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# Dow University of Health Sciences



## ENDOCRINOLOGY MODULE II

### STUDY GUIDE 2023

Third Year MBBS

<b>S.No</b>	<b>TABLE OF CONTENTS</b>	<b>Page no.</b>
1	Introduction to Study Guide	3
2	Five Year Curricular Organization	5
3	Overview	6
4	Integrated Module Committee	7
5	Module description	8
6	Rationale	8
7	Learning Outcomes, Objectives and T/L Strategies	9
8	Learning Resources	14
9	Assessment Methods	15

## 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

Spiral	year	Modules				
First Spiral	I	<b>FND1- Foundation</b> Cell, Genetics & Cell Death (Basics of Anatomy, Physiology, Biochemistry, Gen. Pathology, Gen. Pharmacology, Community Medicine & Behavioral Sciences, 9 Weeks		<b>HEM1- Blood Module</b> Immunity, Inflammation, Tissue repair, Antimicrobials & Neoplasia 9 Week		
		<b>LCM1- Locomotion</b> Bones, Joints, Nerves & Muscles, 9weeks		<b>RSP1- Respiratory System</b> 6 weeks	<b>CVS1- Cardiovascular System</b> 4 weeks	
	II	<b>NEU1- Nervous System</b> 8 weeks		<b>HNN1- Head &amp; Neck &amp; Special</b> 6 weeks	<b>END1- Endocrinology</b> 5weeks	
		<b>GIL 1-GIT and Liver</b> 8 weeks		<b>EXC1- Renal and Excretory System</b>	<b>REP1- Reproductive System</b> 5 weeks	
Second Spiral	III	<b>FND2- Foundat ion 2</b> 2 weeks	<b>IDD 1- Infectio us diseases</b> 5 weeks	<b>HEM2- Hematology</b> 5 weeks	<b>RSP2- Respiratory System</b> 5 weeks	<b>CVS2- Cardiovascular System</b> 4 weeks
		<b>GIL 2-GIT and Liver (including Nutritional Disorders)</b> 8weeks			<b>EXC2- Renal &amp; Excretory System</b> 5 weeks	<b>END2- Endocrinology</b> 5 weeks
	IV	<b>ORT2- Orthopedics, Rheumatology, Trauma</b> 7 weeks		<b>REP2- Reproductive System</b> 8 Weeks	<b>PMR-Physical Medicine &amp; Rehabilitation</b> <b>DPS-Dermatology Plastic Surgery / Burns</b> <b>GEN-Genetics</b> 6 weeks	
		<b>NEU2- Neurosciences and Psychiatry</b> 8 weeks		<b>ENT*</b> 4 weeks	<b>OPHTHALMOLOGY/EYE</b> 4 weeks	
Third Spiral	V	Clinical Rotation 9:30 to 3:00 (with Ambulatory, Emergency, Intensive care) In Medicine, Pediatrics, Cardiology and Neurology units <ul style="list-style-type: none"> <li>▪ Lecture on problem based approach, twice a week</li> <li>▪ Ward tutorial twice a week</li> <li>▪ Student research presentation once a week</li> </ul>			Clinical Rotation 9:30 to 3:00 (Inpatient, Ambulatory, Emergency, Intensive care and Operation Theatres) In Surgery, Gynecology & Obstetrics, Orthopedics and Neurosurgery. <ul style="list-style-type: none"> <li>▪ Lecture on problem based approach, twice a week</li> <li>▪ Ward tutorial twice a week</li> <li>▪ Student research presentation once a week</li> </ul>	

**OVERVIEW**

<b>Program</b>	<b>MBBS</b>	
Year	Three	
Module Title	ENDOCRINOLOGY II	
Module Code	END-2	
Credit Hours		
Duration	5 weeks	
	Anatomy	2
	Physiology	1
	Pathology	16.5
	Pharmacology	11.5
	Forensic Medicine	11.5
	Community Medicine	5
	Surgery	2
	Medicine	13
	Pediatrics	3
	Skills lab	1.5
Total Hours	Endocrinology module	67

**INTEGRATED MODULE COMMITTEE**

RESPONSIBILITIES	NAMES	DESIGNATION	EMAILS
Chief Module coordinator	Prof Naheed Khan	Chairperson Anatomy	<a href="mailto:naheed.khan@duhs.edu.pk">naheed.khan@duhs.edu.pk</a>
Coordinator	Dr. Mehreen Fatima	Assistant Professor	<a href="mailto:mehreen.fatima@duhs.edu.pk">mehreen.fatima@duhs.edu.pk</a>
Co-coordinators	Dr. Sadia Iqbal	Assistant Professor	<a href="mailto:saadia.iqbal@duhs.edu.pk">saadia.iqbal@duhs.edu.pk</a>
Department	RESOURCE PERSON	DESIGNATION	EMAILS
	DrSyedaRubaba Azim	Assistant Professor	<a href="mailto:rubaba.azim@duhs.edu.pk">rubaba.azim@duhs.edu.pk</a>
	DrMunizhaNisar	Medical Simulation Facilitator	<a href="mailto:munizha.nisar@duhs.edu.pk">munizha.nisar@duhs.edu.pk</a>
	Dr Nooreen Adnan	Senior Lecturer	<a href="mailto:nooreen.adnan@duhs.edu.pk">nooreen.adnan@duhs.edu.pk</a>

**MODULE DESCRIPTION:**

This module has been designed for students to introduce them to the basic concepts of Endocrinology diseases. This module includes Anatomy, Physiology, Pathology, Pharmacology, Forensic Medicine, Community Medicine, Medicine, Surgery, Skills Lab. 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.

Welcome to the Endocrinology module and it is hope that students will be able to achieve the desired module learning outcomes

**RATIONALE:**

Endocrinology disorders are commonly encountered in both adult and pediatric clinical practice. Common endocrinological disorders like diabetes mellitus, thyrotoxicosis, hypothyroidism, Cushing syndrome, pituitary disorders, beside the hormonal changes are also associated with reproductive organ diseases. In this second, clinical spiral module of endocrinology diseases the student shall deal with the basic understanding of the anatomy, physiology, pathology and biochemical processes attained in the first spiral and develop the understanding of common endocrinology diseases and its management.



**LEARNING OUTCOMES**

- Describe pathogenesis & clinical presentations of common Endocrinological disorders
- Take history, perform physical examinations of Endocrine system 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 endocrine system/endocrinological disorders.
- Practice basic principles of management of endocrine system/endocrinological disorders.
- Recognize preventive measures & prognosis for counseling the patients.

**ANATOMY****Learning Objectives:**

- Discuss the gross anatomy and histology of hypothalamus, pituitary, thyroid, parathyroid, pancreas and adrenal gland.

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

- Anatomical features of endocrine glands(overview)
- Pituitary anatomy and histology

**PHYSIOLOGY****Learning Objectives:**

- Discuss the secretion and regulation, mechanism of action and function of hormones of hypothalamus pituitary thyroid parathyroid, pancreas and adrenal gland.

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

- Classification and regulation of hormones

**PATHOLOGY****Learning Objectives:**

- Explain the etiology and clinical features of disorders of major endocrine glands
- Describe morphology, histopathology & pathogenesis of abnormalities of pituitary, thyroid and adrenal glands.
- Enlist the features and differential diagnosis of different endocrine abnormalities.

- Characterize pancreatic abnormalities and malfunction.
- Enlist the features of pheochromocytoma and multiple endocrine neoplasia.

**Topics/Contents:**

**Lectures: (1 hour each)**

- Overview Of Pituitary Pathologies
- Tumors of Pituitary Glands
- Diffuse and Multinodular Goiters and Neoplasms of Thyroid Gland
- Diabetes Complications: Molecular Pathology
- Hypo and Hyper Secretion of Adrenal Cortex & Medulla
- Pancreatitis and Pancreatic Tumors
- Adrenal Hyperfunction
- Adrenal Insufficiency
- Pheochromocytoma and Multiple Endocrine Neoplasia

**Practicals/Tutorials/CBL: (1.5 Hour each)**

- Pituitary Function Tests
- Histopathology of Thyroid Gland
- Thyroid Function Tests
- Lab Diagnosis of Adrenal disorders
- Histopathology of Adrenal Gland

**PHARMACOLOGY**

**Learning Objectives:**

At the end of the module students should be able to:

- Describe the drugs used as substitutes for the natural pituitary hormones and list their clinical uses
- Understand the mechanism and toxic effects of drugs used to treat Hypo & Hyperthyroidism and parathyroidism
- Enlist several synthetic glucocorticoids and describe the differences between these agents and the naturally occurring hormones
- Know the indications for the use of corticosteroids in adrenal & non-adrenal disorders
- Classify different insulin preparations and describe the major hazards of insulin therapy
- Enlist the prototypes and describe the mechanism of action, key pharmacokinetic features, and toxicities of the major classes of agents used to treat type-2 diabetes mellitus
- Describe the clinical uses of Glucagon

**Lectures: (1 hour each)**

- Pituitary Hormone In Clinical Practice
- Drugs used to treat hyperthyroidism
- Drugs used to treat hypothyroidism
- Drugs used to treat hypo & hyperparathyroidism
- Oral Hypoglycemic Drugs
- Insulin preparations
- Corticosteroids

**Practicals: (1.5 hour each)**

- Treatment of hypo & hyperthyroidism
- Treatment of hypo and hyperparathyroidism
- Clinical applications of corticosteroids & antidiabetic drugs.

**FORENSIC MEDICINE****Learning Objectives:**

- Diagnose, interpret and manage poisoning in living and dead, Narrate the usual fatal dose and fatal period and interpret the medico-legal significance of each of the poison listed below.
- Agrichemical poisons
- Irritants of Animal origin
- Hydrocarbons, Petroleum distillates
- Delirians
- Opium & its derivative poisons.

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

- Forensic Psychiatry
- Agrichemical poisons
- Irritants of Animal origin
- Hydrocarbons, Petroleum distillates
- Drug addiction & Drug Dependence/ Stimulants
- Delirians: Feature of poisoning of dhatura, belladonna and Hyoscyamus and its medico-legal aspect
- Opium & its derivative poisons.

**Practicals: (1.5 hour each)**

- Delirians
- Asphyxiants
- Spinal poisons

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

- Apply appropriate Sampling technique
- Calculate appropriate Sample size
- Develop Synopsis without Plagiarism
- Develop Questionnaire
- Write Results, Discussion and Abstract of a research paper

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

- Sampling technique
- Sample size calculation
- Synopsis development & Plagiarism
- Questionnaire development
- Writing Results, Discussion and Abstract of a research paper

**MEDICINE****Learning Objectives:**

- Enlist and interpret different investigations to be done in a patient of endocrine disorders.
- Describe the causes, diagnostic approach and management of hypo and hyperpituitarism.
- Discuss the diagnostic approach and management of Hypo/ Hyper secretions of thyroid gland
- Discuss the diagnostic approach, management, and complications of diabetes.
- Identify, investigate and discuss the management of hypo and hyper secretion of adrenal gland.

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

- Overview of pituitary syndromes and hypopituitarism.
- Clinical feature, diagnosis and Management of Hypo-Thyroidism
- Clinical feature, Diagnosis & Management of Hyperthyroidism
- Clinical feature, Diagnosis & Management of hypo & hyper parathyroid gland
- Management of patient with Diabetes Mellitus
- Causes, Clinical features, diagnosis & management of Cushing Syndrome
- Causes, Clinical features, diagnosis & management of Addison Disease.

**SBL(1.5 hour each)**

- Disorders of pituitary
- Hypo & hyperthyroidism
- Addison's disease
- Diabetes mellitus & metabolic syndrome

**PAEDIATRICS.****Learning objectives:**

- To achieve the basic knowledge and clinical competencies related to common endocrine disorders.
- To understand, causes, clinical signs and symptoms and complications of Diabetes Mellitus
- To understand routine laboratory tests to diagnose the common endocrine diseases in children.
- To take a good detailed history of a patient in all settings like inpatient and in outpatient department.
- To perform a general physical and systemic examination of a child with endocrine disorders like hypo/hyperthyroidism, hypo/hyperpituitarism.
- To make differential diagnoses and most probable diagnosis.
- To understand, essential management plan and counselling of mothers/attendant for common endocrine disorders.

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

- Clinical Presentation, Diagnosis & Management of short stature
- Clinical Features, Diagnosis & Management of Congenital & Acquired Hypothyroidism
- Clinical Features, Diagnosis and Management of Diabetes Mellitus, DK

**SURGERY****Learning objectives:****Topics/Contents:****Lectures (1 hour each)**

- Approach to a patient with thyroid nodule & Role of surgery in thyroid disorders
- Indications of surgical intervention of Hyper secretions of parathyroid gland

**Skills Lab**

- Arterial Puncture

**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**

- Nelson's'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), OSPE (Objective Structured Practical Exam) and structured viva will be the main assessment tool.