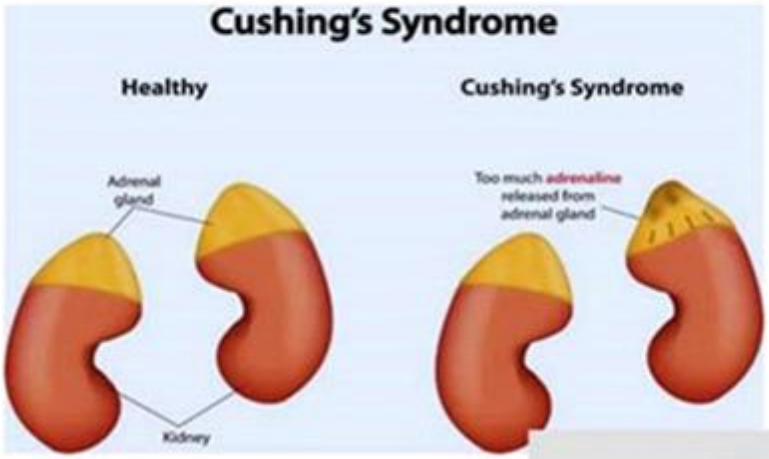
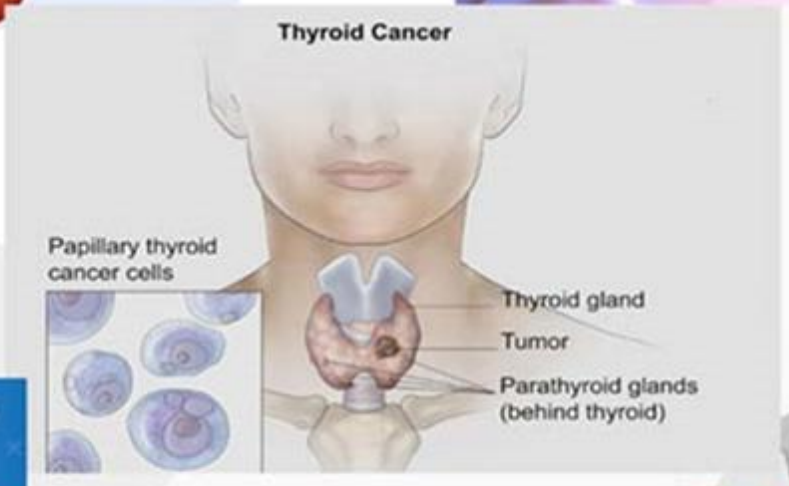
STUDY GUIDE- FOURTH YEAR MBBS

- 22nd July - 17th August 2024
- Duration: 4 Weeks

ENDOCRINE MODULE II





LIAQUAT NATIONAL HOSPITAL AND MEDICAL COLLEGE
Institute for Postgraduate Medical Studies & Health Science

STUDY GUIDE FOR ENDOCRINE 2 MODULE

Module name: **Endocrine System-II** *Year:* ***Four*** *Duration:* ***4 weeks (Jul-Aug. 2024)***

Timetable hours: **Interactive Lectures, Case-Based Learning (CBL), Clinical Rotations, Tutorials, Skills, Practicals, Self-Directed Learning**

MODULE INTEGRATED COMMITTEE

MODULE COORDINATOR:	• Dr. Muhammad Owais Rashid (**Endocrinology**)
CO-COORDINATOR:	• Dr. Yusra Nasir

DEPARTMENTS & RESOURCE PERSONS FACILITATING LEARNING

BASIC HEALTH SCIENCES	CLINICAL AND ANCILLARY DEPARTMENTS
COMMUNITY MEDICINE • Dr. Saima Zainab	***ENDOCRINOLOGY*** • Dr. Aqiba Sarfraz
PATHOLOGY • Professor Naveen Faridi	***NEUROSURGERY*** • Dr. Salman Sharif
PHARMACOLOGY • Professor Tabassum Zehra	***PEDIATRICS*** • Professor Mehnaz Atiq Ahmed
DEPARTMENT of HEALTH PROFESSIONS EDUCATION • Professor Nighat Huda • Professor Sobia Ali • Dr. Afifa Tabassum • Dr. Yusra Nasir	
LNH&MC MANAGEMENT • Professor K.U. Makki, Principal LNH&MC • Dr. Shaheena Akbani, Director A.A & R.T LNH&MC	
STUDY GUIDE COMPILED BY: Muhammad Javed, Department of Health Professions Education	

INTRODUCTION

WHAT IS A STUDY GUIDE?

It is an aid to:

- Inform students how the student learning program of the module has been organized
- Help students organize and manage their studies throughout the module
- Guide students on assessment methods, rules, and regulations

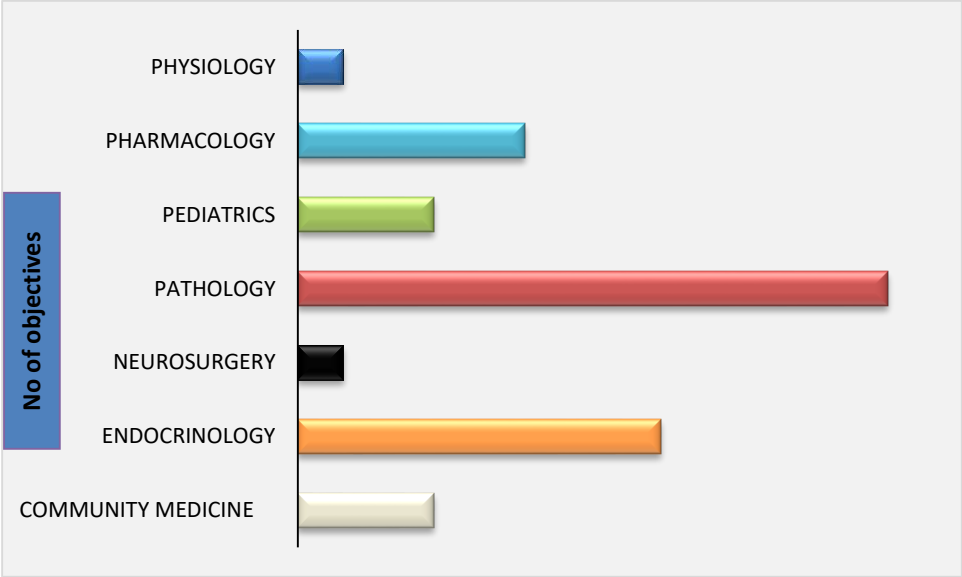
THE STUDY GUIDE:

- Communicates information on the organization and management of the module. This will help the student to contact the right person in case of any difficulty.
- Define the objectives which are expected to be achieved at the end of the module.
- Identify the learning strategies such as lectures, small group teachings, clinical skills, demonstration, tutorial, and case-based learning that will be implemented to achieve the module objectives.
- Provide a list of learning resources such as books, computer-assisted learning programs, web- links, and journals, for students to consult to maximize their learning.
- Highlights information on the contribution of continuous on the student's overall performance.
- Includes information on the assessment methods that will be held to determine every student's achievement of objectives.
- Focus on information about examination policy, rules, and regulations.

INTEGRATED CURRICULUM comprises system-based modules such as Eye/ENT, Orthopedics, Dermatology, Genetics, and Reproductive System-II which links basic science knowledge to clinical problems. Integrated teaching means that subjects are presented as a meaningful whole. Students will be able to better understand basic sciences when they repeatedly learn about clinical examples.

LEARNING EXPERIENCES: Case-based integrated discussions, Task-oriented learning followed by task presentation, skills acquisition in skills lab, computer-based assignments, and learning experiences in clinics, and wards.

INTEGRATING DISCIPLINES OF THE ENDOCRINE SYSTEM II MODULE



LEARNING METHODOLOGIES

The following teaching/learning methods are used to promote better understanding:

- Interactive Lectures
- Small Group Discussion
- Case- Based Learning (CBL)
- Clinical Experiences
- Clinical Rotations
- Practicals
- Skills session
- Self-Directed Learning

INTERACTIVE LECTURES: In large groups, the lecturer introduces a topic or common clinical conditions and explains the underlying phenomena through questions, pictures, videos of patients' interviews, exercises, etc. Students are actively involved in the learning process.

SMALL GROUP SESSION: This format helps students to clarify concepts, acquire skills or desired attitudes. Sessions are structured with the help of specific exercises such as patient cases, interviews, or discussion topics. Students exchange opinions and apply knowledge gained from lectures, tutorials, and self-study. The facilitator asks probing questions, summarizes, or rephrases to help clarify concepts.

CASE-BASED LEARNING (CBL): A small group discussion format where learning is focused on a series of questions based on a clinical scenario. Students discuss and answer the questions by applying relevant knowledge gained previously in clinical and basic health sciences during the module and construct new knowledge. The CBD will be provided by the concerned department.

CLINICAL LEARNING EXPERIENCES: In small groups, students observe patients with signs and symptoms in hospital wards, clinics, and outreach centers. This helps students relate knowledge of the module's basic and clinical sciences and prepare for future practice.

- **CLINICAL ROTATIONS:** In small groups, students rotate in different wards like Medicine, Pediatrics, Surgery, Obs & Gyne, ENT, Eye, Family Medicine clinics, outreach centers & Community Medicine experiences. Here students observe patients, take histories and perform supervised clinical examinations in outpatient and inpatient settings. They also get an opportunity to observe medical personnel working as a team. These rotations help students relate basic medical and clinical knowledge in diverse clinical areas.

PRACTICAL: Basic science practicals related to pharmacology, microbiology, forensic medicine, and community medicine have been scheduled for student learning.

SKILLS SESSION: Skills relevant to the respective module are observed and practiced where applicable in the simulated-learning environment such as a skills laboratory.

SELF-DIRECTED LEARNING: Students assume responsibilities for their learning through individual study, sharing and discussing with peers, and seeking information from Learning Resource Center, teachers, and resource persons within and outside the college. Students can utilize the time within the college's scheduled hours of self-study.

MODULE 4: ENDOCRINE 2

INTRODUCTION

The endocrine system is made up of glands that produce and secrete hormones, chemical substances produced in the body that regulate the activity of cells or organs. These hormones regulate the body's growth, metabolism (the physical and chemical processes of the body), and sexual development and function. The hormones are released into the bloodstream and may affect one or several organs throughout the body. The major glands of the endocrine system are the hypothalamus, pituitary, thyroid, parathyroid, adrenals, pineal body, and the reproductive organs (ovaries and testes)

MODULE OBJECTIVES AND STRATEGIES

By the end of the Endocrine 2 module students should be able to:

COMMUNITY MEDICINE

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Diabetes Mellitus (DM) & its prevention	Tutorial
· Describe Diabetes mellitus	
· Explain the risk factors and complications of DM	
· Discuss preventive measures for Diabetes Mellitus	
2. Iodine deficiency disorders & their prevention	Interactive Lecture
· Describe iodine deficiency	
· Explain the effects of iodine deficiency	
· Discuss the preventive measures for iodine deficiency	
· Explain the fortification of iodine in food	
3. Obesity & its prevention	SDL / Tutorial
· Describe Obesity	
· Discuss the epidemiology of Obesity	
· Enumerate the different methods to measure Obesity	
· Explain control measures for Obesity . Discuss Prevention of Diabetes	

ENDOCRINOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Hypopituitarism	Interactive Lecture/ Tutorial
· Discuss etiology, pathophysiology, risk factors, and clinical features	
· List the differential diagnoses.	
· Interpret the relevant investigations.	
· Discuss the plan of management for the condition	
2. Hyperpituitarism and Acromegaly	Interactive Lecture / SDL
· Discuss etiology, pathophysiology, risk factors, and clinical features	
· List the differential diagnoses.	
· Interpret the relevant investigations.	
· Discuss the plan of management for the condition	
3. Hyperthyroidism	
· Discuss etiology, pathophysiology, risk factors, and clinical features	
· List the differential diagnoses.	
· Interpret the relevant investigations.	

· Discuss the plan of management for the condition	
· Explain the complications of the condition	
4. Hypothyroidism	
· Discuss etiology, pathophysiology, risk factors, and clinical features	
· List the differential diagnoses.	
· Interpret the relevant investigations.	
· Discuss the plan of management for the condition	
· Explain the complications of the condition	
5. Thyroid Disorders	
· Discuss in detail the classification and clinical presentation of benign and malignant goiters	
· Suggest the diagnostic modalities for these conditions	
· Enumerate the treatment options for goiter	
· Propose a management plan for Goiter and its complications	
. Discuss Clinical manifestation of Parathyroid disorders (SDL)	
6. Cushing's Syndrome	
· Discuss etiology, pathophysiology, risk factors, and clinical features	
· List the differential diagnoses.	
· Interpret the relevant investigations.	
· Discuss the plan of management for the condition	
· Explain the complications of the condition	
7. Addison's disease	
· Discuss etiology, pathophysiology, risk factors, and clinical features	
· List the differential diagnoses.	
· Interpret the relevant investigations.	
· Discuss the plan of management for the condition	
· Explain the complications of the condition	
8. Diabetes Mellitus	
· Discuss etiology, pathophysiology, risk factors, and clinical features	
· List the differential diagnoses.	
· Interpret the relevant investigations.	
· Discuss the plan of management for the condition	
9. Grave's Disease	Lecture / Case-Based Learning
· Discuss the structure and functions of the thyroid gland	
· Recognize the mechanism of action of thyroid Hormones and regulation	
· Relate the clinical picture with the presentation of such clinical condition.	
· Identify the anatomical structures of the endocrine gland in front of the	
· Discuss the synthesis of T3 T4	
· Interpret thyroid function tests.	
· Manage the patient with thyroid dysfunctions.	

NEUROSURGERY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
Surgical Management of Pituitary Tumors	Interactive Lecture
· Describe the indication of surgery and different surgical techniques	
· Discuss Pre & post-management of pituitary surgery	
· Describe complications related to pituitary surgery	

PATHOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Overview of pituitary pathology	Interactive Lecture
· Discuss the pituitary gland function and hormone secretion	
· Discuss the hypothalamus-pituitary axis	
· Discuss the clinical manifestations of Pituitary diseases	
· Discuss the etiology, clinical manifestations of hypopituitarism	
· Discuss the posterior pituitary syndrome including Diabetes Insipidus & SIADH	
2. Tumors of Pituitary	Tutorial
· Classify anterior pituitary tumors.	
· Discuss the etiology, genetic alterations, morphology, and clinical manifestations of different types of adenomas	
· Discuss Hypothalamic suprasellar tumors	
3. Hyperthyroidism, Graves' disease & Goiter	Interactive Lecture / Tutorial / SDL
· Define hyperthyroidism & thyrotoxicosis	
· Discuss important causes of thyrotoxicosis	
· Classify disorders associated with thyrotoxicosis	
· Discuss clinical features and lab diagnosis of thyrotoxicosis	
· Define Graves' disease	
· Discuss the pathogenesis, morphology, and clinical course of Graves disease	
· Define Goiters	
· Classify Goiters	
· Discuss the etiology, pathogenesis, and clinical aspects of diffuse and multinodular goiters	
4. Hypothyroidism & Thyroiditis	
· Define hypothyroidism	
· Discuss congenital, autoimmune, and iatrogenic hypothyroidism	
· Differentiate between cretinism & myxedema about etiology, pathogenesis, clinical features, & lab diagnosis	
· Define thyroiditis and list different types of thyroiditis	

· Discuss the etiology, pathophysiology, morphology & clinical features of various types of clinically significant thyroiditis	
5. Tumors of Thyroid gland	
· Classify Thyroid tumors	
· Discuss the etiology, pathogenesis, genetic alterations, morphology, and diagnostic features of follicular, papillary, anaplastic, and medullary thyroid carcinomas	
6. Pathology of Parathyroid gland	
· Discuss the functions of the parathyroid gland	
· Discuss primary hyperparathyroidism concerning parathyroid adenoma, primary hyperplasia, and parathyroid carcinoma	
· Discuss the causes, pathogenesis, morphology, and clinical features of primary hyperparathyroidism	
· Discuss the causes of hypercalcemia about parathyroid levels	
· Discuss the diagnostic features of asymptomatic and symptomatic hyperparathyroidism	
· Discuss the causes, pathogenesis, morphology, and clinical features of secondary hyperparathyroidism	
7. Pathogenesis of Diabetes Mellitus (DM)	
· Define Diabetes Mellitus (DM)	
· Classify DM	
· Discuss the diagnostic criteria of type I & II Diabetes Mellitus	
· Differentiate between salient features of type I & II Diabetes Mellitus	
· Discuss glucose homeostasis & regulation of insulin release	
· Explain the pathogenesis of Type I & type II diabetes, related to beta cell dysfunction, genetic susceptibility, environmental factors	
· Discuss Diabetes in pregnancy	
8. Diabetes Mellitus: Pathogenesis of complications	
· Discuss the morphology & clinical features of type I & II Diabetes including classic triad & chronic manifestations	
· Elaborate the acute metabolic complications & Ketoacidosis.	
· Explain the morphology and clinical features of chronic complications of Diabetes, including lesions of the Pancreas, diabetic macro vascular disease, diabetic microangiopathy, nephropathy, neuropathy, diabetic ocular complications & susceptibility to infections	
9. Adrenal gland- I	Case-Based Learning/ Tutorial/ Interactive Lecture
· Discuss the function and hormone secretion of the adrenal cortex and medulla	
· Discuss the etiology, pathophysiology, and histopathology of hypercortisolism, hyperaldosteronism, adrenal adenoma	
· Discuss adrenogenital syndrome	
10. Adrenal gland- II	
· Discuss the etiology, pathophysiology, and histopathology of adrenocortical insufficiency including Primary acute adrenocortical insufficiency, Waterhouse-Friderichsen syndrome & Addison disease & secondary adrenocortical insufficiency.	
· Discuss pathogenesis, morphology, and clinical presentation of tumors of adrenal cortex and adrenal medulla.	

• Discuss MEN syndrome Type I & Type II	
• Discuss Adrenocorticoid Hyperfunction	
11. Histopathology of Thyroid	Tutorial
• Discuss morphological aspects of different types of goiters, cretinism, myxedema, thyrotoxicosis, Graves' disease, thyroiditis. • Discuss Histopathology of Pituitary tumors and Thyroid tumors	
12. Lab evaluation of endocrine diseases	
· Interpret the lab tests associated with diseases of the Hypothalamus, Thyroid, Parathyroid, Pancreas and adrenal glands	
13. Hypopituitarism	Interactive Lecture / SDL
· Discuss the clinical manifestation of pituitary diseases	
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PEDIATRICS

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Diabetes Mellitus (DM) & Diabetic Keto Acidosis (DK)	Interactive Lecture
· List the causes of diabetes mellitus in infants and children	
· Describe the etiology, risk factors, signs and symptoms, investigations, management, and complications of DM in infants and children	
2. Hypo & hyperthyroidism	
· Describe the etiology, clinical presentation, investigations, management, and complications of hyperthyroidism and hypothyroidism in infants and children	
3. Short stature & stunting	Interactive Lecture / Case-Based Learning
· Define short stature and stunting	
· Describe the etiology, risk factors, signs and symptoms, investigations, management, and complications of short stature and stunting	

RADIOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Discuss Endocrine Imaging	Interactive Lecture

PHARMACOLOGY

TOPICS & OBJECTIVES	LEARNING STRATEGIES
1. Pharmacology of Hypothalamic and Pituitary hormones	Tutorial
· Discuss the basic & clinical aspects of the relevant drugs, leading to clarification of the concepts	
2. Drugs used to treat hyper and hypothyroidism	SDL / Case-Based Learning
· Classify anti-thyroid drugs.	
· Discuss basic & clinical pharmacology of the anti-thyroid drugs	
· Explain the kinetics & dynamics of the drugs used to treat hypothyroidism	
. Discuss oral hypoglycemic drugs & Insulin preparation	
3. Pharmacology of Adrenocorticoids	Interactive Lecture/ Tutorial
· Classify corticosteroids	
· Explain their functions	
· Distinguish kinetics and dynamics of glucocorticoids and mineralocorticoids	
· Discuss their inhibitors of glucocorticoids and mineralocorticoids	
· Discuss the basic & clinical aspects of the relevant drugs	
4. Pharmacology of Oral Anti-Diabetic Drugs	Interactive Lecture
· Classify Anti-Diabetic drugs	
· Explain the basic & clinical pharmacology of the Anti-Diabetic drugs	
5. Insulin preparations	
· Discuss basic and clinical pharmacology of insulin preparations including new ones	

Apart from attending daily scheduled sessions, students too should engage in self-study to ensure that all the objectives are covered

LEARNING RESOURCES

SUBJECT	*RESOURCES*
ENDOCRINOLOGY	**TEXTBOOKS** 1. Davidson's Principles and Practice of Medicine 2. Kumar and Clark's Clinical Medicine, Edited by Parveen Kumar, 9th Edition
COMMUNITY MEDICINE	**TEXTBOOKS** 1. Community Medicine by Parikh 2. Community Medicine by M Ilyas 3. Basic *Statistics* for the Health Sciences by Jan W Kuzma
PEDIATRICS	**TEXTBOOK** 1. Nelson Textbook of Pediatrics, 19th Edition 2. Textbook of Pediatrics by PPA, preface written by S. M. Haneef 3. Clinical Pediatrics by Lakshmanaswamy Aruchamy, 3rd Edition
PATHOLOGY/MICROBIOLOGY	**TEXTBOOKS** 1. Robbins & Cotran, Pathologic Basis of Disease,9th edition. 2. RapidReviewPathology,4th edition by Edward F. Goljan MD
	WEBSITES: 1. http://library.med.utah.edu/WebPath/webpath.html 2. http://www.pathologyatlas.ro/

ASSESSMENT METHODS:

- **Best Choice Questions(BCQs)** also known as MCQs (Multiple Choice Questions)
- **Objective Structured Practical/Clinical Examination (OSPE or OSCE)**

Internal Evaluation

- Students will be assessed comprehensively through multiple methods.
- 20% marks of internal evaluation will be added to JSMU final exam. That 20% may include class tests, assignments, practicals, and the internal exam which will all have specific marks allocation.

Formative Assessment

Individual departments may hold quizzes or short answer questions to help students assess their learning. The marks obtained are not included in the internal evaluation

For JSMU Examination Policy, please consult the JSMU website!

More than 75% attendance is needed to sit for the internal and final examinations

LNH&MC EXAMINATION RULES & REGULATIONS

- Student must report to examination hall/venue, 30 minutes before the exam.
- Exam will begin sharply at the given time.
- No student will be allowed to enter the examination hall after 15 minutes of scheduled examination time.
- Students must sit according to their roll numbers mentioned on the seats.
- Cell phones are strictly not allowed in the examination hall.
- If any student is found with a cell phone in any mode (silent, switched off, or on) he/she will not be allowed to continue their exam.
- No students will be allowed to sit in an exam without University Admit Card, LNMC College ID Card, and Lab Coat
- Students must bring the following stationary items for the exam: Pen, Pencil, Eraser, and Sharpener.
- Indiscipline in the exam hall/venue is not acceptable. Students must not possess any written material or communicate with their fellow students.

SCHEDULE:

4 WEEKS	**ENDOCRINE II MODULE**	**22nd July 2024**
		17th August 2024