

Dow University of Health Sciences



RESPIRATORY II MODULE 2023

STUDY GUIDE

Third Year MBBS

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INTRODUCTION

WHAT IS A STUDY GUIDE?

A study guide provides a focus for different educational activities in which the students are engaged. It equips students with information on the topic of study and assists in management of student learning. Furthermore, it imparts relevant information about the organization of the module and thus helps students organize their educational activities accordingly. Another important purpose of a study guide is the dissemination of information about rules and policies and teaching and assessment methods.

HOW DOES A STUDY GUIDE HELP LEARNERS?

- Includes information on organization and management of the module.
- Advises the learners about representatives (from various departments) who can be contacted in case of need.
- Defines the objectives which are expected to be achieved at the end of the module.
- Elaborates the learning strategies which will be implemented during the module.
- Informs learners about the learning resources in order to maximize their learning.
- Provides information on the assessment methods that will be held to determine every student's achievement of objectives.

CURRICULUM MODEL:

Integrated modular curriculum is followed at Dow University of Health Sciences for MBBS program. This implies that instead of studying basic and clinical sciences separate and apart, students will experience a balanced and integrated combination of basic and clinical sciences in the form of a system –based modules.

The modular curriculum followed by Dow University of Health Sciences is integrated both in the vertical and the horizontal directions. However, in order to prepare the students for clinical teaching with a sound background knowledge of the basic sciences, the curriculum has been divided in three spirals.

The three spirals are:

1. Spiral -1 Basic Sciences
2. Spiral -2 Clinical Sciences

3. Spiral -3 Integrated Supervised Practical Training

The Basic Sciences Spiral is spread over the first two years and clinical sciences spiral is distributed over the next two years. In the final year students are given practical hands-on training in the role similar to that of a shadow house officer. They are encouraged to refer to the theoretical teaching of the first four years for their practical training. The whole curriculum is divided into modules, each module being related to a particular system for example. Cardiovascular 1 module is in the Basic Sciences Spiral and Cardiovascular 2 module is in the Clinical Sciences Spiral.

TEACHING & LEARNING METHODOLOGIES:

The following teaching/ learning methods may be used to facilitate the learning process:

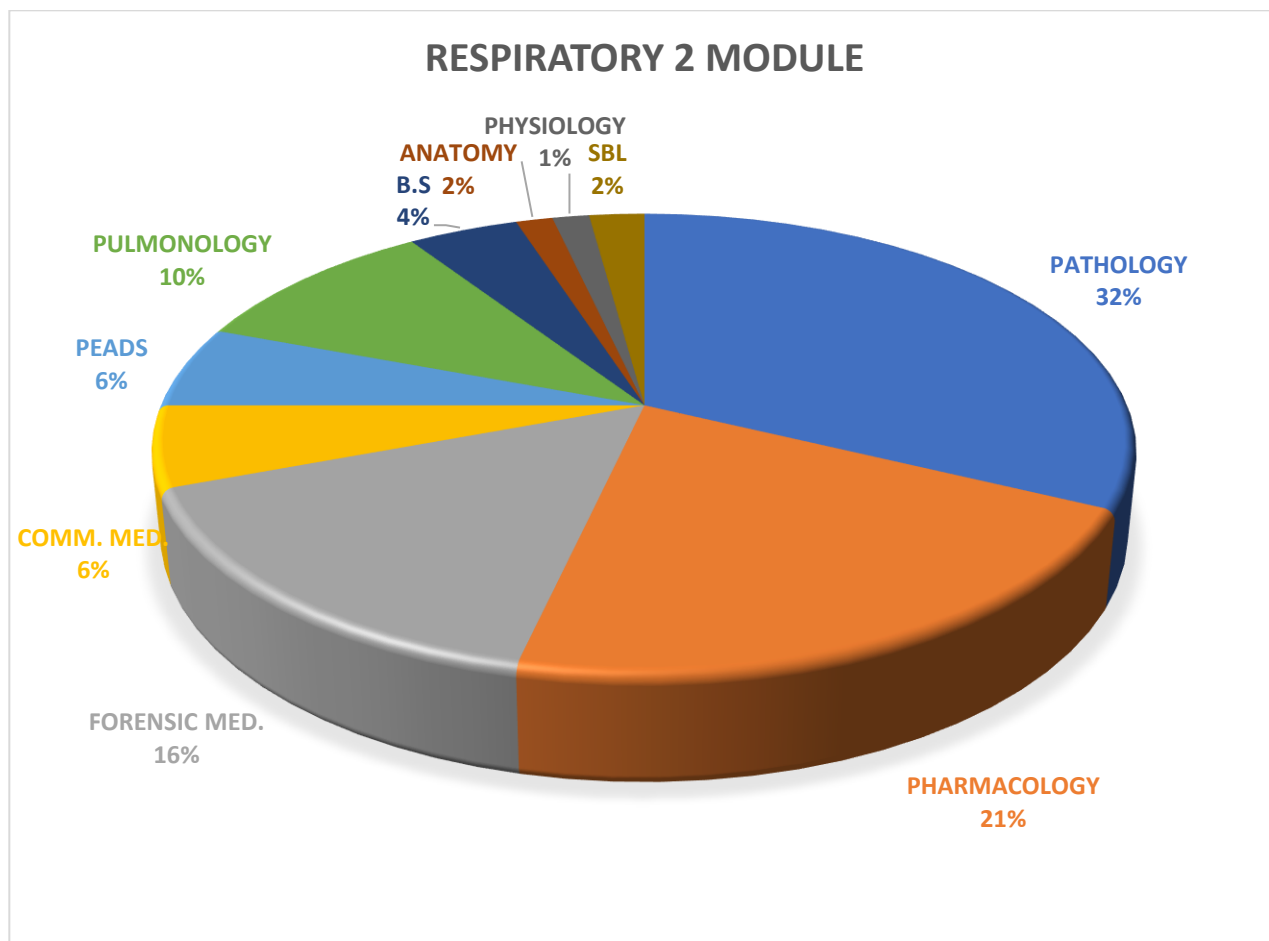
1. **Interactive Lectures:** Lectures are considered as an efficient means of transferring knowledge to large audiences.
2. **Small Group Discussion:** Small group discussion such as case- based learning (CBL) is a form of and interactive learning which helps students develop discussion skills and critical thinking.
3. **Practicals:** Practical related to Basic Sciences are held to facilitate student learning.
4. **Skills:** Skills sessions are scheduled parallel with various modules at fully equipped skills lab in which students observe and learn skills relevant to the respective modules.
5. **Self-Directed Learning:** Students have a measure of control over their own learning. They diagnose their needs, set objectives in accordance to their specific needs, identify resources and adjust their pace of learning

5 YEAR CURRICULAR ORGANIZATION

Spiral	year	Modules					
First Spiral	I	FND1- Foundation Cell, Genetics & Cell Death (Basics of Anatomy, Physiology, Biochemistry, Gen. Pathology, Gen. Pharmacology, Community Medicine & Behavioral Sciences, 9 Weeks			HEM1- Blood Module Immunity, Inflammation, Tissue repair, Antimicrobials & Neoplasia 9 Week		
		LCM1- Locomotion Bones, Joints, Nerves & Muscles, 9weeks		RSP1- Respiratory System 6 weeks	CVS1- Cardiovascular System 4 weeks		
	II	NEU1- Nervous System 8 weeks		HNN1- Head & Neck & Special 6 weeks	END1- Endocrinology 5weeks		
		GIL 1-GIT and Liver 8 weeks		EXC1- Renal and Excretory System	REP1- Reproductive System 5 weeks		
Second Spiral	III	Foundation 2 2 weeks	IDD 1- Infectious diseases 6 weeks	HEM2- Hematology 5 weeks	RSP2- Respiratory System 5 weeks	CVS2- Cardiovascular System 4 weeks	
		GIL 2-GIT and Liver (including Nutritional Disorders) 8weeks			EXC2- Renal & Excretory System 4 weeks	END2- Endocrinology 5 weeks	
	IV	ORT2- Orthopedics, Rheumatology, Trauma 7 weeks		PMR-Physical Medicine & Rehabilitation DPS-Dermatology Plastic Surgery / Burns GEN-Genetics 6 weeks		REP2- Reproductive System 8 Weeks	
		NEU2- Neurosciences and Psychiatry 8 weeks			ENT* 4 weeks	OPHTHALMOLOGY/EYE 4 weeks	
Third Spiral	V	Clinical Rotation 9:45 to 3:00 (with Ambulatory, Emergency, Intensive care) In Medicine, Pediatrics, Cardiology and Neurology units <ul style="list-style-type: none"> ▪ Lecture on problem-based approach, twice a week ▪ Ward tutorial twice a week ▪ Student research presentation once a week 			Clinical Rotation 9:45 to 3:00 (Inpatient, Ambulatory, Emergency, Intensive care and Operation Theatres) In Surgery, Gynecology & Obstetrics, Orthopedics and Neurosurgery. <ul style="list-style-type: none"> ▪ Lecture on problem-based approach, twice a week ▪ Ward tutorial twice a week ▪ Student research presentation once a week 		

OVERVIEW

Program	MBBS	
Year	Three	
Module Title	Respiratory II	
Module Code	RSP-2	
Credit Hours	4.5	
Duration	4 weeks	
	Pathology	22.5
	Pharmacology	15
	Forensic Medicine	11
	Community medicine	4
	Pediatrics	4
	Pulmonology	7
	Behavioral science	3
	Anatomy	1
	Physiology	1
	SBL	1.5
Total Hours	Respiratory II Module	70



INTEGRATED MODULE COMMITTEE

RESPONSIBILITIES	NAMES	DESIGNATION	EMAILS
Chief Module coordinator	Prof Naheed Khan	Chairperson Anatomy	naheed.khan@duhs.edu.pk
Coordinator	Dr. Mehreen Fatima	Assistant Professor	mehreen.fatima@duhs.edu.pk
Co-coordinators	Dr. Sadia Iqbal	Assistant Professor	saadia.iqbal@duhs.edu.pk
Department	RESOURCE PERSON	DESIGNATION	EMAILS
	Dr Munizha Nisar	Medical Simulation Facilitator	munizha.nisar@duhs.edu.pk

MODULE DESCRIPTION:

This module has been designed for students to introduce them to the basic concepts of respiratory system and its diseases. This module includes Pathology, Pharmacology, Forensic Medicine, Community medicine, Pulmonology, Pediatrics and Behavioral sciences.

Lectures, tutorials, small group sessions including SBL and practicals are important components of this module. Your co-operative and teamwork abilities will be improved by working in different teams. You will be able to develop problem solving skills to apply your medical knowledge to practical situations by means of group and individual tasks. This study guide has been developed to assist you and keep you focused to achieve your goals.

Welcome to the Respiratory II module and it is hoped that students will be able to achieve the desired module learning outcomes.

RATIONALE:

Pakistan is a country with high prevalence of respiratory diseases particularly in children where the leading cause of morbidity and mortality in children is Acute Respiratory Infection and pneumonia. During clinical practice a graduate will come across different types of respiratory failures. To be able to manage these, the basis of oxygen administration and artificial ventilation has to be understood. The understanding of air flow dynamics will enable the student to comprehend the management of diseases like asthma, chronic bronchitis and their remedies. Asthma and allergic respiratory diseases are on the rise in Pakistan due to increasing pollution. At the same time the diseases related to smoking like lung cancer and chronic bronchitis are also on the rise and a firm understanding of the respiratory system will enable the student to prevent such lifestyle diseases through spreading relevant health education messages.

LEARNING OUTCOMES

- Understand the normal and abnormal structures and functions of respiratory system.
- Interpret the biochemical changes in the body related to the respiratory system with reference of some common respiratory disorders.
- Take history and perform a satisfactory physical examination of the respiratory system.
- Describe normal changes that occur in respiratory system functioning from infancy to old age.
- Formulate an appropriate plan for evaluating patients with respiratory signs and symptoms to achieve a reasonable differential diagnosis and to develop an investigative and management plan.
- Diagnose, manage and prevent common respiratory diseases.

ANATOMY

Topics:

Lectures: (1 hour each)

- Overview of Anatomy of Thorax (Wall Lungs and Tracheobronchial tree) Common Congenital anomalies

PHYSIOLOGY

Topics:

Lectures: (1 hour each)

- Lung volume and capacities+ ABG's

PATHOLOGY

Learning Objectives:

- Explain the pathogenesis and histopathological changes associated with chronic obstructive pulmonary diseases.
- Describe the clinical findings and diagnostics associated with COPD.
- Describe the pathological effects of smoking
- Describe the features of upper respiratory disorders and associated infectious agents.
- Describe the features of pneumonia and characterize its associated infectious agents.
- Explain the pathogenesis and histopathological changes associated with viral, bacterial and fungal pneumonia
- Describe the clinical findings and diagnostics associated with TB.
- Describe the pathological effects of Co-vid 19 and its laboratory diagnosis and monitoring.
- Describe the features of interstitial lung diseases and explain their pathogenesis and histopathological changes associated with them.
- Describe the features of pleural infections and tumors of pleura.
- Enlist the common vascular diseases of lungs.
- Describe their pathogenesis and associated clinical and lab findings.
- Explain the complications related to the vascular diseases of the lungs.
- Enlist the tumors of the lungs
- Describe their pathogenesis and associated histopathological, clinical and lab findings.

Topics:

Lectures: (1 hour each)

- Lesions of Upper Respiratory Tract

- COPD-1 Obstructive Diseases: Emphysema, Chronic Bronchitis
- COPD-2 Asthma, Bronchiectasis + Atelectasis
- Chronic Interstitial (Restrictive) Diseases- 1
- Chronic Interstitial (Restrictive) Diseases-2
- Smoking: Pathological Effects
- Acute Pneumonia and its Types: Typical, Atypical, Community and Hospital Acquired
- Aspiration Pneumonia, Chronic Pneumonia and Lung Abscess
- Fungal Pneumonia and Pneumonia of the Immunocompromised
- Granulomatous diseases sarcoidosis, Hyper-sensitivity related diseases
- Pulmonary tuberculosis
- Pulmonary diseases of vascular origin. Pulmonary embolism, hemorrhage, infarction hypertension and diffuse pulmonary hemorrhage syndrome
- Pulmonary tumors
- Co-Vid-19
- Pleural infection & tumors

Practicals: (1.5 Hour each)

- Histopathology of COPD
- Restrictive Diseases of the Lung
- Pneumonia
- Histopathology of Tuberculosis
- Co-Vid -19 Lab diagnosis and monitoring of the patient

PULMONOLOGY**Learning Objectives:**

- Enlist and differentiate between different causes of chronic dyspnea including chronic asthma, COPD, interstitial lung disease, occupational lung diseases
- Explain pathophysiology of COPD
- Enlist risk factors associated with COPD
- Outline investigations to confirm the diagnosis of chronic dyspnea according to the cause
- Interpret the investigations in accordance with diagnosis of COPD
- Differentiate between restrictive and obstructive patterns of PFT's
- Discuss the treatment steps in accordance to severity of diseases
- Differentiate between type 1 and type 2 respiratory failure
- Enlist indications for long term O2 therapy
- Counsel the patients regarding smoking cessation
- Define asthma, and types.
- Discuss the pathophysiology of asthma
- List the triggers, signs and symptoms of asthma.

- Outline the investigations for diagnosis of asthma.
- Classify asthma severity according to the sign symptoms and laboratory parameters
- Discuss the management of asthma according to its severity.
- Counsel the patient about the disease and follow up
- Classify the interstitial lung disease on the basis of clinical characteristics and histopathologic pattern.
- Identify the various etiological agents causing interstitial lung disease.
- Recognize various clinical features (symptoms and signs) of interstitial lung disease.
- Investigate a patient presenting with features of interstitial lung disease.
- Differentiate between various types of interstitial lung disease through imaging techniques.
- Discuss the various Management options for patients with interstitial lung disease.
- Discuss the complications of ILD
- Counsel the patient about the disease and O₂ therapy
- Define pneumonia
- Identify the causes and types of pneumonia
- Discuss the Pathophysiology of pneumonia
- Enlist the pathogens involved in different types of pneumonia
- Discuss the Signs and symptoms of pneumonia and severity of pneumonia
- List the investigations, management steps and various complications of pneumonia
- Define tuberculosis and its types (MDR, extended MDR) relapse, defaulter
- Discuss the clinical presentation, route of transmission of pulmonary tuberculosis and its pathogenesis
- Outline investigations with interpretation that are performed for diagnosis of pulmonary tuberculosis.
- Describe the management of drug sensitive and drug resistant tuberculosis.
- List the complications of pulmonary tuberculosis.
- Counsel the patient about the disease, drug compliance and preventive measures.
- Differentiate between acidaemia & alkalaemia.
- Calculate the anion gap, differentiate between normal or high anion gap acidosis.
- Check for respiratory or renal compensation for primary acid-base disturbance.
- Identify mixed acid-base disorders.
- Know the various causes of renal/ respiratory acid base disturbances.
- Manage each acid base disturbance adequately.
- Define bronchogenic cancer
- Describe epidemiology, pathology and etiology of Carcinoma bronchus
- Discuss the clinical presentation and types of bronchogenic cancer
- Enlist and discuss the investigations for carcinoma bronchus
- Discuss the treatment complications and prognosis of the disease
- Counsel the patient about the disease and treatment options and complications.

Topics:**Lectures (1 hour each)**

- COPD/Resp. Failure clinical approach, investigations & diagnosis
- Asthma
- Clinical investigations & management of ILD
- Community acquired pneumonia clinical diagnosis, severity assessment and management
- Adult tuberculosis; clinical diagnosis, assessment and management. (Along with MDR: definition)
- Bronchogenic carcinoma
- Arterial blood gases (ABG's)

PHARMACOLOGY

Learning Objectives:

- Recognize the goals of therapy of Asthma
- Explain the major component of long- & short-term asthma management
- Discuss the role of Inhaled- Corticosteroids in asthma
- Explain the role of Montelukast in asthma
- Name the antibiotics used for the treatment of pneumonia
- Explain the mechanism of action, route of administration and adverse effects of pneumonia.
- Name the antibiotics used for the treatment of tuberculosis
- Explain the mechanism of action, route of administration and adverse effects of drugs used in tuberculosis.

Topics:

Lectures: (1 hour each)

- Drugs used in Asthma-I
- Drugs used in Asthma-II
- Drugs used to treat pneumonia
- Pneumonia
- Drugs used to treat tuberculosis (T.B)-I
- Drugs used to treat tuberculosis (T.B)-II
- Tuberculosis
- Drugs used to treat cough (Antitussive drugs)
- Anti-allergic drugs

Practicals: (1.5 hour each)

- Drugs used to treat Asthma
- Drugs used to treat Pneumonia
- Treatment of Tuberculosis (T.B)
- Activity of histamine and anti-histamine on bronchial smooth muscle

COMMUNITY MEDICINE.**Learning Objectives:****Topics:**

- Identify the risk factors and triggers of Asthma
- Appreciate the tangible and non-tangible cost of Asthma illness for individuals and communities
- Advise strategies for prevention of Asthma for individuals and communities
- Analyze the relation of air pollution to human health.
- Discuss the epidemiology of Tuberculosis in Pakistan
- Define the TB control strategies of the WHO
- Identify the mode of spread and risk factors of TB
- Identify COPD risk factors and prevention methods.
- Classify the stages of COPD
- Analyze the importance of restricting smoking and immunizations for COPD control.
- Analyze the pandemics of SARS (SARS-CoV-1), Avian (HPAI) and Swine (H1N1) Flu.
- Evaluate the significance and effects of COVID 19 (SARS CoV-2), its etiology, epidemiology, risk factors, prevention and effects on global health and economy.

Lectures: (1 Hour each)

- COPD risk factors and prevention
- Asthma risk factors prevention and control
- Tuberculosis risk factors prevention and control
- SARS, Avian Flu, Swine Flu, COVID 19 (pandemics)

FORENSIC MEDICINE**Learning Objectives:**

- Describe autopsy protocol
- List and describe essentials of autopsy suite and medico legal clinic
- Identify and explain risks and hazards of autopsy
- Identify and explain autopsy artifacts and negative autopsy
- Interpret findings of autopsy on decomposed bodies, fragmentary and skeletal remains
- Observe and identify common procedures during his autopsy rotation
- Interpret external and internal autopsy findings
- Collects preserve and dispatch samples for ancillary investigation
- Define & Classify Asphyxia.
- Differentiate & Explain Mechanical Asphyxia and its cause-effect relationship: Suffocation, Smothering, Gagging, Hanging, Strangulation, Throttling, Choking, Traumatic Asphyxia, Autoerotic Asphyxia.
- Interpret & Explain Death due to Drowning: its recognition, mechanism, diagnosis and medico legal aspects.

- Recognize each type of mechanical asphyxia by observing non-specific and specific findings and explain its medico legal significance.
- Explain Environmental Asphyxia: Recognition by autopsy findings and medico legal aspects.

Topics:**Lectures: (1 hour each)**

- Asphyxia I
- Asphyxia II
- Asphyxia III
- Asphyxiants
- Autopsy I
- Autopsy II
- Autopsy III
- Autopsy IV
-

Practicals: (1.5 hour each)

- Autopsy video and report writing
- Sample collection and preservation

PAEDIATRICS.**Topics:****Lectures (1hour each)**

- Childhood Asthma: Classification and Management
- Upper Respiratory Tract Infections & Management
- Lower Respiratory Infections: Pneumonia
- Clinical Presentation Management of TB in Children

BEHAVIOURAL SCIENCES.**Topics:****Lectures (1hour each)**

- Reaction to Stress and Chronic Illness, Adaptation to Stress- General Adaption Syndrome GAS, Categories of stress, Albert Allis's ABC Model of Stress, Cognitive distortions
- Stress coping: Resilience and Gratitude.
- Mental State Examination

SBL

Pneumonia

At the end of SBL students should be able to:

- Define Community acquired pneumonia (CAP)
- Know Typical & atypical microorganisms causing CAP and their common presentations
- Assess severity of CAP by CURB-65 Score
- Correctly identify antibiotics according to severity

Skills Lab**Examination of Respiratory system:**

- Demonstrate the correct steps and sequence of respiratory system examination
- Demonstrate the correct method of auscultation of lung.
- Differentiate between normal, abnormal and adventitious breath sounds
- Identify accurately at least six common breath sounds viz.
 - Normal breath sound
 - Bronchial breathing
 - Rhonchi
 - Crepitation/crackles
 - Pleural rub
 - Bronchophony

The contents are subjected to be altered according to requirement of academic calendar

Learning Resources

PATHOLOGY

- Robbins Basic Pathology Kumar & Abbas 9th Edition
- Robbins & Cotran Pathologic Basis of Disease Kumar & Abbas & Aster 9th Edition

COMMUNITY MEDICINE

- Public Health and Community Medicine Shah, Ilyas, Ansari 7th Edition

PHARMACOLOGY

- Lippincott's Illustrated Review Pharmacology Karen Whalen 6th Or Latest Edition
- Basic And Clinical Pharmacology Bertram G. Katzung 11th Edition

FORENSIC MEDICINE

- Principles And Practice Of Forensic Medicine Nasib R.Awan 1 St Edition

MEDICINE

- Principles & Practice of Medicine Davidson's 22nd Or Latest Edition
- Essentials Of Kumar and Clark's Clinical Medicine Kumar & Clark 9th Or Latest Edition
- Macleod's Clinical Examination Douglas & Nicol & Robertson 13th or Latest Edition
- Hutchison's Clinical Methods William M Drake & Michael Glynn 23rd Or Latest Edition

PAEDIATRICS

- Nelsons's Essentials of Pediatrics Marc dante & Kliegman 7th Or Latest Edition

ASSESSMENT

Assessment will be done in two parts

At the end of module

- Module Exam (Theory) -20%
- Module Exam Practical Internal Evaluation- 20%

At the end of Year

- Annual Exam (Theory) -80%
- Annual Exam (ospe, Viva)-80%

MCQs (Multiple choice questions), OSCE (Objective Structured Clinical Exam) and structured viva will be the main assessment tool.