

Dow University of Health Sciences



RENAL II

STUDY GUIDE 2023

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. **Practical:** 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

5YEAR CURRICULARORGANIZATION

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 wks	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 	

Program	MBBS	
Year	Three	
Module Title	RENAL II	
Module Code	EXC-2	
Credit Hours		
Duration	4 weeks	
	Anatomy	1
	Physiology	1
	Pathology	18.5
	Pharmacology	3.5
	Forensic Medicine	13.5
	Community Medicine	5
	Surgery	1
	Medicine	6
	Pediatrics	1
	Radiology	1
	Behavioural sciences	2
	Skill Lab	1.5
Total Hours	Renal module	

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 renal diseases. This module includes Anatomy, Physiology, Pathology, Pharmacology, Forensic Medicine, Community medicine, Medicine, Surgery, Radiology, Behavioral sciences, Skills study and Pediatrics.

Lectures, tutorials, small group sessions including tutorials and practical 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.

RATIONALE:

Renal disorders are commonly encountered in both adult and pediatric clinical practice. Acute and chronic glomerulonephritis, nephrotic and nephritic syndromes, acute and chronic renal failure, urinary tract infections, renal tumors, diseases related to lower urinary tract and prostate are some of the disorders a doctor will come across in clinical practice. In this second, clinical spiral module of renal diseases the student shall deal with the basic understanding of the anatomy, physiology and biochemical processes attained in the first spiral and develop the understanding of common renal diseases and renal failure and its management.

LEARNING OUTCOMES

- Describe pathogenesis & clinical presentations of common urinary system/renal disorders
- Take history, perform physical examinations of urinary system/renal and formulate appropriate plan of investigations for making a diagnosis.
- Interpret the investigations for diagnosis.
- Describe the pharmacology of drugs used in the management of urinary system/renal disorders.
- Practice basic principles of management of urinary system/renal disorders.
- Recognize preventive measures & prognosis for counseling the patients.

ANATOMY**Learning Objectives:**

- Describe the development of renal system,
- Identify gross features of kidney, ureter, urinary bladder and urethra
- Discuss the neurovascular and lymphatic drainage of renal system
- Differentiate histological features of kidney, ureter, urinary bladder and urethra.

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

- Functional Anatomy (Development, histology, Variations, Gross of renal system)

PHYSIOLOGY**Learning Objectives:**

- Comprehend the filtration membrane, delve into the pressures influencing glomerular filtration
- Elucidate the distinctive efficacy of glomerular capillaries versus systemic ones.
- Distinguish the primary chemical contrast between blood plasma and glomerular filtrate.
- Construct the net filtration pressure equation while grasping its components, and clarify the regulation of glomerular filtration.

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

- GFR and its regulation and its applied physiology

PATHOLOGY

Learning Objectives:

- Describe the Obstructive, infections and cystic diseases of the renal system
- Explain the features of glomerular and tubular diseases of the kidney.
- Characterize and explain the pathogenesis of renal tumors.

Topics/Contents:

Lectures: (1 hour each)

- Obstructive Uropathy 1: Urinary Outflow Obstruction (Urolithiasis, Hydronephrosis)
- Obstructive Uropathy 1: Urinary Outflow Obstruction (Prostate)
- Cysts: Congenital and acquired Cystic Conditions of Kidney
- Pathogenesis of Glomerular Disease
- Glomerular Disease: Nephritic Syndrome
- Glomerular Disease: Nephrotic Syndrome
- Tubulointerstitial Diseases
- Urinary Tract Infections
- Pyelonephritis
- Glomerular Diseases Associated With Systemic Diseases
- Tumors Of Renal System

Practical /Tutorials/CBL: (1.5 Hour each)

- Urinary Analysis, Proteinuria
- Urine C/S
- Tumors of Renal System: Gross and Microscopic Pathology
- Renal Colic (CBL)
- Renal Cyst (CBL)

PHARMACOLOGY

Learning Objectives:

- At the end of the module students should be able to:
- Classify major types of diuretics and relate them to their site of action
- Enlist different clinical conditions in which diuretics play a key role
- Identify the major toxicities of acetazolamide, thiazide, loop diuretics and potassium-sparing diuretics
- Explain the role of osmotic diuretic in the treatment of cerebral edema and any other

- Conditions

Lectures: (1 hour each)

- Diuretics-I
- Diuretics-II

Practical: (1.5 hour each)

- Overview of Diuretics

FORENSIC MEDICINE**Learning Objectives:**

- Define & Explain puberty, Impotence, Sterility, Virginity, Pregnancy and Delivery-Related Laws.
- Perform examination, certification and handle medico-legal cases)
- Define & Interpret Abortion (Therapeutic & Criminal).
- Explain Methods of inducing criminal abortion Observe and Describe Examination in living & dead and medico legal issues of new born (still born/dead born/live born, if live born then cause of death, age of new born and others)
- Recognize & classify sexual perversions: and explain their medico legal significance.
- Collect, preserve and dispatch specimens in cases of sexual assaults
- Explain, Perform Medico-legal examination of a victim of an assault & certify.
- Explain and Perform Medico-legal examination of the alleged accused of rape & certify.
- Explain and Perform Medico-legal examination in unnatural sexual offence & certify.
- Interpret & Explain findings of Infanticide and criminal/non-accidental violence or to new born, infant or child; Sudden Infant Death Syndrome (SIDS).
- Interpret Psycho-Pathology of assailant.
- Interpret psycho-Pathology of victim
- Undertake initial management and referral of victim.

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

- Virginity and its Medicolegal Aspects
- Pregnancy
- Abortion
- Natural Sexual offences
- Unnatural Sexual offences
- Infanticide

Practicals: (1.5 hour each)

- Examination of victim and offender of sexual assault. Collection /preservation/dispatch of samples. (natural sexual offences)

- Examination of victim and offender of sexual assault. Collection /preservation/dispatch of samples. (unnatural sexual offences)
- Legal problems: in artificial insemination/in vitro fertilization/test tube babies.
- Impotence, sterility and legitimacy. Report writing of impotence.
- VISIT to Medico legal Dept CHK

COMMUNITY MEDICINE.

Learning Objectives:

- Identify types of variables
- Organize and display data
- Define T- test, its uses.
- Define ANOVA, its advantages and disadvantages
- Define Chi Square test, its types, uses and disadvantages.
- Calculate the Chi Square test
- Define linear and logistic regression analysis

Topics/Contents:

Lectures: (1 Hour each)

- Organizing and displaying data
- T test
- ANOVA
- Chi Square test
- Regression Analysis: linear and logistic regression

MEDICINE

Learning Objectives:

- Enlist and interpret different investigations to be done in a patient of renal disease.
- Differentiate between nephrotic and nephritic syndromes.
- Describe the causes, diagnostic approach and management of nephrotic and nephritic syndromes.
- Discuss the diagnostic approach and management of an adult with acute renal failure.
- Discuss the diagnostic approach , management , and complications of an adult with chronic renal disease.
- Define UTI, recognize clinical features, investigate and manage a patient with UTI.
- Identify, investigate and discuss the management of acid base disorders.
- Investigate and discuss the management of electrolyte abnormalities.

Topics/Contents:

Lectures (1 hour each)

- Clinical presentation and management of Glomerular conditions: nephritic and Nephrotic Syndrome
- Clinical presentation, types and management of UTI
- Acute renal failure
- Chronic renal failure overview renal dialysis and renal transplants
- Management of acid base balance disorders
- Investigation of renal and urinary diseases, Interpret renal disorders on the basis of clinical presentations

SBL

- Nephritic syndrome
- CRF

PAEDIATRICS.**Learning objectives:**

- To achieve the basic knowledge and clinical competencies related to common renal diseases.
- To understand, causes, clinical signs and symptoms and complications of common renal diseases including, urinary tract infection, nephritic and nephrotic syndrome.
- To understand routine laboratory tests to diagnose the common renal diseases in children.
- To take a good detailed history of a patient with urinary complaints in all settings like inpatient and in outpatient department.
- To perform a general physical and systemic examination of a child with common renal illnesses, like nephritic and nephrotic syndrome.
- To make differential diagnoses and most probable diagnosis.
- To understand, essential management plan and counselling of mothers/attendant for common renal illnesses.
- To participate in the research, related to renal diseases in children.
- To do self-learning, and participate in continuous medical education activities related to renal diseases in children.

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

- Clinical Presentation of Glomerular Conditions, Nephrotic and Nephritic syndrome

SURGERY

Learning objectives:

- Identify the etiology, clinical features relevant investigations and treatment options for Hematuria.
- Know the sign and symptoms of LUTS and Bladder Outflow Obstruction
- Differentiate causes, investigations, complications and surgical approaches between benign and malignant tumor.
- Describe the classification and presentation of renal neoplasms
- Discuss the clinical features, investigations, premalignant and carcinogens for bladder and principles of management according to tumor stage.
- Recognize and understand the pathophysiology and management of renal stone and the impact of technology in managing stone disease.
- Familiarize with the major issues concerning organ donation.
- Appreciate the main indications for organ transplantation and management of surgical complications

Topics/Contents:

Lectures (1hour each)

- Clinical approach and Management of hematuria
- Clinical approach and management of urolithiasis
- Clinical approach & management of renal tumors and urinary bladder tumor (benign & malignant)
- Principles and peri-operative management of Kidney Transplant and Rejection
- Bladder outlet Obstruction Prostate Gland (BPH & CA prostate)

RADIOLOGY

Learning objectives:

- To identify different types of imaging modalities for excretory system evaluation ultrasound ray, CT KUB, IVP. radionuclide scanning
- To know indications /contraindications of different imaging modalities
- To know when to advice which modality relating to specific clinical context
- To recognize pathology in excretory system on different imaging Modalities

Topics/Contents:

Lectures (1hour each)

- Radiological evaluation of excretory system on different imaging modalities

BEHAVIORAL SCIENCES

Learning objectives:

- To understand psychosocial aspects of organ transplant and basic counselling skills need to develop during medical practice

Topics/Contents:

- Ethical aspects of organ/kidney transplant
- Role of Statistics in Health Research.

Skills Lab

- Male and Female Catheterization

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 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 vivas will be the main assessment tool.