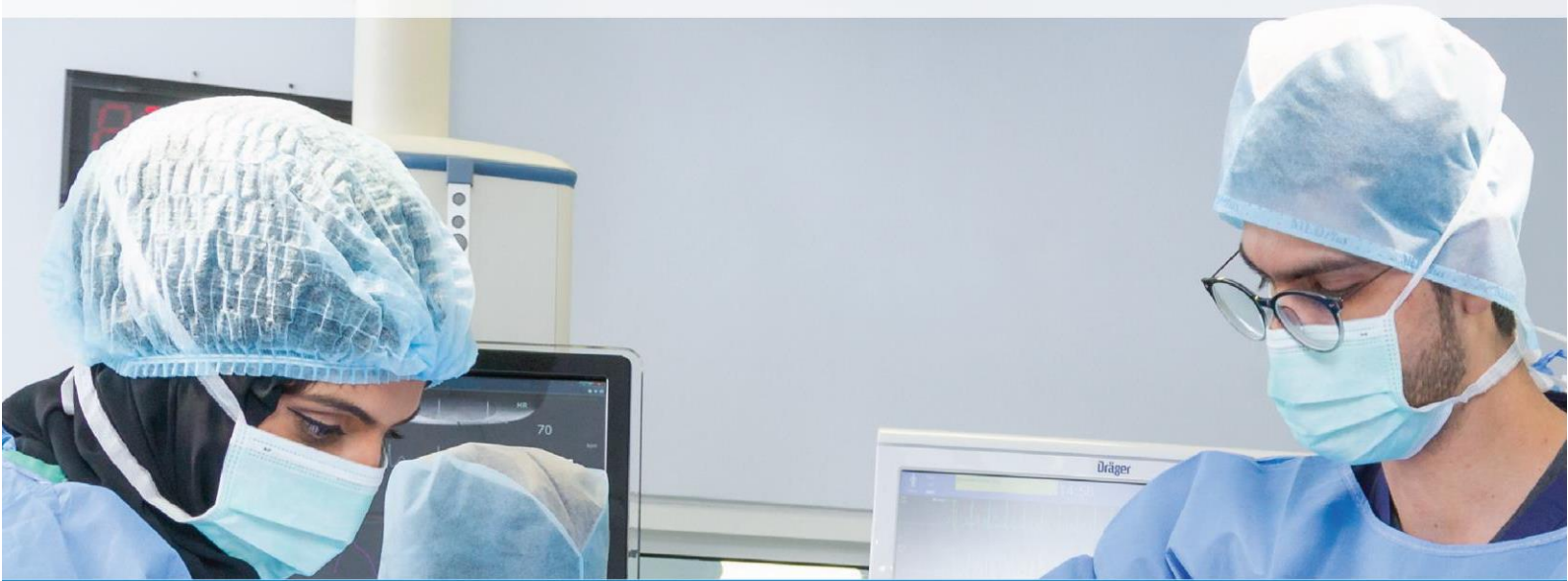


MOHAMMED BIN RASHID UNIVERSITY OF MEDICINE AND HEALTH SCIENCES



College of Medicine Catalog Academic Year 2018-2019



جامعة محمد بن راشد
للطب و العلوم الصحية
MOHAMMED BIN RASHID UNIVERSITY
OF MEDICINE AND HEALTH SCIENCES

DEGREE PLAN

1		Phase		
Code	Course		Credits	Pre-requisite
SEMESTER 1				
LANG1121	English for Health Sciences		2	Nil
MEDC1132	Enzymes and Metabolism		3	Nil
MEDC1153	Foundation Concepts in Medical Sciences		5	Nil
MEDC1114	Fundamentals of Epidemiology & Biostatistics 1		1	Nil
MEDC1115	History of Medicine		1	Nil
ITHS 1116	Innovation in Health Sciences		1	Nil
MEDC1117	Introduction to the Practice of Medicine 1		1	Nil
ETHC 1118	Principles of Bioethics		1	Nil
TOTAL			15	Nil
SEMESTER 2				
MEDC1241	Abdomen, Pelvis and Perineum: Structure and Function		4	
MEDC1212	Fundamentals of Epidemiology & Biostatistics 2		1	Nil
MEDC1223	Head and Neck: Structure and Function		2	Nil
MEDC1214	Introduction to the Practice of Medicine 2		1	Nil
MEDC1244	Limbs and Spine: Structure and Function		4	Nil
MEDC1233	Thorax: Structure and Function		3	Nil
TOTAL			15	

Phase 2				
Code	Course		Credits	Pre-requisite
SEMESTER 3				
MEDC2331	General Microbiology		3	Phase1
MEDC2332	Genetics and Molecular Biology		3	Phase1
MEDC2313	Foundations of Clinical Medicine 1		1	Phase1
MEDC2334	Hematopoietic and Immune system		3	
MEDC2325	Research Methods 1		2	Phase1
MEDC2336	Pathologic Basis of Disease		3	Phase1
TOTAL			15	
SEMESTER 4				
MEDC2441	Cardiovascular system		4	Phase1
MEDC2422	Foundations of Clinical Medicine 2		2	Phase1
MEDC2433	Principles of Pharmacology and Therapeutics		3	Phase1
MEDC2424	Research Methods 2		2	Phase1
MEDC2435	Respiratory system		3	Phase1
MEDC2426	Skin and Subcutaneous Tissue		2	Phase1
TOTAL			16	

SEMESTER 5			Phase1, Phase 2 (Sem1&2)
MEDC3541	Digestion and Nutrition	4	
MEDC3532	Endocrine system	3	
MEDC3523	Foundations of Clinical Medicine 3	2	"
MEDC3534	Renal System	3	
MEDC3525	Research Project	2	"
TOTAL		14	
SEMESTER 6			Phase1, Phase 2 (Sem1&2)
MEDC3621	Foundation of Clinical Medicine 4	2	
MEDC3632	Human Reproduction	3	"
MEDC3633	Integrated Medicine	3	"
MEDC3624	Mind and Behavior	2	"
MEDC3635	Musculoskeletal System	3	"
MEDC3636	Neurosciences	3	"
TOTAL		16	

Phase 3 Clinical Sciences (120 Weeks) (Years 4-6)

Phase 3		
Year 4	Family Medicine (including Dermatology), Behavioral Medicine, Internal Medicine, General Surgery and Pediatrics, Healthcare management.	40 weeks
	Breaks and Exams	12 weeks
Year 5	Surgery, Subspecialties (Ophthalmology, Radiology, Anaesthesia, ENT)	32 weeks
	Emergency Medicine, Orthopaedics and Rehabilitation, Medicine (including Geriatrics) , Pediatrics (including Neonatology), ObGyn	
	Electives	8 weeks
Year 6	Breaks and exams	12 weeks
	Medicine, Surgery, Pediatrics, Elective.	48 weeks
	Breaks	4 weeks

20. Course Descriptions

This section details course descriptions for Phase 1 of the MBBS program. Please refer to the corresponding course booklets for more details about the courses. None of the courses listed below has a prerequisite, except for courses that are divided into two parts, where successful completion of part one is a prerequisite for part two.

21.1 Course Descriptions - Phase 1

Innovation in Health Sciences

In the current global climate, technology plays a major role in everyday life, particularly education and healthcare. This course introduces how technology is utilized in acquisition, analysis and protection of health information necessary for improving quality and efficiency of healthcare. The course also provides an overview of three key areas that influence current healthcare delivery; using technology and electronic resources in accessing information from medical literature; 'design thinking' as a problem-solving approach used to stimulate innovation; and the role of 'social media'.

English for Health Sciences

This course aims to provide students with skills in written and oral communication required for the study of medical sciences. Acquiring a range of medical and anatomical terminology forms the main contents of this course. Students will also be taught how to summarize and paraphrase information from a piece of written text. There will be in-class activities that involve teamwork, oral presentation and role-play of doctor-patient communication.

Principles of Bioethics

This course will enable the students to develop their understanding of the concepts of Biomedical Ethics and Professional Behavior with an introduction to the Islamic way of life. They will learn how this impacts on the application of general medical ethics in a specific cultural context. With this understanding, they will appreciate the multi-cultural nature of the patient population and be aware of the need to be an advocate for different segments of the population.

History of Medicine

This course will introduce students to the historical development of medicine and health related sciences. They will gain an overview of how new ideas have affected the approach to medical care, as well as the contributions made by specific scientists, physicians and surgeons. Although the focus will be on Western medical practice, students will also be introduced to the historical development of medicine in other regions and traditions.

Enzymes and Metabolism

This course introduces several basic biochemical concepts and examines fuel metabolism and its regulation, i.e. what is the energy-currency of our cells, how is it produced from different metabolic fuels, the way energy sources are catabolized and stored in the body and how abnormalities can arise in these pathways.

Foundation Concepts in Medical Sciences

This course covers a range of essential that are crucial to understanding the structural and functional organization of the normal human body. These concepts have wide application across all body systems, and through the major disciplines of Anatomy, Biochemistry, Physiology, Immunology, Hematology, Pathology and Pharmacology. A firm understanding of these concepts at this foundational stage will allow students to appreciate how disturbances to normal structures and functions result from or lead to disease processes, as will be explored throughout the rest of the medical program. This course institutes the scientific basis to medicine, encouraging students to develop their analytical and metacognitive skills, their capacity for critical appraisal of scientific information and an appreciation of the importance of life-long and self-learning, as well as in developing management skills and an ability to work as part of a team.

Introduction to the Practice of Medicine 1 & 2

This course will introduce the students to the environment in which they are being prepared to practice and the ethical principles guiding medical practice.

Fundamentals of Epidemiology and Biostatistics 1 & 2

This course is a first in a series that will be given through-out Phases 1 and 2 This course provides the background for understanding, epidemiology and biostatistics to students who have no previous knowledge. Students will be introduced to the basic principles and methods as applied to public health problems. Students will learn to recognize the role of quantitative methods in understanding clinical questions, especially in decision-making. This course will be delivered such that the emphasis will be to acquire a comprehensive understanding of the general concepts and uses of epidemiology and biostatistics as opposed to the underlying mathematical developments.

Limbs and Spine: Structure and Function

This course is about the structure of limbs and spine of the human body in relation to their function. The course will also introduce the concept of “living anatomy” as seen on conventional medical imaging and on living human body. There will be a focus on the normal mechanisms involved in locomotion and gait. Students will be able to develop an attitude of teamwork and self-directed learning through their engagement with the teaching methodology in the course.

Thorax: Structure and Function

The Thorax: Structure and Function course provides students with functional knowledge of the structure of the thorax region that will enable further understanding of organ-system courses in Phase 2. The course will also introduce the concept of “living anatomy of the thorax” as seen on conventional medical imaging and on living human body. There will be a focus on some normal mechanisms involved in cardiovascular and respiratory functions as well.

In addition, students will be able to develop an attitude of teamwork and self-directed learning through their engagement with the teaching methodology in the course.

Abdomen, Pelvis and Perineum: Structure and Function

This course deals with the structure of abdomen, pelvis and perineum of the human body in relation to the function of organs located in those regions. The course also introduces students to the concept of “living anatomy” as related to visualizing structure of the abdomen on conventional medical imaging and on the living. There will be a focus on the normal mechanisms involved in food digestion and formation of urine. Students will be able to develop an attitude of teamwork and self-directed

learning through their engagement with the teaching methodology in the course.

Head and Neck: Structure and Function

This course provides students with functional knowledge of the structure of Head and Neck region that will enable further understanding of organ-system courses in Phase 2. The course will also introduce the concept of "living anatomy of the Head and Neck" as visualized on conventional medical imaging and on the living human body.

At the end of the course, students will be able to describe the major features of the skull, the main structures present in the neck, face, temporal and infratemporal regions. They will identify the main anatomical features of the face, nose, oral cavity and tongue, pharynx, soft palate, and larynx. They should explain the basis of cranial nerve testing. They should explain the anatomical basis of upper airway obstruction, cervical swellings, facial nerve palsy, epistaxis, and dysphagia. In addition, students will be able to develop an attitude of teamwork and self-directed learning through their engagement with the teaching methodology in the course.

Course Descriptions - Phase 2

General Microbiology

In this course students will be introduced to the diversity of microorganisms, including bacteria, protozoa, helminths, fungi, viruses and prions. They will get an overview of the structure, genetics, classification, metabolism, life cycle, identification, isolation & cultivation methods of the major groups of microorganisms focusing on those pathogenic for humans. In addition, the approaches for prevention and control of infectious diseases will be addressed. Using a diversity of teaching approaches including lectures, tutorials, laboratory practical sessions and simulation, student will be equipped with the basic principles of microbiology. It is expected that students will be able to critically evaluate knowledge about the nature of microbes of medical importance and how these characteristics relate to their pathogenic potential and onset of infectious diseases. In addition, students will be able to develop an attitude of teamwork and self-directed learning through their engagement with the teaching methodologies in the course.

Pathologic Basis of Disease (formerly General Pathology)

This course defines Pathology as a discipline. It will outline multiple disease aetiologies that underlie fundamental pathobiologic processes (pathogenesis) and link these with alterations in structure and function (morphology and pathophysiology). Through clinical case illustrations these will be integrated with clinical presentations and outcomes (clinico-pathological correlation). Thus, it will provide the transition from the study of normal anatomy, physiology and biochemistry in Phase 1 to the specific disease entities of different body systems in Phase 2 semesters 3 to 6. The case-based teaching will provide early orientation to clinical sciences based on which Phase 3 clinical knowledge will evolve.

The course covers cellular changes due to multiple disease aetiologies, adaptations to cell injury and disease and organ-specific change in structure and function. Alterations in haemodynamic balance resulting in oedema, thrombosis, embolism and shock impacting multiple organs will be addressed. General aspects of neoplasia will include classification, terminology, predisposition, carcinogenesis, molecular basis and clinical manifestations. Tissue pathology related to hereditary diseases, infancy and childhood, autoimmunity, nutrition and environment will be highlighted. The course lays the ground for integrated teaching of organ-specific pathology in Semesters 4 to 6.

Course delivery is through lectures with a strong clinical context. Tutorials will be an opportunity for participative self-directed learning, identification of knowledge gaps and team-work. Practicals, using digital pathology, will provide skills of observation and recognition of diseased organs and tissues in a clinical scenario. Simulation will be an opportunity to assimilate the diagnostic role of Pathology in the clinical context. Seminars will provide an opportunity for creativity, analytical thinking, communication, skill development in information technology and for team collaboration. All aspects of learning will have an assessment component for the domains of knowledge, skills and competency.

Foundations of Clinical Medicine 1

The expected outcomes of this course are to enable students to take and record a patient history using a patient centered systematic approach within the context of present complaint, past, family and social history. They should also be able to record an accurate medication history, perform a structured and relevant general physical examination and clearly record and subsequently present findings. The concepts introduced in this course will be re-visited and developed further in subsequent courses.

Principles of Pharmacology and Therapeutics

This course will build on the introductory concepts of pharmacology introduced in Phase 1. It is intended to aid students in understanding the basic principles of drug action. Using a combination of didactic teaching, self-directed learning and team-based learning, the students will be guided through a journey of where and how drugs work in the body (primary sites of action e.g. receptors, enzymes), the consequences of such interactions (the actions and effects of drugs on the body or 'pharmacodynamics'), how the body handles drugs (the factors that determine drug concentration changes with time following dosing or 'pharmacokinetics'), and why drugs affect people differently (pharmacogenomics). A variety of physiological models for the pharmacological action of drugs will be used to consolidate the basic principles of pharmacology.

Research Methods 1

This is the first course in a series of three courses on research methods. This course is sequential to the two previous courses given in Year 1, MEDC1114 and MEDC1212 (Fundamentals of Epidemiology and Biostatistics 1 and 2), this means that the syllabus of this course builds upon the knowledge and skills obtained in Semesters 1 and 2. It will continue the scientific journey with an emphasis on analytical skills and critical thinking. The overall aim of this course is to deliver the required knowledge and skills to prepare the students for their research project. In-depth study research methods and biostatistics concepts for the analysis of categorical and continuous data relevant to the interpretation of research findings will be emphasized. The focus is on understanding when a specific statistical test is used in medical research and knowledge on interpreting the medical findings, rather than on the computational aspects. Topics include selecting appropriate measures of association, outcome measures, and quantitative analysis. By the end of this course, the student will be able to differentiate between the different research designs and list their strengths and limitations. Specifically, students will be exposed to the foundations of conducting a scientific research. In addition, each student will be able to start thinking of a potential research project that they will be able to pursue during the following two semesters.

Genetics and Molecular Biology

This course will explore aspects of molecular biology and genetics in medicine. The impact of this incessantly evolving field, in health and disease will be highlighted. Further, current understandings and new concepts relating to diagnosis, prognosis, prevention and treatment of genetic diseases will also be presented.

Cardiovascular System

Cardiovascular disease is the primary cause of human mortality and morbidity. This course builds on the introductory coverage of normal structure and function in Phase 1 and the understanding of pathological process from the "General Pathology" course to consider the disturbances to normal physiology and the specific changes in end-organ structure that ultimately lead to the pathological hallmarks of cardiovascular disease. The course deals with the study of pathophysiology of common and major diseases of the cardiovascular system, their clinical presentations, and the various approaches to treatment. The emphasis is on understanding pathophysiological mechanisms rather than on memorizing clinical details, but learning will be enhanced through integrated online tutorial and laboratory-based teaching modules that feature video interviews with patients, clinicians, caregivers and family. This will be complemented by clinical exposure to patients in hospital settings, and to observation of simulated cardiovascular disorders in the Simulation Centre.

Foundations of Clinical Medicine 2

Appropriate use of history and physical examination is essential to clinical practice. One of the most common tasks that a physician will perform is the patient interview. They will conduct between 100,000 and 200,000 patient interviews in their professional career (Nichols & Mirvis, 1998). From the medical history, physicians garner 60-80% of the information that is relevant for a diagnosis and the history alone can lead to the final diagnosis in 76% of cases (Roshan & Rao, 2000). It is "the most powerful and sensitive and most versatile instrument available to the physician" and is the cornerstone of clinical practice.

Hematopoietic and Immune System

This course will introduce the students to the principles and concepts of hematology and immunology which will guide them in understanding the immune response and its involvement in health and disease. The students will also be introduced to the pathophysiology of common hematological and immunological diseases through clinical correlations that focus on clinically applied hematological and immunological concepts.

Renal and Urinary System

This course deals with the study of pathophysiology of common and major diseases of the renal and urinary system, their clinical presentations, diagnostic investigations and the various approaches for treatment. The emphasis is on understanding pathophysiological mechanisms rather than on memorizing clinical details. Learning objectives in this course support understanding of the consequences of disease and their management during clinical clerkships.

Research Methods 2

This is the second course in a series of three courses on research methods, Research Methods 1 and 2 and Research Project. This means that the syllabus of this course builds upon the foundation knowledge and skills obtained in the previous course (i.e. Research Methods 1). It will continue the scientific journey with an emphasis on analytical skills and critical thinking. Students will learn the importance of

conducting research and will acquire the respective skills to assist young motivated inquisitive learners to be engaged in research. The course will start with the students submitting the Student's Research Project Form, as a fast-track request to the MBRU-Institutional Review Committee; and at the end of the course, the students will be able to develop a full-fledged research proposal and complete data collection. A specific focus during the development of the research proposal will be to enable the students to develop a detailed comprehensive research methods section. Data analysis, and final submission of the report will take place in Semester 5, during the Research Project course. Students are advised to continue working on their research projects during the summer break.

From a content perspective, this course further introduces students to the principles of research design and methods with a specific focus on enhancing their analytical skills. Specifically, the course will cover: Recap on the formulation of the problem statement; developing a research question and conducting a literature review; choice of appropriate study designs; measurement of concepts; sampling issues; modes of data collection; and analysis of quantitative and qualitative data; and practical ethical considerations will be also discussed. The data management and analysis detailed in the proposal will be carried-out during the Research Project course in Semester 5 of Year 3.

Respiratory System

This course, together with other organ-system course in Phase 2, will prepare the learner for clinical clerkships in the next Phase (Phase 3) of the program. The course addresses physiological and pathologic changes that occur in a variety of respiratory diseases. The focus is on correlating structural, pathophysiological changes with symptoms, signs, and radiological abnormalities that accompany common respiratory diseases. The learner will begin to acquire skills of physical examination of the normal respiratory system in simulated patients. Teaching approaches will facilitate in the learner, the development of effective communication with patients, independent learning, and effective team working.

Digestion and Nutrition

This course, together with other organ-system courses in Phase 2, prepares the learner for clinical clerkships in the next Phase (Phase 3) of the program. The course addresses physiological and pathological changes which occur in a variety of gastro-intestinal diseases. The focus is on correlating structural pathophysiological changes with symptoms, signs, and radiological abnormalities which accompany common gastro-intestinal diseases and the various approaches for treatment. This course also centers on the basic principles of nutrition in health and disease based on the knowledge of nutrient classes, their functions, sources and deficiency symptoms. Teaching approaches will facilitate in the learner, the development of effective communication with patients and simulated patients, independent learning, and effective team working.

Foundations of Clinical Medicine 3

This course involves learning the skills of history taking and physical examination related to the organ systems tackled in the semester.

Human Reproduction

This course describes the normal human reproductive system and breasts in males and females. In addition, the pathophysiology, clinical presentation, and principles of management of common reproductive and breast-related conditions are explained. The course will also provide the opportunity for the student to acquire skills for

history taking and physical examination of the reproductive system and breast in simulated settings, as well as exemplified in patients by visits to healthcare facilities.

Research Project

This is the third and final course in a series of three courses on research methods (Research Methods 1, Research Methods 2, and Research Project). This means that the syllabus of this course builds upon the foundation knowledge and skills obtained in the previous courses (i.e. Research Methods 1 and Research Methods 2). It will continue and then culminate the scientific journey with an emphasis on analytical skills, critical thinking, and the oral, written, and digital dissemination of research. Students will demonstrate their statistical analysis, data interpretation, and scientific communication skills by developing and delivering a conference poster, writing a dissertation, and designing a digital abstract of their student research project. Through these assignments, students will demonstrate that they have developed the required knowledge, skills, and competencies to complete a research project and disseminate the findings to both the scientific and lay community. The course will start with the students completing their data collection within the first three weeks of the semester followed by a recap on the data management and analysis skills acquired during the Research Methods 1 and Research Methods 2 courses. A specific focus of this course is developing scientific communication skills required by young motivated inquisitive learners to disseminate their research findings. Specifically, students will be required to (i) design an engaging conference poster that will be presented at the Student Research Poster Presentation Conference; (ii) write a dissertation; and (iii) develop a digital abstract that can be used on social media to disseminate the findings of their research project.

Skin and Subcutaneous Tissue

The course is designed to provide students with pathophysiological framework for explaining skin and connective tissue disorders. The course involves describing the structure and function of the integumentary system; the skin and related appendages (hair, nails, glands and mucous membrane), and the variety of mechanical, thermal and environmental impacts that affect dermal ageing process.

Endocrine System

This course involves learning about the nomenclature of endocrine glands and their hormones; the hormones' sites of biosynthesis, mechanism of action, and metabolism; their impact on overall body physiology and metabolism; and disease states resulting from various endocrine disorders. The focus will be on the pathophysiology of endocrine dysfunction.

Foundations of Clinical Medicine 4

This course involves learning the skills of history taking and physical examination related to the organ systems tackled in the semester.

Mind and Behavior

Students will be introduced to psychological and sociological models of behavior, and how these relate to the experience and response to illness in an individual or social/cultural group. They will gain an understanding of the importance of psychosocial factors in health and wellbeing and how these may influence the effectiveness of proposed treatments. Students will learn how to analyze behavioral determinants of illness, especially as applied to substance abuse, self-harm and eating disorders.

Musculoskeletal System

This course, together with other organ-system courses in this Phase (Phase 2), prepares the learner for clinical clerkships in the next Phase (Phase 3) of the program. The course illustrates pathophysiologic mechanisms of musculoskeletal disorders by addressing developmental, degenerative, infectious and inflammatory conditions of joints, muscles, tendons, and bone in both adults and children. The course introduces the student to basic knowledge and skills in the field of musculoskeletal medicine in order to address diagnostic and therapeutic questions in patient care.

Neurosciences

This course is an integrated neuroanatomy, neurophysiology, neuroradiology, neuropathology and neuropharmacology course covering normal and disturbed function. It includes study of the central and peripheral nervous systems, sensory, autonomic and motor neuroscience, special senses and provides a broad exposure to the pathophysiology of nervous system disorders, as well as signs and symptoms of neurological disorders.

Integrated Medicine

This course will integrate the knowledge of fundamentals of pathophysiology of disease in the setting of case-based presentations and discussions. Through illustrative clinical presentations it will provide horizontal and vertical integration of knowledge demonstrating the complexity of diseases that affect multiple systems either through the pathology of a primary disease and its complications or through co-existence of multiple diseases.