonia	2	3	6
2	OSA	2	2	4
3	Airway Diseases	2	3	6
4	ILD	2	1	2
5	Malignancy	2	2	4
6	Pleural Disease	1	2	2
7	OLD	2	2	4

Calculate the marks allotted to each topic
Paper 2

Sr. No.	Topic	W = I X F	Marks allotted
1	Pneumonia	6	30
2	OSA	4	20
3	Airway Diseases	6	30
4	ILD	2	10
5	Malignancy	4	20
6	Pleural Disease	2	10
7	OLD	4	20
	TOTAL	28	140

Decide the types of questions as per allotted marks
Paper 2

Sr. No.	Topic	W = I X F	Marks allotted	LAQs	SAQs
1	Pneumonia	6	30	1	1
2	OSA	4	20		1
3	Airway Diseases	6	30	1	1
4	ILD	2	10		1
5	Malignancy	4	20	1	1
6	Pleural Disease	2	10		1
7	OLD	4	20		1
	TOTAL	28	140	3(any 2 out of 3)	7 (any 6 out of 7)

Calculation of weightage of each topic
Paper 3

Sr. No.	Topic	Impact (I)	Frequency (F)	W = I X F
1	ARDS	3	2	6
2	Cor Pulmonale	2	2	4
3	PAH	2	2	4
4	Acid Base disorder	2	2	4
5	Autoimmune diseases	2	1	2
6	MODS	3	2	6
7	Pulmonary manifestations in CTD	2	2	4

Calculate the marks allotted to each topic
Paper 3

Sr. No.	Topic	W = I X F	Marks allotted
1	ARDS	6	15
2	Cor Pulmonale	4	10
3	PAH	4	10
4	Acid Base disorder	4	10
5	Autoimmune diseases	2	30
6	MODS	6	15
7	Pulmonary manifestations in CTD	4	20
	TOTAL	30	110

Decide the types of questions as per allotted marks
Paper 3

Sr. No.	Topic	W = I X F	Marks allotted	LAQs	SAQs
1	ARDS	6	15	1	
2	Cor Pulmonale	4	10	1	1
3	PAH	4	10	1	1
4	Acid Base disorder	4	10		1
5	Autoimmune diseases	2	30		1
6	MODS	6	15	1	1
7	Pulmonary manifestations in CTD	4	20		1
	TOTAL	30	110	4(any 2 out of 4)	6

Calculation of weightage of each topic
Paper 4

Sr. No.	Topic	Impact (I)	Frequency (F)	W = I X F
1	Interventional- Procedure (Bronchoscopy EBUS TBNA Thoracoscopy)	1	1	1
2	Newer treatment guidelines	3	2	6
3	Lung Transplant	2	2	4
4	ECMO	3	1	3
5	Bronchial thermoplasty	1	1	1
6	Radio diagnosis in lung (X RAY CT , PET , MRI)	2	2	4
7	Mechanical ventillation			3

Calculate the marks allotted to each topic

Paper 4

Sr. No.	Topic	W = I X F	Marks allotted
1	Interventional- Procedure (Bronchoscopy EBUS TBNA Thoracoscopy)	1	10
2	Newer treatment guidelines	6	30
3	Lung Transplant	4	20
4	ECMO	3	15
5	Bronchial thermoplasty	1	10
6	Radio diagnosis in lung (X RAY CT , PET , MRI)	4	20
7	Mechanical ventilation	3	15
	TOTAL	22	120

Decide the types of questions as per allotted marks
Paper 4

Sr. No.	Topic	W = I X F	Marks allotted	LAQs	SAQs
1	Interventional- Procedure (Bronchoscopy EBUS TBNA Thoracoscopy)	1	10		1
2	Newer treatment guidelines	6	30	1	1
3	Lung Transplant	4	20	1	
4	ECMO	3	15		1
5	Bronchial thermoplasty	1	10		1
6	Radio diagnosis in lung (X RAY CT , PET , MRI)	4	20		1
7	Mechanical ventilation	3	15		1
8	TOTAL		120	2	6

DR. VASANTRAO PAWAR MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTER, VASANTDADA NAGAR, ADGAON, NASHIK. 422003

Department of Respiratory Medicine

OSCE

For PG students 5 stations will be set ; students will rotate through each Station. There will be 5 examiners who will asses the students. At each Station task will be given to the students to judge communication, clinical Practical skills. Examiner will be appointed for each station. At each station There will be interaction between examiner and students. The marking Scheme for each station is structured. Check list is prepared for each station Based on skills to be tested . Student instructions are prepared.

Stations:

Students Instruction :

Station I – Real patient

Old man has come to OPD with breathlessness grade 2 and cough

You are attending resident doctor. Take a history.

Time -15 minutes

Station II – Examination of respiratory system

Perform a thorough clinical examination with -Inspection, palpation,

Percussion, auscultation of respiratory system and give the probable

Clinical diagnosis.

Time-15 minutes

Station III–Interpret the blood test and X-Ray report of the patient

Give diagnosis of X-Ray

Time-10 minutes

Station IV – Check the PEFR the patient.

Write indications of PEFR

Perform the technique of PEFR on the subject.

Station V – Pleural Biopsy

Write the indications and contraindications of pleural biopsy

Procedure of pleural biopsy.

Explain with the help of pleural biopsy needle.

Examiner instructions:

Station I : Test communication skill of the student.

Observe him taking the history.

Assess him according to checklist marks.

Marks - 20

Station II : Assess the clinical skills of the student.

Observe him while examining the patient.

Assess according to check list marks.

Marks - 20

Station III : Ask the student to interpret the blood and sputum report of the patient.

Ask him to read X-ray.

Check his d/d and provisional diagnosis.

Marks -20

Station IV : Observe the technique of PEFR performed by the student.

Check indications and contraindications of PEFR written by him.

Marks - 20

Station V : Check indications and contraindications of pleural biopsy.

Ask him to explain the procedure.

Check the right way of performing the procedure.

Marks – 20

HOD
Department of Respiratory Medicine
Dr. VPMCH&RC Adgaon, Nashik

DR. VASANTRAO PAWAR MEDICAL COLLEGE HOSPITAL & RESEARCH CENTER ADGAON NASHIK

Professor and HOD
Dept. of Respiratory Medicine
Dr. Vasantrao Pawar Medical College
Hospital and Research Centre, Adgaon,
Nashik-422 003

DR. VASANTRAO PAWAR MEDICAL COLLEGE, HOSPITAL AND RESEARCH CENTER, VASANTDADA NAGAR, ADGAON, NASHIK. 422003

Department of Respiratory Medicine

CHECK LIST FOR EXAMINER

Station	Points to check	Marks
Station I	Building relationship with patient	4
	Opens the discussion	4
	Gathers information	4
	Understands Patients perspective	4
	Manages flow	4
Station II	Respiratory General Examination	5
	Systemic examination Inspection	3
	Palpitations	3
	Percussion	4
	Auscultation	5
Station III	Blood report interpretation	5
	Sputum Report	5
	X ray reading	5
	Differential Provisional diagnosis	5
Station IV	Indications and contraindications of PERR	5
	Observe the technique each step	15
Station V :	Procedure Explanation	5
	Indication and contra indications	5
	Procedure demo	10

HOD
Department of Respiratory Medicine
Dr. VPMCH&RC Adgaon, Nashik

Professor and HOD
Dept. of Respiratory Medicine
Dr. Vasantrao Pawar Medical College
Hospital and Research Centre, Adgaon,
Nashik-422 003

DR. VASANTRAO PAWAR MEDICAL COLLEGE HOSPITAL & RESEARCH CENTER
ADGAON
NASHIK