



RESPIRATORY - II MODULE

3rd Year MBBS

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Khyber Medical University (KMU) Vision:

Khyber Medical University will be the global leader in health sciences academics and research for efficient and compassionate health care.

Khyber Medical University (KMU) Mission:

Khyber Medical University aims to promote professional competence through learning and innovation for providing comprehensive quality health care to the nation.

Institute of Health Professions Education & Research (IHPER) Mission:

To produce leaders, innovators and researchers in health professions education who can apply global knowledge to resolve local issues.

Teaching Hours Allocation

Table 1 Hours Allocation

S. No	Subject	Hours needed
1	Pathology	18
2	Pharmacology	10
3	Forensic medicine	10
4	Community medicine	5
5	Medicine	5
6	Family medicine	5
7	Pediatrics	5
8	ENT	5
9	Anatomy	1
10	Physiology	1
11	Biochemistry	1
12	Radiology	1
13	PRIME/Medical Education	1
Total		68

Learning Objectives

At the end of this module, students will be able to:

1. Explain various lower respiratory tract infections
2. Explain obstructive respiratory diseases.
3. Describe various Granulomatous lung diseases
4. Prescribe medication according to guidelines for common respiratory disorders.
5. Describe medico legal aspect of asphyxial death.
6. Describe respiratory tract diseases of public health importance with emphasis on agent factors, epidemiology, preventive and control measures.
7. Describe management of common respiratory problems.

List of Themes

S #	Theme	Duration
1	Cough with sputum, and fever.	Two weeks
2	Wheezy Chest and Shortness of breath	Two weeks

Theme I: Cough with sputum, and fever.

Table 2 : Cough with sputum, and fever

Subject	Topic	Hours	LOS
Anatomy		1	Describe clinical anatomy of thorax including thoracic wall, lungs and trachea-bronchial tree anatomy
			Correlate the different developmental stages of lung with its congenital anomalies
			Describe the surface marking of clinically relevant areas of the respiratory system
Physiology		1	Describe the mechanics of ventilation and different volumes and capacities of lungs
			Describe respiratory gas exchange.
Biochemistry		1	Describe the effects of hyperventilation (e.g. Anxiety) and hypoventilation (e.g. COPD) on pH and blood gases, HCO ₃ and electrolytes.
Microbiology	Legionella	1	Describe Pathogenesis, Structure, Clinical Findings & Laboratory Diagnosis of Legionella infection
	Mycoplasma	1	Describe Pathogenesis, Structure, Clinical findings & Laboratory Diagnosis of mycoplasma infection.

	H-Influenza	1	Describe Pathogenesis, Structure, Clinical Findings & Laboratory Diagnosis of H-Influenza infection.
	Bordetella	1	Describe Pathogenesis, Structure, Clinical Findings & Laboratory Diagnosis of Bordetella infection
	Mycobacterium Tuberculosis	1	Describe Pathogenesis, Important Properties, Clinical Findings & Laboratory Diagnosis of Mycobacterium Tuberculosis.
	Pulmonary Infections	2	Describe community acquired pneumonia and its different types.
			Describe community acquired atypical Pneumonia.
			Describe etiology, pathogenesis & clinical features of nosocomial pneumonia.
			Describe etiology, pathogenesis & clinical features of pneumonia.
			Describe etiology, pathogenesis & clinical features of chronic pneumonia.
			Describe etiology, pathogenesis, clinical & radiologic features of Pulmonary Tuberculosis.
			Describe pneumonia in immunocompromised host.
	Granulomatous diseases	1	Describe sarcoidosis its etiology, pathogenesis, morphology and clinical course.

			Describe etiology, pathogenesis, clinical & radiologic features of hypersensitivity pneumonitis.
			Describe etiology, pathogenesis, clinical & radiologic features of pulmonary eosinophilia.
	Lung abscess	1	Define Lung Abscess
			Describe Pathogenesis, morphology & Clinical Course of Lung abscess
	Empyema		Describe empyema & its pathogenesis
	Laryngeal tumors	1	Describe the risk factors, morphology, clinical features and staging of laryngeal tumors.
Pharmacology	Anti-tussives	1	Classify Anti-tussives
	Cough Suppressants		Describe the pharmacology of Cough suppressants
	Expectorants		Describe the pharmacology of Expectorants, Mucolytic agents in cough
	Tuberculosis	2	Classify Anti tuberculous drugs
			Describe the pharmacology of First line antituberculous drugs
			Describe the pharmacology of 2nd line antituberculous drugs

			Discuss the drug treatment & duration of susceptible newly diagnosed pulmonary tuberculosis patient
			Discuss the development of resistance to mycobacterium tuberculosis against conventional antibiotics
			Discuss the classification & duration of therapy in patients having MDR tuberculosis
			Discuss the drug treatment & duration of antitubercular therapy in pregnant woman & patients having Hepatic & Renal insufficiency
			Describe the rationale for the use of Multi Drug therapy against pulmonary tuberculosis.
Community Medicine	Tuberculosis	1	Describe agent, host and environmental factors for the disease.
			Describe DOTS strategy for Tuberculosis
			Explain different preventive and control measures for Tuberculosis including "stop TB" and "End TB" strategies
		1	Describe types of influenza

	Influenza and COVID infection		Describe agent, host and environmental factors for the disease.
			Explain the antigenic drift and antigenic shift
			Describe various preventive and control measures for influenza
			Describe the epidemiology, clinical features, control measures and vaccination for COVID-19 infection
Family medicine	Social determinants of health	1	Describe the social determinants of health
	Environmental and climate factors in disease causation		Explain the role of environmental and climate factors in disease causation
	Principles of prevention and health promotion	1	Describe the Principles of prevention and health promotion
			Describe, the role of counselling and patient education in health promotion and disease prevention
	1	Explain the types of Pulmonary Tuberculosis	

	Tuberculosis (individuals` identifications , routine contact tracing, and linking to care)		Explain the pathophysiology, clinical features, complications, and management of a patient with pulmonary Tuberculosis
			Describe the technique of contact tracing in a patient with non-MDR and MDR tuberculosis
			Describe the indications of specialist referrals in patients with Pulmonary Tuberculosis
Forensic Medicine	Asphyxia (General Aspects)	1	Define asphyxia
			Define anoxia
			Enlist causes of anoxia
			Explain causes of asphyxia
			Classify mechanical asphyxia
			Describe patho physiology of asphyxia
			Describe general signs of asphyxia
	Hanging	1	Define hanging
			Describe causes of death in hanging
			Explain mechanism of death in hanging
			Describe the procedure of neck dissection in hanging
			Describe autopsy findings in hanging

			Explain medico legal aspects of hanging
	Mechanical asphyxia (Strangulation)	1	Define strangulation
			Describe causes of death in strangulation
			Explain mechanism of death in strangulation
			Describe the procedure of neck dissection in strangulation
			Describe autopsy findings in strangulation
			Explain medico legal aspects of strangulation
	Drowning	1	Define drowning
			Describe causes of death in drowning
			Explain mechanism of death in drowning
			Describe types of drowning
			Describe autopsy findings in drowning
			Differentiate between ante and post mortem drowning
	Suffocation	1	Define suffocation and explain its medico legal aspects.
Smothering			Define smothering

			Explain medico legal aspects of smothering
	Chocking		Define chocking
			Explain medico legal aspects of chocking
	Gagging		Define Gagging
			Explain medico legal aspects of Gagging
	Overlaying		Define overlying
			Explain medico legal aspects of overlying
	Traumatic asphyxia	1	Define traumatic asphyxia
			Describe autopsy findings of traumatic asphyxia
			Explain medico legal aspects of traumatic asphyxia
	Sexual asphyxia		Define sexual asphyxia
ENT	Larynx anatomy	1	Describe clinical anatomy of larynx.
	Laryngitis		Describe etiology, clinical feature, management of acute and chronic laryngitis.
Medicine	Respiratory symptoms	1	Describe approach to a patient of respiratory symptomatology

	Differential diagnosis		Discuss the differential diagnosis of granulomatous inflammation including TB
	Pulmonary TB	1	Describe the signs & symptoms, investigations, clinical diagnosis, management protocol & prognosis for TB and MDRTB according to WHO categories.
Pediatrics	Childhood Pneumonia	1	Classify pneumonia according to IMNCI (integrated management of neonatal and childhood illnesses)
			Describe the risk factors for recurrent pneumonia in childhood.
			Describe the etiological agents for Pneumonias according to the age of the child.
			Describe the indication for hospitalization of child with pneumonia.
Radiology		1	Describe the common radiological abnormalities on chest x-rays

Theme II: Wheezy chest & shortness of breath
Table 3 Wheezy chest & shortness of breath

Subjects	Topics	Hours	Los
Pathology	Atelectasis	1	Define Atelectasis
			Describe different types of atelectasis
	Acute Lung injury	1	Define Acute Respiratory distress Syndrome (ARDS)
			Describe Pathogenesis and morphological features of ARDS
	Obstructive Pulmonary disease	1	Define obstructive pulmonary disease and enlist its different types
			Define Emphysema
			Describe different types of emphysema
			Describe the pathogenesis morphology and underline course of emphysema
			Define chronic bronchitis
			Describe its pathogenesis and morphology
			Describe asthma and its pathogenesis
			Differentiate between types of asthma
			Describe morphology and clinical course of asthma
	2	Define bronchiectasis, describe the causes, morphology and pathogenesis of bronchiectasis	

	Restrictive or infiltrative lung diseases		Define diffuse interstitial lung disease.
			Describe pathogenesis of diffuse interstitial lung disease.
			Enlist major categories of chronic interstitial lung disease
			Describe the fibrosing lung diseases.
			Describe pneumoconiosis, its morphology and different types.
			Describe drug and radiation induced pulmonary diseases.
	Diseases of vascular origin	1	Describe pulmonary embolism, hemorrhage and infarction.
			Describe pulmonary Hypertension.
			Describe diffuse alveolar hemorrhage syndromes.
	lung tumors	1	Describe carcinoma of lung, its etiology pathogenesis, morphology and clinical course.
			Differentiate between small cell lung carcinoma and non-small cell lung carcinoma.
			Describe bronchial carcinoids
			Describe malignant mesothelioma and its morphology.
	Pleural lesions	1	Describe pleural effusion and pleuritis.
			Describe pneumothorax, Hemothorax and chylothorax
Pharmacology	Asthma	2	Classify the Drugs used in the treatment of asthma

			Describe the role of beta 2 agonists used in Asthma
			Describe the role of Methylxanthine drugs used in Asthma
			Describe the role of Antimuscarinic agents used in Asthma
			Describe the role of Corticosteroids used in Asthma
			Describe the pharmacokinetic & pharmacodynamic aspects of Mast cell stabilizers used in Asthma
			Describe the pharmacokinetic & pharmacodynamic aspects of Leukotriene antagonist used in Asthma
			Describe the pharmacokinetic & pharmacodynamic aspects of Anti-IgE antibodies used in Asthma
			Describe drug treatment of acute and chronic asthma and status asthmatics
Community Medicine	Asthma	1	Describe the epidemiology & preventive measures of asthma.
			Define occupational asthma and describe its preventive measures.
	Pneumoconiosis	1	Describe various pneumoconiosis diseases
			Describe the control and preventive measures of pneumoconiosis
		1	Describe the epidemiological determinants of Diphtheria and Pertussis

	Diphtheria and Pertussis		Describe preventive and control measures.		
			Explain their current public health importance in Pakistan.		
Forensic Medicine	Asphyxiant (CO)	1	Explain medico legal aspects of sexual asphyxia		
			Enlist sources of CO poisoning		
			Describe signs and symptoms of CO poisoning		
			Explain treatment plan of CO poisoning		
			Describe autopsy findings of CO poisoning		
			Explain ML aspects of CO poisoning		
	CO2	1	Enlist sources of CO2 poisoning		
			Describe signs and symptoms of CO2 poisoning		
			Explain treatment plan of CO2 poisoning		
			Describe autopsy findings of CO2 poisoning		
			Explain ML aspects of CO2 poisoning		
			Enlist sources of H2S poisoning		
			Describe signs and symptoms of H2S poisoning.		
			H2S	1	Explain treatment plan of H2S poisoning
					Describe autopsy findings of CO poisoning
Explain ML aspects of H2S poisoning					
War gases			1	Define war gases	
	Classify war gases				
	Describe medico legal aspects of war gases				
ENT	Non -Neoplastic laryngeal lesions	2	Describe clinical features and management of different non neoplastic layrangeal lesions (Vocal cords nodules, polyps, and laryngocele)		

	Neoplastic laryngeal lesions		Describe the clinical feature and management of neoplastic laryngeal lesions.
	Vocal cord Palsy	2	Describe the clinical feature and management of vocal cord palsy
	Emergency Tracheotomy		Describe the indication, contraindication, complications, and operative steps to perform emergency tracheotomy.
Medicine	COPD	1	Describe the epidemiology, patho-physiology and etiology of COPD
			Explain the clinical presentation of COPD
			Describe the investigations required for the diagnosis of COPD
			Describe the management plan of COPD
	Asthma	1	Describe the epidemiology, pathophysiology, etiology, and contributing factors related to the development of asthma
			Describe the clinical presentation, diagnosis and treatment of asthma
			Classify asthma on the basis of clinical presentation into mild, moderate, life threatening and near fatal asthma
			Explain the stepwise pharmacologic approach for the treatment of asthma status asthmaticus

			Describe long-term asthma management plan including pharmacological, physical and occupational health education.
	Respiratory failure	1	Describe the long term Oxygen therapy in COPD
	Pneumothorax	1	Describe the etiology, classification, diagnosis and management of pneumothorax
	Pleural effusion		Describe the causes of exudates and transudate effusion.
			Differentiate between exudate and transudate effusion.
Family medicine	COPD	1	Explain the management strategies of a patient with COPD in general practice
			Describe the strategies for prevention of complications of COPD
			Describe the methods of home oxygen therapy
			Perform routine annual health checkup of an Asthmatic and COPD patient under supervision
			Identify the red-flags in a patient with COPD and appropriately refer to speciality care when required
	Bronchial Asthma	1	Discuss the risk factors for Asthma in our population
			Explain the risk assessment for Asthma
			Interpret spirometry results
			Discuss the primary and secondary prevention of Asthma in a primary health setting

			Identify the guidelines that should be followed in a patient with Asthma
			Identify the red-flags in a patient that need referral for specialist care
	ARIs (Croup and Epiglottitis)	1	Differentiate Croup and epiglottitis based on etiology and clinical features.
			Explain the management of croup and epiglottitis.
			Explain the most effective ways to prevent and control ARIs
	Respiratory distress syndrome(RDS)		Describe the risk factors, clinical features, investigation and management for RDS.
	Reactive air way disease.	1	Describe the different types of wheezers in pediatric population
			Discuss the risk factor for persistent wheezing /asthma.
			Describe management of bronchiolitis
	Cystic fibrosis and bronchiectasis	1	Define bronchiectasis and its risk factors.
			Describe diagnostic criteria for cystic fibrosis.
			Describe the GI, respiratory and other systemic manifestations of cystic fibrosis.
PRIME/MEDICAL EDUCATION	Power dynamics	1	Explain the concept of power dynamics and delegate powers to juniors and team mates

Theme 1: Cough with sputum and Fever

Table 4 Practical

Subject	Topic	Los
Pharmacology		Write the proper prescription for Pulmonary Tuberculosis
Forensic Medicine		Demonstrate the differences between hanging and strangulation on a model
		Demonstrate the differences between different types of hanging on a model
Community Medicine	Visit	Visit to TB control program center
	Mask wearing.	Demonstrate Identification of different types of masks and its uses.
		Demonstrate the proper protocol for wearing a mask
Pharmacology		Demonstrate the proper stepwise use of metered dose inhaler along with spacer.
		Write the proper prescription for Acute & Chronic Asthmatic patients
		Write the proper prescription for patients with Status Asthmaticus

Learning Resources

S#	Subjects	Textbooks
1.	Community Medicine	1. Community Medicine by Parikh 2. Community Medicine by M Illyas 3. Basic Statistics for the Health Sciences by Jan W Kuzma
2.	Forensic Medicine	1. Nasib R. Awan. Principles and practice of Forensic Medicine 1st ed. 2002. 2. Parikh, C.K. Parikh's Textbook of Medical Jurisprudence, Forensic Medicine and Toxicology. 7th ed. 2005. 3. Knight B. Simpson's Forensic Medicine. 11th ed. 1993. 4. Knight and Pekka. Principles of forensic medicine. 3rd ed. 2004 5. Krishan VIJ. Text book of forensic medicine and toxicology (principles and practice). 4th ed. 2007 6. Dikshit P.C. Text book of forensic medicine and toxicology. 1st ed. 2010 7. Polson. Polson's Essential of Forensic Medicine. 4th edition. 2010. 8. Rao. Atlas of Forensic Medicine (latest edition). 9. Rao. Practical Forensic Medicine 3rd ed , 2007. 10. Knight: Jimpson's Forensic Medicine 10th 1991, 11th ed. 1993 11. Taylor's Principles and Practice of Medical Jurisprudence. 15th ed. 1999
3.	Pathology	1. Robbins & Cotran, Pathologic Basis of Disease, 9th edition. 2. Rapid Review Pathology, 4th edition by Edward F. Goljan MD

4.	Pharmacology	1. Lippincott Illustrated Pharmacology 2. Basic and Clinical Pharmacology by Katzung
5.	Anatomy	K.L. Moore, Clinically Oriented Anatomy

Assessment Plan - 3rd Year MBBS

The year-3 will be assessed in 3 blocks

- 1) Block-1 (Foundation 2 and Infection and Inflammation modules) will be assessed in paper-G
- 2) Block-2 (Multisystem, blood and MSK modules) will be assessed in paper-H
- 3) Block-3 (CVS -II and Respiratory - II module) will be assessed in paper-I
- 4) Each written paper consists of 120 MCQs and
- 5) Internal assessment will be added to final marks in KMU as shown in below table.
- 6) In OSPE, each station will be allotted 6 marks, and a total of 120 (+10% marks of internal assessment) marks are allocated for each OSPE/OSCE examination

Year 3 Professional Exam in System-based Curriculum

Theory paper	Modules	Theory marks	Internal assessment theory (10%)	OSPE/OSPE	Internal assessment OSPE/OSPE (10%)	TOTAL MARKS
Paper G	Foundation-II	120	14	120	14	268
	Inf.&Inflamm.					
Paper H	Multisystem Blood	120	13	120	14	267
	MSK-II					
Paper I	CVS-II	120	13	120	12	265
	Respiratory-II					
TOTAL MARKS		360	40	360	40	800

*Research viva of 20 marks will be conducted in paper-L. However, the rest of 15 marks will be decided by the concerned department internally for the contribution of the students in research project/thesis.

Assessment Blueprints

Table 5 Paper I (CVS-II & Respiratory-II)

Subjects	Total MCQs
Respiratory-II	60
CVS - II	60
Total	120

Table 6 (CVS-II & Respiratory-II) OSCEs

Subject	Total OSCE stations
Respiratory-II	10
CVS - II	10
Total	20

A minimum of 20 stations will be used in final exams. Total marks will be 120 (6 marks for each station).