

# SYLLABUS FOR PHD IN RESPIRATORY MEDICINE

## Basic sciences related to Respiratory Medicine

1. **Anatomy:** Lungs and thorax

2. **Embryology:** - stages of development, genetic, molecular and cellular basis of development, developmental anomalies.

3. **Physiology:-**

- Respiratory mechanics including physiological basis of PFT.
- Blood gas transport, Acid base balances, Arterial blood gas (ABG) analysis.
- Control of ventilation.
- Physiological basis of pulmonary surfactant system & alveolar homeostasis.
- Sleep physiology.
- Physiology of mechanical ventilation.
- Patho-physiology of all diseases pertaining to pulmonary medicine.

4. **Lung immunology:-**

- Pulmonary defence mechanism against infection.
- Lung injury & repair.

5. **Symptom & Signs of Respiratory diseases & Diagnosis**

- Approach to a patient with respiratory symptoms.
- Pulmonary – systemic interactions.
- Radiographic evaluation of the chest.
- Pulmonary cytopathology.
- Pulmonary function testing & scintigraphic evaluation of pulmonary diseases.
- Bronchoscopy/thoracoscopy/Mediastinoscopy & related procedures.
- Interventional radiology of thorax.
- Cardio pulmonary exercise testing.
- Peri-operative respiratory assessment.
- Impairment & disability due to lung diseases.

## Tuberculosis

- Epidemiology, pathogenesis, pathophysiology & symptomatology.
- Diagnostic Methods.
- Pulmonary Tuberculosis.
- Extra pulmonary Tuberculosis.
- Non-Tuberculosis Mycobacterium (NTM) and related diseases.
- Tuberculosis & other co- morbidities including HIV.
- Anti-tuberculosis drugs: first and second line.
- Management: General, Medical & Surgical management.
- Complications of tuberculosis.

- Drug resistant tuberculosis: MDR, XDR, XXDR.
- Landmarks studies for DOTS.
- RNTCP, WHO, ISTC, & other international guidelines.
- Recent advances in Diagnosis & Management of tuberculosis.

## **Pulmonary Disorder other than TB**

### **Obstructive lung diseases**

- COPD:- Epidemiology, etiology, pathophysiology, pathogenesis, Diagnostic criteria, differential diagnosis, Clinical course & Management, complications, GOLD guidelines
- Asthma:-Epidemiology, etiology, Types, Pathophysiology, Pathogenesis, Diagnosis, Management, GINA Guidelines, ABPA.
- Other obstructive lung diseases including upper airway obstruction, cystic fibrosis, bronchiolitis, bullous diseases of lung.
- Other smoking related diseases and smoking cessation.

### **Occupational and Environmental disorders**

- Occupational Disorders and hazards
- Occupational lung diseases
- Environmental disorders: Indoor and outdoor air pollution,
- High altitude pulmonary diseases, Diving, Air embolism, thermal lung injury.
- Drug induced lung diseases

### **Interstitial & inflammatory lung diseases**

- General approach
- Classification, aetiology, clinical features, complications, diagnosis and management.
- ATS/ ERS- 2001,2011 guidelines
- IIPs, sarcoidosis, HSP, PLCH, LAM.

### **Alveolar Diseases**

- Alveolar haemorrhage
- Pulmonary Alveolar proteinosis

### **Disorders of pulmonary circulation:-**

- Pulmonary vasculitis,
- pulmonary arterio-venous malformation,
- Pulmonary embolism,
- pulmonary hypertension and cor-pulmonale.

## **Disorders of Pleural space :-**

- Pleural effusion- Malignant & Non-malignant
- Pneumothorax
- Pleural mesothelioma & other primary pleural tumours

## **Diseases of mediastinum:-**

- Non-neoplastic disorders of mediastinum
- Congenital cysts
- Acquired lesions of mediastinum (Benign & malignant).

## **Disorders of chest wall, diaphragm & spine**

## **Sleep & Sleep related Disorders**

## **Neoplastic diseases of lung**

- Solitary pulmonary nodule
- Small & Non-small cell lung cancer: Biology, pathogenesis, diagnosis, classification & Management
- Primary lung tumors other than bronchogenic carcinoma
- Paraneoplastic syndrome
- Metastatic lung Diseases

## **Infectious diseases of lung (excluding T.B.)**

- Major pathogens
- Common syndromes
- Pneumonia
- Lung abscess, empyema, aspiration & other anaerobic infection
- Bronchiectasis.
- Acute bronchitis
- Pulmonary infection in special hosts

## **Critical Care**

- Respiratory failure
- ALI & ARDS
- O<sub>2</sub> Therapy
- Non-invasive & Invasive mechanical ventilation
- Sepsis/SIRS/MODS
- Recent Advances in diagnosis & management of respiratory diseases