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Rawalpindi Medical University

University Residency Program 2025

MD INTERNAL MEDICINE

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PREFACE

The horizons of medical education are expanding, reflecting a global surge in interest in postgraduate medical education. There is an increasing recognition of the necessity for healthcare professionals to gain expertise in educational skills and the importance of formal acknowledgment of postgraduate training in Internal Medicine. We are witnessing a significant rise in enrollment in postgraduate courses in medical education, more frequent publication of medical education journals, and the development of e-journals and other innovative online resources. Consequently, there is a pressing need to provide robust support in postgraduate medical education for a diverse, national group of colleagues across all specialties and at every stage of their professional development.



Our objective is succinct: to enhance the teaching capabilities of clinical colleagues and to facilitate advanced learning for students. This book represents the state-of-the-art activities of the MD Internal Medicine program at Rawalpindi Medical University (RMU). For the convenience of supervisors and residents, the curriculum is comprehensively incorporated into this book.

The MD curriculum is anchored on the six core competencies outlined by the Accreditation Council for Graduate Medical Education (ACGME), which include: **Patient Care, Medical Knowledge, System Based Practice, Practice Based Learning, Professionalism, Interpersonal and Communication Skills**. The mission of Rawalpindi Medical University is to enhance the health of the communities we serve through education, biomedical research, and healthcare. Integral to this mission is fostering a research culture and establishing a comprehensive research structure and curriculum for residents, which are detailed in this book.

This preface outlines the guiding principles and aims of the MD Internal Medicine program at RMU, underscoring our commitment to educational excellence and the continual advancement of medical knowledge and practice.

Prof. Muhammad Umar (Hilal-e-Imtiaz)
MBBS, MCPS, FCPS, FACP, FRCP (Lon), FRCP (Gla), AGAF
Vice Chancellor Rawalpindi Medical University & Allied Hospitals

REVISION CONTRIBUTORS

The field of medicine is constantly evolving, driven by new discoveries and advancements that demand continuous updates to educational curricula. It is with great pride that we present the revised and updated MD Medicine Curriculum at RMU. This comprehensive revision reflects our commitment to providing a robust and contemporary education that prepares our students for the challenges and opportunities of modern medical practice.

The revision process was a collaborative effort among our esteemed faculty members, each bringing their expertise and dedication to ensure the curriculum meets the highest standards of medical education. The curriculum sections were meticulously reviewed and updated to incorporate the latest medical knowledge and pedagogical practices.

- **Section VII** was revised by Prof. Muhammad Khurram.
- **Section III** was diligently updated by Dr. Saima Ambreen
- **Section VIII-XII** were meticulously reviewed and updated by Dr. Shahzad Manzoor and Dr. Sana.
- **The Section I, II V, & VI** were revised, and the entire document was expertly compiled by Dr. Nida Anjum.

This revised curriculum represents a significant milestone in our ongoing mission to provide an exceptional medical education. We are confident that these updates will greatly benefit our students, equipping them with the knowledge and skills necessary to excel in their medical careers and contribute meaningfully to the healthcare field.

We extend our heartfelt thanks to all faculty members involved in this revision for their hard work and dedication. It is through their collective efforts that we continue to advance the standards of medical education at RMU.

TABLE OF CONTENTS

SR NO.1	CONTENT
Section no.1: Preamble	
1.1	Introduction to MD Medicine Curriculum
1.2	Mission & Vision RMU
1.3	Mission, Vision, & Aim of MD Medicine Programme
1.4	What is Competency based Medical Education
1.5	Rules and Regulation
1.6	Core Competencies of MD Medicine
1.7	General Learning Outcomes
1.8	Competency Based Learning Outcomes
1.9	General Framework of the programme
1.10	Teaching & learning
1.11	Rotations & Electives
1.12	Assessment
Section no.2: Core Content	
2.1	Core curricular content for the 1st year
2.2	Core curricular content for 2nd, 3rd, and 4th Year
2.3	
Section no.3: Workshops	
Section no.4: Research and Thesis Writing	
4.1	Research Curriculum
Section no.5: Mandatory Electives/Clinical Rotations	
5.1	Electives/Clinical Rotations Curriculum

Section no.6: Training Milestones	
Section no.7: Assessment And Evaluation	
Section no.8: Entrustable Professional Activities	
Section no.9: Logbooks	
9.1	General Logbook
9.2	Clinical Rotation Logbook
9.3	Research Logbook
9.4	Reflective log/ portfolio
Section no.10: References	
Section no.11: Learning Resources	
Section no.12: Appendices (Proformas/Forms)	
A	Workplace Based Assessments: 360- Degree Feedback
B	Supervisor's Annual Review Report
C	Evaluation of program by the resident
D	Guidelines for program evaluation & Template
E	Annual Program Evaluation
F	SWOT Analysis Form

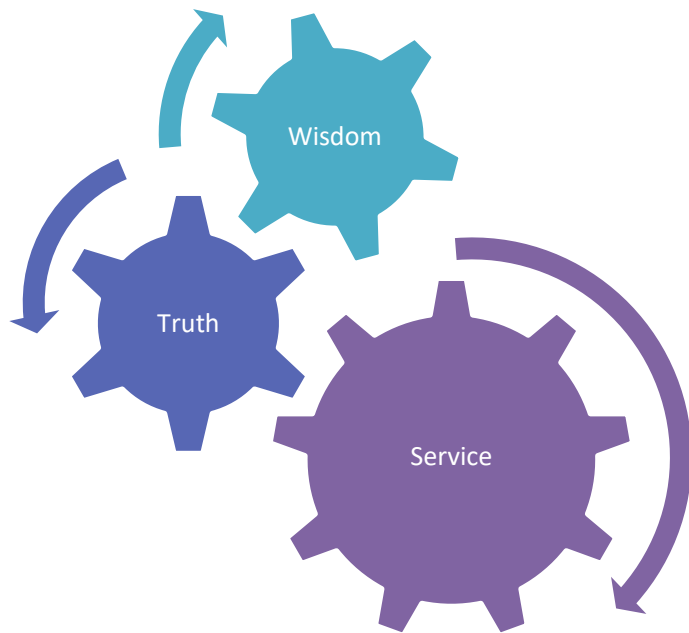
SECTION NO. 1

PREAMBLE

1.1 INTRODUCTION TO MD MEDICINE CURRICULUM:

The four-year MD Medicine curriculum at Rawalpindi Medical University (RMU) is meticulously structured around the ACGME core competencies, focusing on producing highly competent physicians skilled in patient-centered care, medical knowledge, and professionalism. This program integrates comprehensive clinical training across various specialties, emphasizing hands-on experience, evidence-based practice, and ethical patient management. Residents progress through core rotations and electives, allowing them to develop the necessary expertise in both inpatient and outpatient settings. By the program's completion, graduates are prepared to meet complex healthcare needs both nationally and internationally, with the capability to function independently in diverse clinical environments.

RMU Motto



1.2 RMU Mission, Vision, & Value

Mission Statement

To impart evidence-based research-oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability.

Vision & Values

Highly recognized and accredited Centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learners and are socially accountable.

1.3 MISSION & VISION STATEMENTS OF THE MD MEDICINE PROGRAMME OF RMU:

The mission & vision of the Internal Medicine Residency Program at Rawalpindi Medical University is to:

Mission Statement:

“The MD Internal Medicine Residency Program at Rawalpindi Medical University is committed to training proficient, compassionate, and ethical physicians who deliver evidence-based, patient-centered care. We strive to create a dynamic learning environment that fosters clinical expertise, research acumen, and professional integrity. Through rigorous academic and clinical training, mentorship, and community engagement, we aim to produce physicians who are equipped to meet the healthcare needs of diverse populations with dedication and social accountability.”

Vision Statement:

“To be a premier, internationally recognized center for internal medicine education, cultivating leaders in clinical practice, medical research, and healthcare innovation. Our graduates will exemplify excellence in patient care, demonstrate leadership in advancing medical knowledge, and contribute meaningfully to the well-being of the communities they serve, both locally and globally.”

Aim Of The Programme:

The MD Internal Medicine program at Rawalpindi Medical University aims to develop specialists with comprehensive medical knowledge, clinical excellence, and leadership skills. The program emphasizes evidence-based practice, proficiency in managing complex medical conditions, and readiness for subspecialty training. Trainees will cultivate research, critical thinking, and communication skills, enabling them to excel in both inpatient and outpatient settings. Professionalism, community engagement, and a commitment to lifelong learning are central, ensuring graduates provide compassionate, patient-centered care and contribute to the advancement of medical knowledge.

1.4 WHAT IS COMPETENCY BASED MEDICAL EDUCATION?

Competency-Based Medical Education (CBME) is an educational framework that emphasizes the attainment of specific skills and competencies as outcomes of training. CBME has been adopted widely in resident and fellowship programs, incorporating the Core Competencies and Milestones as part of the educational process. Defined by Frank et al. (2010) as “an outcomes-based approach to the design, implementation, assessment, and evaluation of medical education programs, using an organizing framework of competencies,” CBME focuses on ensuring learners develop the key abilities needed to perform their professional roles.

In CBME, competencies represent essential skills and knowledge sets required for effective practice. For example, future physicians must demonstrate foundational knowledge and the ability to provide safe and effective patient care. This educational approach ensures that all graduating learners achieve the core competencies necessary for independent practice. Unlike traditional models, which often measure progress by time spent in training (e.g., a fixed three-year residency for internal medicine), CBME assesses learners based on the demonstration of competence, ensuring they have developed the skills required to care for patients independently.

DIFFERENCE BETWEEN TRADITIONAL VS COMPETENCY BASED MEDICAL EDUCATION

Variable	Traditional Educational Model	CBME
Driving force for curriculum	Knowledge acquisition	Knowledge application
Driving force for process	Teacher	Learner
Path of learning	Hierarchical	Non-Hierarchical
Responsibility of content	Teacher	Teacher & Learner
Goal of educational encounter	Knowledge and skill acquisition	Knowledge and skill application
Type of assessment tool	Single assessment measure	Multiple assessment measures
Assessment tool	Proxy	Authentic (mimics real profession)
Setting for evaluation	Removed	In clinical and professional Settings
Timing of assessment	Emphasis on summative	Emphasis on formative

WHY COMPETENCY BASED MEDICAL EDUCATION?

CBME ensures physicians acquire the critical skills and knowledge essential for independent, safe practice in their specialties, enhancing patient care by setting competency standards across institutions. Centering on the learner, CBME aligns educational content, feedback tools, and program evaluation with performance-based outcomes. This approach minimizes rater bias by focusing on evidence-based criteria and directly observed competencies rather than subjective ratings. CBME also establishes a clear, shared framework for progression that benefits learners, educators, and accrediting bodies, promoting transparency and public trust in training standards and patient care quality.

WHAT IS THE CORE -COMPETENCIES FOR AN INTERNAL MEDICINE RESIDENT?

The **ACGME** and the **American Board of Medical Specialties** developed the six Core Competencies necessary for a practicing physician.

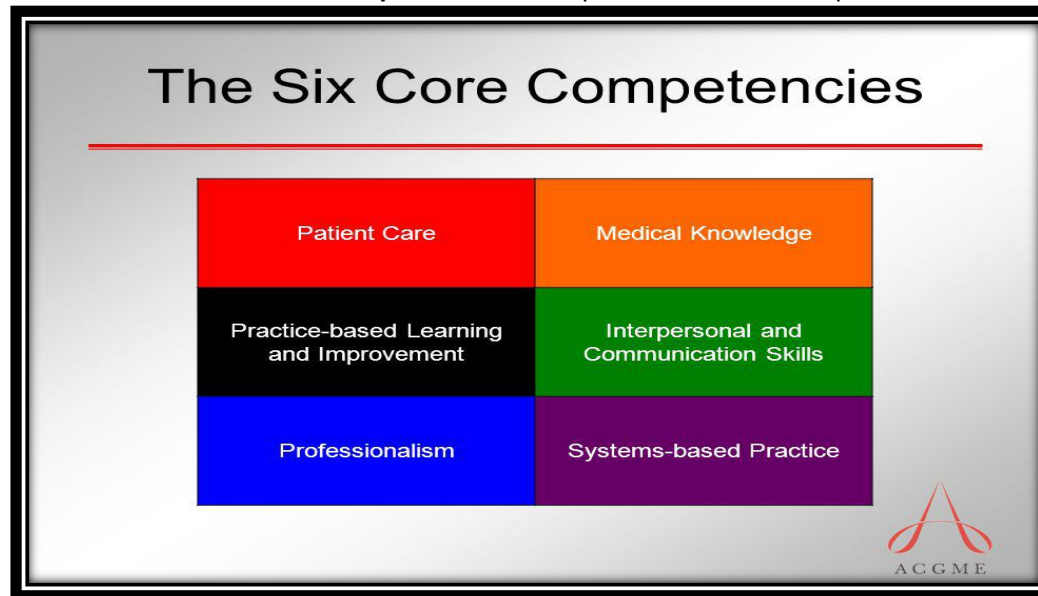


Figure 1: Accreditation Council for Graduate Medical Education (ACGME). (2013). The Six Core Competencies. Retrieved from the ACGME

1.5 RULES AND REGULATIONS:

Admission Criteria:

Applications for admission to MD Training Programs will be invited through print and electronic media advertisements, specifying the application deadline and the Entry Examination date. At present induction is being done according to **Central Induction Policy (CIP) of Specialized Healthcare and Medical Education Department, Punjab (SHC & ME)**.

Eligibility: Applicants must meet the following criteria by the application deadline:

- I. **Basic Medical Qualification:** MBBS or equivalent, recognized by the Pakistan Medical & Dental Council (PMDC).
- II. **House Job Experience:** Certificate of one year's completed House Job experience in an institution recognized by the PMDC is essential at the time of interview.
- III. **PMDC Registration:** Valid permanent or provisional registration certificate from the PMDC.

Registration and Enrollment:

Supervisor and Trainee Limits: In accordance with PMDC policy, the maximum number of postgraduate trainees per supervisor is five (5) per year across all postgraduate programs, including minor programs (if any).

Bed to Trainee Ratio: The approved teaching site must have a minimum of five (5) beds per trainee.

Supervisor Approval: RMU will approve supervisors for MD Medicine course.

University Registration: Selected candidates must register with RMU according to prescribed Registration Regulations after enrollment at the relevant institution.

For a thorough understanding of the rules and regulations, please refer to the “Policy and Procedure Manual (PPM) of Post-Graduate Residency (PGR) Level III Programs” provided by SHC & ME. Access the manual via the link below.

<https://health.punjab.gov.pk/directory/notices/Revised%20Final%20Draft%20PPM>

1.6 CORE COMPETENCIES OF THE PROGRAMME:

The MD Medicine curriculum at Rawalpindi Medical University, Rawalpindi, is structured based on the competency and performance-based framework of the **Accreditation Council for Graduate Medical Education (ACGME)**. The curriculum emphasizes the following core competencies:

- 1: Medical Knowledge**
- 2: Patient Care**
- 3: Interpersonal and Communication Skills**
- 4: Professionalism**
- 5: Practice-Based Learning and Improvement**
- 6: Systems-Based Practice**
- 7: Research**

This curriculum aims to produce physicians who are not only clinically proficient but also equipped with the skills necessary for continuous professional development and contribution to the medical field through research and system improvement.

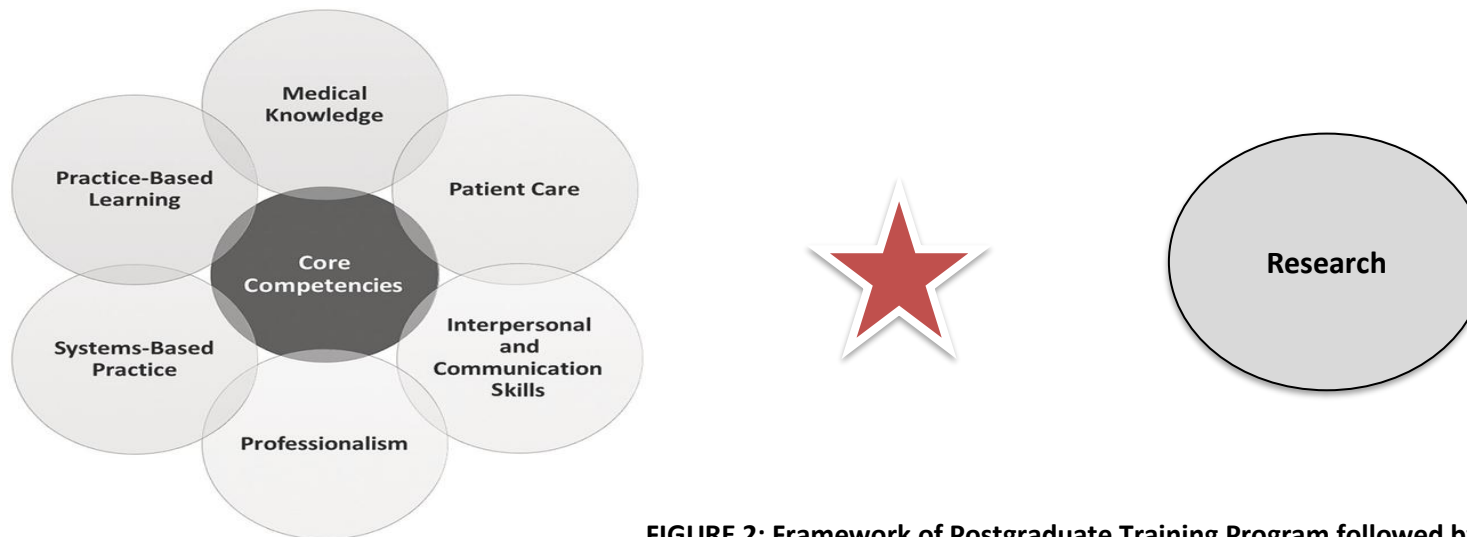


FIGURE 2: Framework of Postgraduate Training Program followed by RMU

DISTRIBUTION OF WEIGHTAGE OF DESIRED COMPETENCIES OF RMU MD MEDICINE:

Competency	Weightage
Medical Knowledge	40%
Patient care	
Interpersonal and communication skill	40%
Professionalism	
Practice based Learning	10%
System based Practice	
Research	10%

DETAIL DESCRIPTION OF CORE COMPETENCIES

Medical Knowledge	Demonstrate a thorough understanding of biomedical, clinical, and cognate sciences and apply this knowledge to patient care.
Patient Care	<p>Residents are expected to provide patient care compassionately, effectively for the promotion of health, prevention of illness, treatment of disease and end of life decisions.</p> <p>Gather accurate, essential information from all sources, including interviews, physical examinations, medical records, and diagnostic/therapeutic procedures.</p> <p>Make informed recommendations about preventive, diagnostic and therapeutic options, interventions based on clinical judgment, scientific evidence, and patient preference.</p> <p>Develop, negotiate, and implement effective patient management plans and integration of patient care.</p> <p>Perform competently the diagnostic and therapeutic procedures considered essential to the practice of general medicine.</p>
Interpersonal and Communication Skills	<p>Residents are expected to demonstrate interpersonal communication skills that enable them to establish and maintain professional relationships with patients, families, and other members of health care teams.</p> <p>Provide effective and professional consultation to other physicians and health care professionals to deal with ethically</p> <p>professional relationships with patients, their families, and colleagues.</p> <p>Use effective listening, nonverbal, questioning, narrative skills to communicate with patients and families.</p> <p>Interact with consultants in a respectful, appropriate manner.</p> <p>Maintain comprehensive, timely, and legible medical records.</p>

Professionalism	<p>Residents are expected to demonstrate behaviors that reflect a commitment to continuous professional developmental, ethical practice, an understanding and sensitivity to diversity and a responsible attitude toward their patients, their profession, and society.</p> <p>Demonstrate respect, compassion, integrity, and altruism in relationships with patients, families, and colleagues.</p> <p>Demonstrate sensitivity and responsiveness to the gender, age, culture, religion, sexual preference, socioeconomic status, beliefs, behavior and disabilities of patients and professional colleagues.</p> <p>Adhere to principles of confidentiality, scientific/academic integrity, and informed consent.</p> <ul style="list-style-type: none"> o Recognize and identify deficiencies in peer performance. o Understand and demonstrate the skill and art of end-of-life care.
Practice-Based Learning and Improvement	<p>Residents are expected to be able to use scientific evidence, methods to investigate, evaluate, and improve patient care practices.</p> <p>Identify areas for improvement and implement strategies to enhance knowledge, skills, attitudes, and processes of care.</p> <p>Analyze and evaluate practice experiences and implement strategies to continually improve the quality of patient practice.</p> <p>Develop and maintain a willingness to learn from errors and use errors to improve the system or processes of care.</p> <p>Use information of technology or other available methodologies to access and manage information, support patient care decisions, and enhance both patient and physician education.</p> <p>Develop error prevention skills and critical thinking leading to prevention of cognitive dispositions to respond.</p>
Systems-Based Practice	<p>Residents are expected to demonstrate both an understanding of the contexts and systems in which health care is provided, and the ability to apply this knowledge to improve and optimize health care.</p> <p>Understands accesses and utilizes the resources, providers, and systems necessary to provide optimal care.</p> <p>Understand the limitations and opportunities inherent in various practice types and delivery systems and develop strategies to optimize care for the individual patient.</p> <p>Apply evidence-based, cost-conscious strategies to prevention, diagnosis, and disease management.</p> <p>Collaborate with other members of the health care team to assist patients in dealing effectively with complex systems and to improve systematic processes of care.</p>

1.7 GENERAL LEARNING OUTCOMES:

Comprehensive Knowledge: Provide extensive training in Internal Medicine and its intersections with other medical disciplines.

Clinical Excellence: Enhance diagnostic, therapeutic, and procedural skills for optimal patient care.

Subspecialty Readiness: Prepare trainees for advanced training in Internal Medicine subspecialties.

Professionalism and Communication: Promote a patient-centered approach, effective communication with patients, families, and healthcare teams.

Community Engagement: Cultivate understanding of community health needs and the economics of healthcare delivery.

Research and Critical Thinking: Foster research skills, self-learning, and critical appraisal of evidence-based medicine.

Lifelong Learning: Emphasize continuing education and professional development.

Diagnostic and Management Expertise: Develop competency in diagnosing, investigating, and managing complex medical conditions, ensuring holistic patient care.

Emergency Medicine Proficiency: Acquire expertise in managing acute medical emergencies and identifying cases requiring specialized care or referral.

Inpatient and Outpatient Leadership: Master the management of medical cases across inpatient/outpatient settings, including appropriate referrals and collaboration with multidisciplinary teams.

Regional/District Hospital Readiness: Prepare trainees to manage patients effectively in regional/district hospital settings.

Community-Oriented Care: Promote communication and collaboration with the community for improved healthcare delivery.

Evidence-Based Practice: Encourage critical appraisal of new diagnostic and treatment methods.

Commitment to Lifelong Learning: Emphasize self-directed learning and knowledge updates within Internal Medicine.

Research and Innovation: Nurture research skills to advance medical knowledge and innovation.

Mentorship: Develop skills to train future Internal Medicine specialists at Rawalpindi Medical University.

1.8 COMPETENCIES BASED PROGRAMME LEARNING OUTCOMES:

The MD Internal Medicine program aims to develop residents with the following competencies:

A. Medical Knowledge

- 1: Strong foundation in the core concepts and subspecialties of Internal Medicine.
- 2: Ability to diagnose, investigate, and manage common and complex medical conditions based on the latest scientific understanding.
- 3: Critical analysis and application of evidence-based medicine, including cost-effective treatment approaches.
- 4: Understanding of psychological, social, and ethical aspects of patient care.
- 5: Proficient interpretation of laboratory tests, diagnostic procedures, and relevant medical research.

B. Skills

- 1: Comprehensive history taking, physical examinations, and diagnostic reasoning.
- 2: Selection and effective use of diagnostic tests and procedures.
- 3: Safe and proficient performance of essential medical procedures.
- 4: Management of acute and chronic medical conditions, including emergencies, in both inpatient and outpatient settings.
- 5: Ability to lead multidisciplinary healthcare teams.
- 6: Effective communication with patients, families, and colleagues.
- 7: Research skills to advance medical knowledge and inform clinical practice.

C. Attitudes

- 1: Patient-centered approach, prioritizing empathy and respect.
- 2: Commitment to lifelong learning and professional development.
- 3: Understanding of cost-effective care and ethical decision-making.
- 4: Collaboration with specialists and other healthcare professionals.
- 5: Recognition of the role of teaching and research in advancing the field.

1.9 GENERAL FRAMEWORK OF THE MD MEDICINE PROGRAMME:

Duration of the programme: **Four years**

The MD Medicine program at Rawalpindi Medical University spans four years, designed around a competency-based medical education (CBME) model aligned with ACGME guidelines, emphasizing progressive skill development.

First Phase (Years 1-2): Residents complete foundational training in General Medicine, with six-month compulsory rotations in critical care, cardiology, and nephrology. By the end of Year 1, residents submit a Disease Statistical Review (DSR), and by the end of Year 2, undergo an examination covering core General Medicine concepts.

Second Phase (Years 3-4): Focuses on specialized training, including six-month elective rotations in gastroenterology, neurology, pulmonology, dermatology, psychiatry, and radiology. Clinical competency is assessed through structured workplace-based evaluations like DOPS, CBD, Mini-CEX.

Throughout the program, research and thesis writing are conducted over an equivalent of one year, allowing flexible integration into clinical rotations. This structure ensures that residents attain targeted competencies in knowledge, skills, and professional attitudes critical to their practice.

Distribution of Teaching and Training Hours:

In the MD Medicine residency program at Rawalpindi Medical University (RMU), training is structured to provide comprehensive clinical and educational experience, aligned with the **ACGME duty hour standards** to promote resident well-being and maintain patient safety.

Maximum Hours: Residents are limited to a maximum of 80 duty hours per week, averaging over a four-week period, ensuring a balanced workload.

Clinical Duties: Most hours are dedicated to direct patient care in various settings, including inpatient wards, outpatient clinics, intensive care units, and emergency departments.

Educational Activities: Residents participate in didactic sessions, conferences, workshops, and other educational forums designed to enhance medical knowledge and skills.

Administrative Tasks: Time is also allocated for completing medical records, attending meetings, and other administrative responsibilities.

Training hours of four-year residency program:

Weekly Training Hours

Weekly Working	Daily working	Call Duties	Total
	4 x 6 = 24 (Monday to Thursday) 1 x 4 = 4 (Friday)	2 x 18 = 36 (2 calls per week) 1 x 24 = 24 (1 Sunday per week)	Daily working + Call Duties
	28	60	88 hours

No. of weeks in one year of Training	Training hours in one year of Training	Total Training hours in four-year residency programme
48 weeks	48 x 88 = 4224 hours	4 x 4224 = 16,896 hours

First Two Years of Training

Rotations: 06 months

Cardiology (2 months), Nephrology (2 months), Critical Care (2 months)

General Medicine: 18 months

Workshops:

- 1: URP orientation
- 2: Cardiac First response
- 3: Communication Skills
- 4: Computer and IT Skills
- 5: Research Methodology

Formative Assesment:

Ist- year In-training Assessment (At the end of 1st Year)

Summative Assessment:

MTA (At the end of 2nd year)

Research:

One Disease Statistical Review (Year 1) , Synopsis Approval by IRB & BASAR (Year 2)

3rd & 4th Year of Training

Rotations: 06 months

Gastroenterology (2 months), Pulmonology (1 month), Neurology (1 month), Dermatology (1 month), Psychiatry (2 weeks), Radiology (2 weeks)

General Medicine:

18 months

Formative Assessment:

3rd Year In-training Assessment (at the end of 3rd year)

Summative Assessment:

FTA (Final term Assessment) at the end of 4th year

Research:

Data collection & Analysis (3rd year), Thesis writing & submission to BASAR (4th year)

Recognized training centers and Supervisors:

The MD Medicine program at Rawalpindi Medical University (RMU) will be offered across three affiliated teaching hospitals:

1: Department of Medicine, Benazir Bhutto Hospital, Rawalpindi

2: Department of Medicine, Holy Family Hospital, Rawalpindi

3: Department of Medicine, Rawalpindi Teaching Hospital, Rawalpindi

Faculty members with a minimum of five years of teaching experience in PMDC-recognized institutions will be eligible to serve as supervisors for the MD program.

1.10 TEACHING AND LEARNING:

MD Medicine Training Program Structure

The MD Medicine training program at Rawalpindi Medical University (RMU), aligned with Competency-Based Medical Education (CBME) principles and the core competencies of the Accreditation Council for Graduate Medical Education (ACGME), aims to systematically develop residents' clinical, procedural, and decision-making abilities across various healthcare settings. The organization and oversight of this curriculum lie with the Medical Education (ME) department of RMU, supported by experienced faculty and clinical supervisors who ensure that learning objectives are met with progressive responsibility over the four-year period.

Training Program Coordination and Oversight

A designated Training Program Director (TPD) oversees the MD Medicine curriculum, monitoring residents' progress through periodic evaluations. Advancement in the program is determined by an Annual Review of Competency Progression (ARCP), ensuring that each year builds on skills from previous years. The training sites and educational experiences are specifically chosen to provide a balanced experience, avoid redundancy, and maximize educational value.

Mandatory Training

Over the four-year training program, MD Medicine residents undergo structured rotations through emergency, inpatient, and outpatient departments, progressively advancing in their management of complex, multisystem cases. This phased approach builds clinical competence across diverse medical conditions.

Inpatients:

The residents training in the inpatient department of General Medicine develop essential skills in managing acute and chronic illnesses, including complex cases requiring multidisciplinary care. They gain hands-on experience in patient assessment, clinical decision-making, and implementing evidence-based management plans. With progressive responsibilities, residents become proficient in coordinating care, handling deteriorating patients, and executing critical procedures under supervision, preparing them for independent practice.

Emergency:

During the emergency rotation, MD Medicine residents will develop critical skills in the immediate assessment and management of acute, life-threatening conditions. They will gain experience in rapid decision-making, prioritizing care, and performing urgent procedures under supervision. This rotation focuses on enhancing residents' ability to stabilize patients, manage emergencies efficiently, and collaborate with multidisciplinary teams. The emergency department experience is integral to achieving core competencies in acute care, clinical reasoning, and patient management as outlined in the MD Medicine curriculum.

Outdoor:

During their rotation in the outdoor patient department (OPD), MD Medicine residents will refine their skills in diagnosing and managing a wide range of medical conditions in an ambulatory setting. They will focus on patient-centered care, including long-term management of chronic diseases, preventive healthcare, and follow-up care. Residents will develop proficiency in conducting detailed medical histories, physical examinations, and formulating treatment plans based on evidence-based guidelines. This OPD experience is essential for building competencies in outpatient care, communication, and continuity of care.

Additional Training Components

Palliative and End-of-Life Care: Residents gain competency in recognizing and managing end-of-life cases, often working with palliative care teams to understand holistic patient and family care approaches.

Community and Primary Care Integration: Residents are trained to coordinate effectively with primary care services, gaining experience in bridging care between hospital and community settings to facilitate rapid outpatient care, prevent admissions, and improve patient outcomes.

Consultant-Level Responsibilities: In their final year, residents may undertake an "acting-up" role, allowing them to experience consultant-level responsibilities with appropriate supervision to support their transition to independent practice.

Teaching and learning methods

The curriculum will be delivered through a variety of learning experiences and will achieve the capabilities described in the syllabus through a variety of learning methods. There will be a balance of different modes of learning from formal teaching programmes to experiential learning 'on the job'. The proportion of time allocated to different learning methods may vary depending on the nature of the attachment within a rotation. Following is the list of methods:

1: Bedside teaching

2: Grand ward rounds

3: Small group teaching (once a week)

4: Lectures

5: Case presentations

5: Clinical skills demonstrations and teaching

6: Journal Club (once a week)

7: Multidisciplinary meetings

8: Clinicopathological conference

9: Learning with peers: There are many opportunities for trainees to learn with their peers. Local postgraduate teaching opportunities allow trainees of varied levels of experience to come together for small group sessions.

10: Self-directed learning: Trainees will use this time in a variety of ways depending upon their stage of learning.

Suggested activities include:

- reading, including web-based material such as UpToDate.
- maintenance of personal portfolio (self-assessment, reflective learning, personal development plan)
- audit, quality improvement and research projects
- reading journals
- achieving personal learning goals beyond the essential, core curriculum

1.11 ROTATIONS AND ELECTIVES

In the MD Medicine residency program at RMU, aligned with ACGME core competencies, residents participate in structured rotations and elective experiences designed to provide comprehensive, hands-on exposure to various subspecialties within internal medicine. These rotations are strategically arranged to ensure that residents develop core clinical competencies in patient care, medical knowledge, practice-based learning, interpersonal skills, professionalism, and systems-based practice. The electives allow residents to pursue specific interests and gain specialized skills in selected fields, supporting a well-rounded clinical training experience that prepares them for independent practice in a variety of healthcare settings.

PGY-1	Rotation	Duration	Medical/Non-Medical Electives
	General Medicine Ward	6 months	Medical Research Medical Education Infectious diseases Rheumatology Clinical Hematology Public Health Oncology Endocrinology
	Emergency Medicine & General Medicine OPD	6 months	
PGY-2	Critical Care	2 months	
	Cardiology	2 months	
	Nephrology	2 months	
	General Medicine Ward	3 months	
	Emergency Medicine & General Medicine OPD	3 months	
PGY-3	Gastroenterology	2 months	
	Neurology	1 months	
	Pulmonology	1 month	
	Dermatology	1 month	
	General Medical Ward	4 months	
	Emergency Medicine & General Medicine OPD	3 months	
PGY- 4	Radiology	2 weeks	
	Psychiatry	2 weeks	
	General Medical Ward	7 months	
	Emergency Medicine & General Medicine OPD	4 months	

1.12 ASSESSMENT:

The assessment of MD Internal Medicine residents at Rawalpindi Medical University will comprehensively evaluate their knowledge, skills, and attitudes through a combination of formative, summative, and workplace-based assessments (WPBA). These assessments are structured in accordance with Miller's Pyramid of Clinical Competence, ensuring a progressive evaluation of residents' abilities from foundational knowledge to the application of clinical skills in real-world settings. A variety of methods will be employed to measure competence across all domains, aligning with the curriculum's objectives to produce clinically proficient, research-oriented, and professionally ethical physicians.

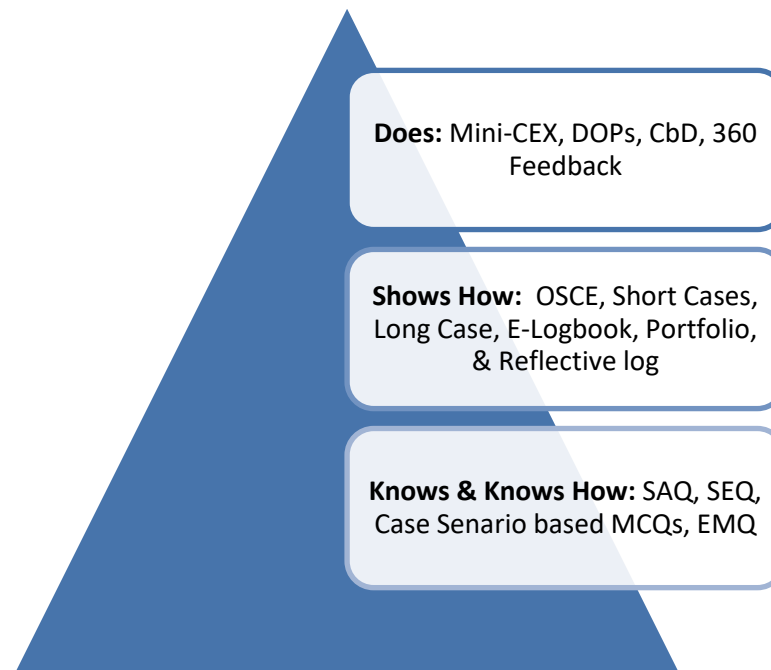


Figure 2: List of various assessment tools which are employed for both summative and formative evaluations throughout the four-year MD Internal Medicine training program.

ASSESSMENT FRAMEWORK OF MD MEDICINE RMU

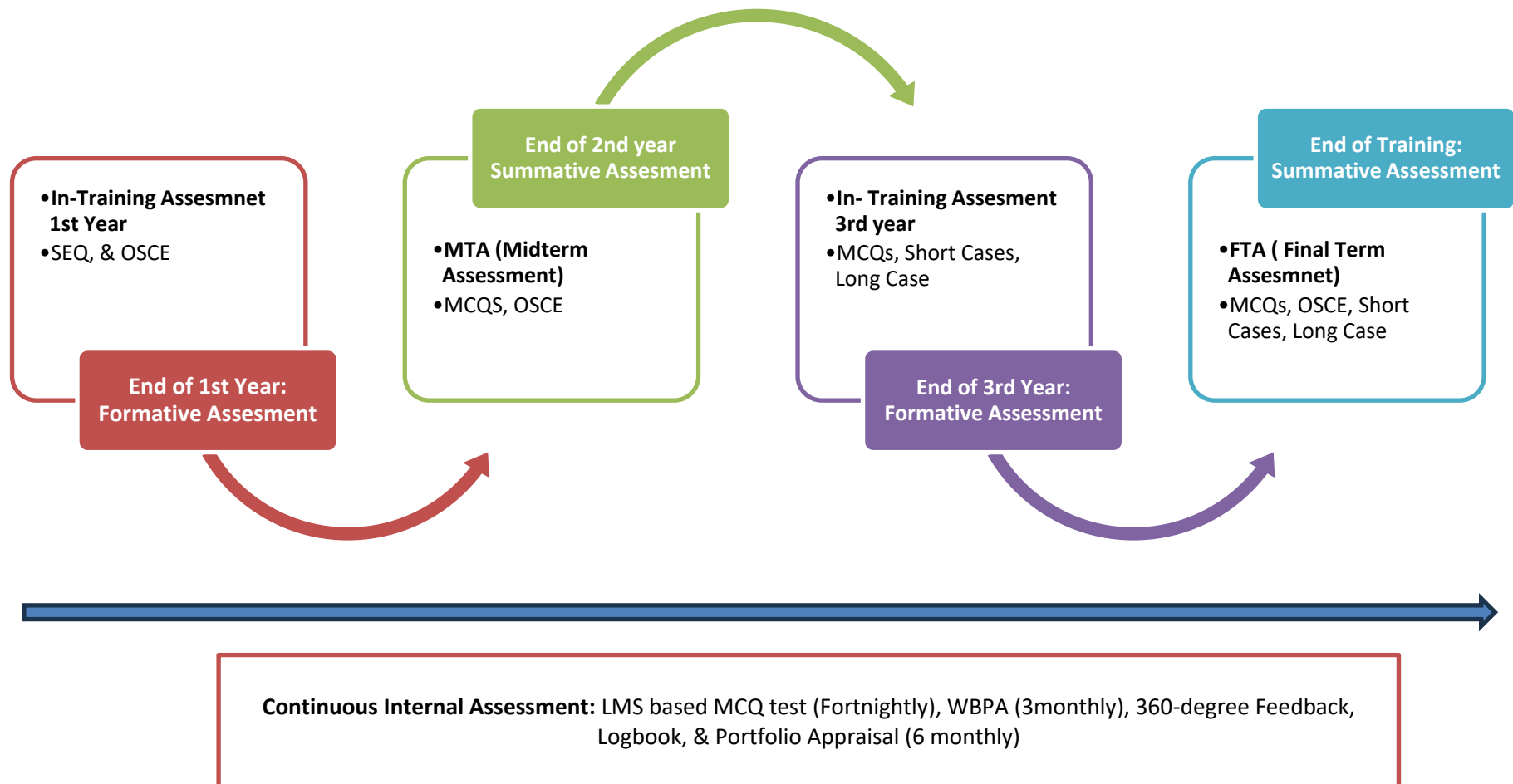
The MD Medicine assessment model at Rawalpindi Medical University integrates four core components to comprehensively evaluate resident progress.

1: Formative Assessment: Conducted throughout the residency to monitor progress, formative assessment provides residents with actionable feedback to help refine their clinical skills and knowledge.

2: Summative Assessment: Implemented at key milestones, summative assessment evaluates residents' cumulative knowledge, skills, and readiness to progress to the next training phase.

3: Workplace based Assessment (WPBA) refers to a group of assessment modalities which evaluates trainees' performance during the clinical settings. Hallmark of WPBA is the element of observation of the trainee's performance in real workplace environment along with relevant feedback, thus fostering reflective practice. WPBA consists of observation of clinical performance (mini- CEX, DOPS), discussion of clinical cases (CbD), and feedback from peers, coworkers, and patients (360- degree feedback).

4: Continuous Assessment: Continuous assessment is integrated throughout training to ensure consistent monitoring of residents' progress in core clinical competencies (Medical Knowledge, Patient Care, Professionalism, Interpersonal Communication Skills, System based Practice, & Practice based Learning).



Continuous Internal Assessment (CIA)

Competencies to be assessed for CIA	Phases of CIA	Timeline for end of various phases of CIA	Eligibility Criteria of CIA	Tools for Assessment of CIA
1. Medical knowledge 2. Patient care (40% both) 3. Interpersonal & communication skills 4. Professionalism (40% both) 5. Practice based learning 6. System based learning (10% both) 7. Research (10%)	Phase -1 ➤ CIA Year 1 ➤ CIA Year 2	till end of Year 2	Equal to or more than 75% (a cumulative score of all formative & Workplace based assessments)	1: 360- Degree Feedback (Biannually) 2: Logbook Appraisal (Biannually) 3: WBPA (CbD, Mini-CEX, DOPs: 3 monthly) 4: LMS based MCQs test (Fortnightly)
	Phase -2 ➤ CIA Year 3 ➤ CIA Year 4	till end of Year 4		

Number of Assessments in MD Medicine

SR NO.	Name of Assessments	Type of Assessment	Total Assessment time			Workplace based Assessment	Assessment Time
			Assessment Time	Formative Assessment Time	Summative Assessment Time		
1	1 st Year (In training Assessment)	Formative	1 hours and 50 minutes	4 hours	11 hours and 25 minutes	*In house assessment (5 days every 2 months per year)	5 x 6 = 30 hours per year
2	2 nd Year (Midterm Assessment)	Summative	4 hours and 15 minutes			LMS based assessment (2 hours after every 2 weeks)	2 x 12 = 24 hours per year
3	3 rd Year (In training Assessment)	Formative	1 hour and 70 minutes			Daily bedside assessment (1 hour per day)	1 x 223= 233 hours per year
4	FTA (Final Term Assessment)	Summative	7 hours and 10 mins			Total assessment time in four years	287 x 4 = 1148

*In house assessment = Topic presentation, Long Case, Short Case, Journal Club, Mini-CEX/ DOPs

Total Assessment time of four-year MD Medicine Residency Programme:

Training Year	Formative Assessment time	Summative Assessment time	Workplace based Assessment
1	1 hour 50 minutes		287
2		4 hours 15 minutes	287
3	1 hour 70 minutes		287
4		7 hours 10 minutes	287
Total	4 hours	11 hours 25 minutes	1148 hours

Training Tours Vs Total Assessment hours:

Ratio of Training hours to assessment hours	Grand total Training hours 16,896 hours	Grand Total Assessment hours 1163 hours & 25 minutes
	14.5: 1	

Details of Formative Assessment:

In Training Assessment Year One- Total marks 200		
Written and clinical (OSCE) components must be passed separately		
Marks Distribution	Topics	No. of Questions
WRITTEN		
Paper		
MARKS 50 <i>Written- One paper</i> Paper will comprise 10 SAQ, 10 marks each 1hour duration	1. Cardiology	1
	2. Nephrology	1
	3. Gastroenterology	1
	4. Respiratory medicine	1
	5. Neurology	1
	6. Emergency medicine	1
	7. Endocrinology	1
	8. Dermatology	1
	9. Critical care	1
	10. Rheumatology	1
	Total	10
Up to 10% of the SAQ may not fulfill differentiation. 30% MCQS will C2 and 70% C3.		
OSCE- 100 marks		
5 Stations, each of 20 numbers		

In Training Assessment Year Three- Total marks 220

Marks Distribution	Topics	No. of Questions
WRITTEN- 100 marks		
Paper		
MARKS 50 <i>Written- One paper</i> Paper will comprise 100 MCQS, 1 marks each 1 hour duration	1. Cardiology	10
	2. Nephrology	10
	3. Gastroenterology	10
	4. Respiratory medicine	10
	5. Neurology	10
	6. Emergency medicine	10
	7. Endocrinology	10
	8. Dermatology	10
	9. Critical care	10
	10. Rheumatology	10
	Total	100
Up to 10% of the MCQs may not fulfill differentiation. 30% MCQS will C2 and 70% C3.		
OSCE- 120 marks		
6 Stations. Station 1-4, short cases (60 numbers), 15 numbers for each station. Station 5-7, long cases (60 numbers), 20 numbers for each station.		
Written and clinical components have to be passed separately		

Details of Summative Assessments

MTA- Total marks 300		
60% pass marks, written and clinical components have to be passed separately		
Marks Distribution	Topics	No. of Questions/Stations
WRITTEN		
Paper I		
MARKS 150 <i>Written- Two papers</i> Paper I and II will comprise 75 single best answer type Multiple Choice Questions of 1 marks each 2hours and 30minutes for each paper. Both papers will be conducted on same day.	1. Cardiology	15
	2. Nephrology	15
	3. Psychiatry	10
	4. Infectious diseases	10
	5. Respiratory medicine	10
	6. Emergency medicine	10
	7. Critical care	05
	Total	75
	Paper II	
	1. Neurology	15
	2. Dermatology	15
	3. Gastroenterology	15
	4. Endocrinology	10
	5. Rheumatology	10
	6. Hematology	10
	Total	75
OSCE- 150 marks		
15 Stations, each of 10 numbers		
60% pass marks, written and clinical components have to be passed separately		

FTA- Total Marks 800		
60% Pass percentage, written and clinical component must be passed separately		
Marks Distribution	Topics	No. of Questions
WRITTEN		
Paper - I		
Written Assessment (200 marks) PAPER-I- Case Based 100 MCQs---(100 marks) PAPER-II Case Based 100 MCQs---(100 marks) 3 hours for each paper Both papers will be conducted on the same day	1: Cardiology	20
	2: Gastroenterology	20
	3: Respiration	20
	4: Infectious Disease	20
	5: Critical Care	10
	6: Endocrinology	10
	Paper- II	
	1: Nephrology	20
	2: Neurology	20
	3: Emergency Medicine	20
	4: Dermatology	10
	5: Psychiatry	10
	6: Hematology	10
	7: Rheumatology	10
Clinical Assessment		
Four short cases	200 marks (each of 50 marks)	Time: 40 mins
One long case	150 marks	Time: 60 mins
OSCE (15 stations)	150 marks	Time: 1 hour 15 mins
Thesis Defense		
Presentation: 30 marks		
Discussion: 70 marks		

DETAIL OF ASSESMENT METHODS FOR WBPA

1: Self-Assessment by the Student:

Each student will be provided with a pre-designed self-assessment form to evaluate his/her level of comfort and competency in dealing with different relevant clinical situations. It will be the responsibility of the student to correctly identify his/her areas of weakness and to take appropriate measures to address those weaknesses.

2: 360- Degree Feedback:

This tool is a method of assessing generic skills such as communication, leadership, team working, reliability etc., across different core competencies. This provides systematic collection and feedback of performance data on a trainee, derived from a number of colleagues. 'Raters' are individuals with whom the trainee works, and includes doctors, administrative staff, and other allied professionals. Raters should be agreed with the educational supervisor at the start of the training year. The trainee will not see the individual responses by raters. Feedback is given to the trainee by the Educational Supervisor.

3: Case based Discussion (CbD):

The CbD assesses the performance of a trainee in their management of a patient to provide an indication of competence in areas such as clinical reasoning, decision-making and application of medical knowledge in relation to patient care. It also serves as a method to document conversations about, and presentations of, cases by trainees. The CbD should focus on a written record (such as written case notes, outpatient letter, and discharge summary). A typical encounter might be when presenting newly referred patients in the outpatient department.

4: mini-Clinical Evaluation Exercise (mini-CEX):

This tool evaluates a clinical encounter with a patient to provide an indication of competence in skills essential for good patient care such as history taking, examination and clinical reasoning. The trainee receives immediate feedback to aid learning. The mini-CEX can be used at any time and in any setting when there is a trainee and patient interaction, and an assessor is available.

5: Direct Observation of Procedural Skills (DOPS):

A DOPS is an assessment tool designed to evaluate the performance of a trainee in undertaking a practical procedure, against a structured checklist. The trainee receives immediate feedback to identify strengths and areas for development. DOPS can be undertaken as many times as the trainee and their supervisor feel is necessary (formative). A trainee can be regarded as competent to perform a procedure independently after they are signed off as such by an appropriate assessor (summative). It is the trainee's responsibility to maintain those skills appropriately and to seek additional training should they feel it is necessary. This is a matter of probity and clinical governance.

6: Informal Assessment by the Supervisor:

The Informal Assessment will not involve formal grading to foster a culture of openness and self-reflection, encouraging students to address their areas of improvement without fear of judgment. This component will encompass key aspects such as punctuality, active engagement in ward duties, monthly written assessments targeting specific areas for improvement, and meaningful participation in interactive sessions.

SECTION NO. 2

CORE CONTENT

INTRODUCTION:

The content of the MD Medicine curriculum encompasses a comprehensive framework designed to equip postgraduate trainees with the necessary competencies in internal medicine. It includes theoretical knowledge, clinical skills, and professional attitudes essential for the diagnosis, management, and care of patients with a wide range of medical conditions. This content is structured to align with international standards such as the ACGME Core Competencies while ensuring relevance to the healthcare landscape of Pakistan.

This structured approach, adhering to ACGME Core Competencies, ensures that MD Medicine graduates from RMU are fully equipped to meet the evolving challenges of internal medicine practice both locally and globally. The curriculum is based on the following components.

Domain	Details
Knowledge	The curriculum provides a robust foundation in the understanding of pathophysiology, clinical features, diagnostics, and therapeutic options across various medical subspecialties, including cardiology, neurology, pulmonology, gastroenterology, endocrinology, nephrology, and infectious diseases. Emphasis is placed on evidence-based practice, interpretation of laboratory and imaging data, and the integration of clinical guidelines into patient care.
Skills	Skills emphasize hands-on clinical proficiency. Residents are trained in essential procedures such as central venous catheterization, mechanical ventilation, and advanced cardiac life support. They are also taught to perform comprehensive patient assessments, interpret diagnostic tests, and develop management plans. Clinical reasoning, problem-solving, and procedural competence are refined through ward rounds, case-based discussions, and simulated patient encounters.
Attitude	The curriculum aims to instill professionalism, ethical practice, and effective communication. Residents are trained to exhibit compassion, maintain patient confidentiality, and uphold a commitment to lifelong learning. In the Pakistani context, special attention is given to cultural sensitivity, resource management, and delivering high-quality care in resource-constrained settings. Additionally, residents are expected to engage in teamwork and demonstrate leadership in multidisciplinary environments.

This section outlines the content to be covered during the four-year MD Medicine residency program, along with the learning outcomes residents are expected to achieve by the end of each academic year. The curriculum is structured to progressively build the residents' knowledge, clinical skills, and professional competencies. Each year of training introduces more complex topics and responsibilities, ensuring that by the end of the program, residents are fully prepared to manage a broad range of internal medicine cases independently.

SECTION NO. 2.1

CORE CURRICULAR CONTENT FOR THE 1ST YEAR

TABLE OF CONTENTS OF FIRST YEAR MD MEDICINE

S NO.	CONTENT
1.	Basic Clinical Skills History Taking (Knowledge) History Taking (Skills) History Taking (Behaviors) Clinical examination (knowledge) Clinical examination (skills) Clinical examination (Behaviors) Time management and decision making Decision making and clinical reasoning
2.	Common Clinical Disorders Acute hepatitis Chronic hepatitis B&C Ascites + HRS Stroke Asthma Tuberculosis Anemia General Management of poisoning Diabetes Mellitus Acute Kidney Injury Psychiatry

Theme: Basic Clinical Skills (Skill & Attitude)

TOPICS TO BE TAUGHT	LEARNING OBJECTIVES Students should be able to know:	TEACHING METHOD	ASSESSMENT
1. History Taking (Knowledge) Competency: Medical Knowledge & Patient Care	1: Progressively develop the ability to obtain relevant, focused histories from increasingly complex patients in challenging circumstances. 2: Accurately record, synthesize history, and integrate clinical examinations to formulate a management plan based on anticipated clinical evolution. 3: Recognize the importance of various elements of patient history, including cognitive, psychological, social, cultural, and nutritional factors. 4: Understand that patient histories may be unstructured and influenced by acute or chronic medical conditions. 5: Identify likely causes and risk factors for presentations. 6: Recognize that history should guide examination, investigation, and management.	Bedside teaching in wards and outpatient departments	Mini-CEX, OSCE, Long Case
2. History Taking (Skills) Competency: Interpersonal and Communication Skills, Patient Care	1: Identify and overcome barriers to effective communication, including cognitive impairment. 2: Manage time effectively and close consultations appropriately. 3: Use standardized instruments or questionnaires to supplement history when relevant. 4: Manage alternative or conflicting views from family, caregivers, or friends. 5: Assimilate history from various sources, including patient and caregiver input. 6: Recognize and interpret nonverbal communication cues. 7: Focus on relevant aspects of history.	Bedside teaching in wards and outpatient Departments	Mini-CEX, OSCE, Long Case

3. History Taking (Behaviors) Competency: Professionalism	1: Demonstrate respect and behave in accordance with ethical medical practices.	Bedside teaching in wards and outpatient departments	Mini-CEX, OSCE, Long Case
4. Clinical examination (knowledge) Competency: Medical Knowledge, Patient Care	1: To progressively develop the ability to perform focused and accurate clinical examination in increasingly complex patients and challenging circumstances. 2: To relate physical findings to history to establish diagnosis and formulate a management plan. 3: Understand the need for a valid clinical examination. 4: Understand the basis for clinical signs and the relevance of positive and negative physical signs. 5: Recognize constraints to performing physical examination and strategies that may be used to overcome them. 6: Recognize the limitations of physical examination and the need for adjunctive forms of assessment to confirm diagnosis.	Bedside teaching in wards and outpatient departments	CbD, mini-CEX, OSCE
5. Clinical examination (skills) Competency: Patient Care	1: Perform an examination relevant to the presentation and risk factors that is valid, targeted and time efficient. 2: Recognize the possibility of deliberate harm in vulnerable patients and report to appropriate agencies. 3: Interpret findings from the history, physical examination and mental state examination, appreciating the importance of clinical, psychological, religious, social and cultural factors. 4: Actively elicit important clinical findings. 5: Perform relevant adjunctive examinations including cognitive examination such as Mini Mental state Examination (MMSE) and Abbreviated Mental Test Score (AMTS)	Bedside teaching in wards and outpatient departments	CbD, mini-CEX, OSCE

6. Clinical examination (Behaviors) Competency: Professionalism	1: Demonstrate respect and behave according to ethical medical practice standards.	Bedside teaching in wards and outpatient departments	CbD, mini- CEX, 360-degree Feedback
7. Time management and decision making Competency: Practice-Based Learning and Improvement, Systems-Based Practice	1: To become increasingly able to prioritize and organize clinical and clerical duties to optimize patient care. 2: To become increasingly able to make appropriate clinical and clerical decisions to optimize the effectiveness of the clinical team resource.	Bedside teaching in wards and outpatient departments	Mini-CEX, CbD, 360-degree Feedback
8. Decision making and clinical reasoning Competency: Patient Care, Medical Knowledge	1: To progressively develop the ability to formulate a diagnostic and therapeutic plan for a patient according to the clinical information available. 2: To progressively develop the ability to prioritize the diagnostic and therapeutic plan. 3: To be able to communicate the diagnostic and therapeutic plan appropriately.	Bedside teaching in wards	CbD, Mini-CEX, Long Case

Theme: Common Clinical Disorders (Knowledge)

TOPIC	LEARNING OBJECTIVES	TEACHING STRATEGIES	ASSESSMENT TOOL
1. Acute hepatitis	<ul style="list-style-type: none"> Define acute hepatitis, and describe its various causes, including viral, drug-induced, and toxin-related etiologies. Identify the investigations required for the diagnosis of acute hepatitis, including liver function tests, serological markers, and imaging studies. Understand the epidemiology, incubation periods, transmission modes, and clinical features of acute viral hepatitis. Recognize the complications of acute viral hepatitis, such as acute liver failure, and outline its management principles. 	Large class format (interactive lecture)	MCQs, SEQ

	<ul style="list-style-type: none"> Identify medications and toxins that can cause acute hepatitis, and explain the associated clinical features, diagnostic approach, and management, with an emphasis on acute hepatic failure. 		
2. Chronic hepatitis B&C	<ul style="list-style-type: none"> Define chronic hepatitis, and differentiate it from acute hepatitis based on duration and underlying mechanisms. Understand the epidemiology, pathophysiology, clinical features, and complications of chronic hepatitis B and C, including liver cirrhosis and hepatocellular carcinoma. Identify appropriate investigations for diagnosing chronic hepatitis, including serology, liver function tests, and liver biopsy. Describe the management strategies for chronic hepatitis B and C, and outline the potential outcomes based on disease progression and treatment response. 	Large class format (interactive lecture)	MCQs, SEQ
3. Ascites + HRS	<ul style="list-style-type: none"> Define ascites, describe its causes, and explain the underlying pathophysiology, particularly in relation to portal hypertension and liver dysfunction. Recognize the clinical features of ascites, and identify key investigations used in its diagnosis, including serum-ascites albumin gradient (SAAG) analysis. Outline the management strategies for ascites based on its etiology, and describe potential complications such as spontaneous bacterial peritonitis (SBP). Understand the outcome of ascites, with a focus on prognosis depending on the underlying cause (e.g., cirrhosis, malignancy). Define hepatorenal syndrome (HRS) and explain its causes and pathophysiology, including the renal and circulatory changes associated with advanced liver disease. Classify the types of HRS (Type 1 and Type 2) based on clinical presentation and disease progression. Identify the clinical features of HRS, and outline the investigations necessary for its diagnosis, including renal 	Case Based Learning	MCQs, SEQ

	<p>function tests and exclusion of other causes of renal impairment.</p> <ul style="list-style-type: none"> Describe the management options for HRS, focusing on pharmacological treatments, liver transplantation, and supportive care, and understand the outcome depending on intervention and liver disease severity. 		
4. Stroke	<ul style="list-style-type: none"> Define stroke, and distinguish between the primary types, including ischemic and hemorrhagic stroke, based on pathophysiology. Explain the epidemiology of stroke, including risk factors, incidence, and global/regional distribution. Identify the presenting symptoms and neurological manifestations of stroke, with emphasis on focal neurological deficits and time-sensitive signs. Understand the importance of investigations such as CT scan of the brain for differentiating stroke types and guiding treatment decisions. Develop a differential diagnosis for stroke, considering other conditions with similar presentations such as seizures or transient ischemic attacks (TIA). Outline the treatment options for stroke, including acute interventions like thrombolysis and surgical approaches, and discuss the prognosis based on type and severity. Describe the importance of follow-up care, including secondary prevention strategies, rehabilitation, and monitoring for stroke recurrence. 	Case Based Learning	MCQs, SEQ

5. Asthma	<ul style="list-style-type: none"> • Define asthma and describe its epidemiology, pathophysiology, and the different types of asthma, along with common aggravating factors. • Recognize the clinical features of asthma, including characteristic symptoms (wheezing, dyspnea, etc.), and identify signs of severity for acute asthma exacerbations, as well as grading based on symptom control and frequency. • Understand the investigations used in asthma diagnosis, including Pulmonary Function Tests (PFTs) and their interpretation, and develop a differential diagnosis to distinguish asthma from other respiratory conditions. • Outline the treatment strategies for asthma, with an emphasis on the management of acute severe asthma (status asthmaticus) and the graded treatment approach for chronic asthma, including the use of bronchodilators, corticosteroids, and long-term control medications, and discuss potential complications and outcomes. 	Large class format (interactive lecture)	MCQs, SEQ
6. Tuberculosis	<ul style="list-style-type: none"> • Differentiate between the pathophysiology of primary tuberculosis and reactivated tuberculosis, highlighting the mechanisms underlying initial infection and reactivation in immunocompromised or predisposed individuals. • Discuss the global incidence of tuberculosis, including its epidemiological significance, and identify Mycobacterium tuberculosis as the causative agent. • Explain the modes of transmission of tuberculosis, emphasizing how the disease is spread via respiratory droplets and the role of environmental and social factors in transmission. • Differentiate between Ghon focus and Ghon complex, outlining their formation and significance in the context of primary tuberculosis. • Compare the causes, pathophysiology, clinical features, diagnosis, and treatment of primary and secondary tuberculosis, focusing on their distinctive presentations and management approaches. • Outline the various treatment regimens for tuberculosis, detailing the pharmacological options for both drug-susceptible and drug-resistant strains. • Discuss the complications associated with tuberculosis and strategies for its prevention, including the importance of 	Large class format (interactive lecture)	MCQs, SEQs

	vaccination (BCG), public health measures, and early detection to reduce transmission and morbidity.		
7. Anemia	<ul style="list-style-type: none"> • Define anemia and explain its significance in clinical practice, including the implications for patient health and management. • Identify and differentiate between the various classifications of anemia. • Discuss the causes associated with different types of anemias. • Recognize the clinical features of anemia. • Describe the specific features of various anemias, including characteristic laboratory findings and clinical presentations. • Know the normal values for key hematological parameters and their relevance in diagnosing anemia. • Outline the basic investigations utilized in the assessment of anemia, including complete blood count (CBC), reticulocyte count, and peripheral blood smear. • Elaborate the specific investigations required for diagnosing different types of anemia, including iron studies, vitamin B12 and folate levels, and bone marrow biopsy when indicated. • Evaluate the treatment options for various types of anemia, including iron supplementation, vitamin replacement, and management of underlying causes. 	Case Based Learning	MCQs, SEQs

8. General Management of poisoning	<ul style="list-style-type: none"> • Define poisoning and categorize the various types of poisoning. • Describe the general approach to managing poisoning, including triage and resuscitation, clinical assessment and investigations, and the components of general management. • Outline the principles of gastrointestinal decontamination. • Identify commonly used antidotes for specific poisons and discuss the various methods of poison removal, including their mechanisms of action and clinical applications. • Explain the importance of psychiatric evaluation in the management of poisoning cases. 	Large class format (interactive lecture)	MCQs, SEQs
9. Diabetes Mellitus	<ul style="list-style-type: none"> • Identify the etiology of diabetes mellitus. • Explain the pathogenesis of diabetes. • Classify the types of diabetes mellitus. • Outline the criteria for diagnosing diabetes. • Discuss the management strategies for diabetes. • Recognize the complications of diabetes and their management. • Describe management considerations in special situations related to diabetes. 	Small group discussion	MCQs, SEQs,
10. Acute Kidney Injury	<ul style="list-style-type: none"> • Define acute kidney injury (AKI) and describe its pathophysiology and causes (prerenal, renal, and postrenal). • Identify the clinical features and diagnostic criteria for AKI. • Discuss the investigations necessary for diagnosing AKI. • Outline the management strategies for AKI, including hemodynamic monitoring and acid-base and electrolyte management. • Describe dietary measures and medication use in the management of AKI, including renal replacement therapy. • Recognize potential complications of AKI and their treatment options, along with prognosis. 	Case Based Learning	MCQs, SEQs

Theme: Psychiatry (Knowledge)

LEARNING OBJECTIVES	TOPICS TO BE TAUGHT	TEACHING METHOD	DESIRED SOFT SKILLS ACQUISITION	ASSESSMENT
<ul style="list-style-type: none"> To discuss the community psychological aspect of health. To understand Bio-Psycho- Social Model. To enlist Psychological Aspect of Diseases. To illustrate pathophysiology of stress. To summarize methods of stress management. To state Psychological Aspects of Pain. To recognize & report Psychological Aspects of Aging. 	1. Community Psychological Aspect of Health & Bio- Psycho- Social Model	LGIS	<ul style="list-style-type: none"> Listening skills Recording skills Enhancement of visual memory 	MCQs, SEQs
	2. Psychological Aspect of Disease, Stress and its Management	Seminar	<ul style="list-style-type: none"> Presentation skills Computer Skills Enhancement of visual memory 	MCQs, SEQs
	3. Psychological Aspects of Pain	LGIS	<ul style="list-style-type: none"> Listening skills Recording skills Enhancement of visual memory 	MCQs, SEQs
	4. Psychological Aspects of Aging	LGIS	<ul style="list-style-type: none"> Listening skills Recording skills Enhancement of visual memory 	MCQs, SEQs

SECTION NO. 2.2

CORE CURRICULAR CONTENT GENERAL MEDCINE

2nd, 3rd, and 4th Year

TABLE OF CONTENTS

SNO.	CONTENT
A	General internal medicine
B	Critical care unit (intensive care unit –ICU)
C	Ambulatory Medicine
D	Cardiology
E	Dermatology
F	Endocrinology
G	Gastroenterology
H	General Medical Consult Service
I	Neurology
J	Psychiatry
K	Radiology
M	Haem-oncology
N	Infectious diseases
O	Nephrology
P	Pulmonary
Q	Rheumatology
R	Emergency medicine

DETAILS OF COURSE CONTENT:

A. GENERAL INTERNAL MEDICINE

Educational Purpose

The Internal Medicine Ward rotation is structured to provide PGTs with the fundamental knowledge base of internal medicine, the essential principles in the approach to internal medicine ward patients, the basic techniques of physical examination, the necessary skills in performing clinical procedures, and the capability to communicate clearly with patients, their families and other members of the health care team.

Content of required knowledge:

System	Topics
Human Growth, Development, and Aging	Adolescent medicine Aging and introduction to geriatric medicine Management of common problems in the elderly
Preventive Medicine	Principles of preventive medicine Immunization Alcohol and substance abuse
Principle of Diagnosis and Management	Clinical approach to the patient Clinical decision-making Interpretation of laboratory data
Cardiovascular Diseases	Congestive heart failure Cardiac arrhythmias Hypertension Coronary artery disease Interpretation of EKG Interpretation of echocardiogram Nuclear medicine imaging Indication for cardiac catheterization
Respiratory Diseases	Respiratory failure COPD Asthma Pulmonary embolism Pleural effusion Interpretation of pulmonary function tests
Renal Diseases	Disorders of electrolytes and acid-base

	Acute renal failure Chronic renal failure Glomerulonephritis Tubulointerstitial diseases Vascular disorders
Diseases of the Liver and Hepatobiliary Tract	Viral hepatitis Cirrhosis and portal hypertension Hepatic failure
Hematologic Diseases	Anemias Interpretation of the peripheral blood smear Transfusion of blood and blood products Neutropenia Disorders of the platelets Disorders of blood coagulation
Oncology	Acute leukemias Oncologic emergencies Lymphomas
Metabolic Diseases	Hyperlipoproteinemia Gout
Nutritional Diseases	Principles of nutritional support Parenteral nutrition
Endocrine Diseases	Diabetes mellitus Diabetic ketoacidosis Adrenal disorders Thyroid diseases Osteoporosis
Musculoskeletal and Connective Tissue Diseases	Arthritis Systemic lupus erythematosus (SLE) Vasculitis syndromes
Infectious Diseases	Septic shock Principles of antimicrobial therapy Pneumonias Urinary tract infections (UTI) Soft tissue infections Osteomyelitis Infective endocarditis Bacterial meningitis Enteric infections Tuberculosis Fungal infections

	HIV infection Treatment of AIDS and related disorders
Neurology	Neurologic examination Radiologic imaging Cerebrovascular accident (Stroke) Dementia sleep disorders Seizures

Teaching Strategies and Assessment tools:

Teaching Strategies	Assessment Tools
Bedside teaching during Grand Ward Rounds Seminars Small group discussions Problem based learning Case Based Discussion (CBD) Didactic lectures Self-directed learning Follow up clinics Skill teaching in ward settings Clinic pathological conferences	MCQs, SEQs Short Cases Long Cases OSCE Mini- CEX DOPs CBD 360 Feedback

Required Competencies:

Patient Care	<p>Obtain a complete history and recognize common abnormal physical findings.</p> <p>Construct a master problem list, a working diagnosis, and a group of differential diagnoses.</p> <p>Be familiar with different diagnostic tools such as the electronic thermometer, sphygmomanometer, ophthalmoscope, EKG machine, pulse oximetry, and defibrillator.</p> <p>Become familiar with the concept of pre-test and post-test probabilities of disease.</p> <p>Be able to perform various clinical procedures such as venipuncture, thoracentesis, paracentesis, lumbar puncture, arthrocentesis, skin punch-biopsy, endotracheal intubation, and central line placement. Residents should know indications of potential complications of each of these procedures.</p> <p>Understand how to improve patient/physician relationships in a professional way. Residents should be compassionate, but humble and honest, not only with their patients, but also with their co-workers.</p> <p>Residents are encouraged to develop leadership in teaching and supervising interns and medical students.</p> <p>Actively participate in all phases of patient care. Residents are encouraged to read on related topics, to share new learning with their colleagues and to keep their fund of knowledge up to date.</p> <p>Learn to use the computer for literature searches, to read and analyze scientific articles.</p>
Evaluation of Patient Care	<p>Completeness and accuracy of medical interviews and physical examinations.</p> <p>Thoroughness of the review of the available medical data on each patient.</p> <p>Performance of appropriate maneuvers and procedures on patients.</p> <p>Accuracy and thoroughness of patient assessments</p> <p>Appropriateness of Diagnostic and therapeutic decisions.</p> <p>Soundness of medical judgment.</p> <p>Consideration of patient preferences in making therapeutic decisions.</p> <p>Completeness of medical charting</p>
Professionalism	<p>The resident should continue to develop his/her ethical behavior, and must show the humanistic qualities of respect, compassion, integrity and honesty.</p> <p>The resident must be willing to acknowledge errors and determine how to avoid future similar mistakes.</p> <p>The resident must be responsible and reliable always.</p> <p>The resident must always consider the needs of patients, families, colleagues and support staff.</p> <p>The resident must always maintain a professional appearance.</p>
Interpersonal and Communication Skills	<p>The resident should learn when to call a sub-specialist for evaluation and management of a patient.</p> <p>The resident should be able to clearly present a case to the attending staff in an organized and thorough manner.</p> <p>The resident must be able to establish rapport with a patient and listen to the patient's complaints to promote the patient's welfare.</p> <p>The resident should provide effective education and counseling for patients.</p> <p>The resident must write organized legible notes.</p>

	The resident must communicate any patient problems to the attending staff in a timely fashion.
Practice Based Learning Improvement	<p>The resident should use feedback and self- evaluation in order to improve performance.</p> <p>The resident should read pertinent required material and articles provided to enhance learning.</p> <p>The resident should use the medical literature search tools in the library to find appropriate articles related to interesting cases.</p> <p>The resident should use information provided by senior residents and attending from rounds and consultations to improve performance and enhance learning</p>
Evaluation of Medical Knowledge	<p>The resident's ability to answer directed questions and to participate in attending rounds.</p> <p>The resident's presentation of patient history and physical exam, where attention is given to differential diagnosis and pathophysiology.</p> <p>When time permits, residents may be assigned short topics to present at attending rounds. These will be examined for completeness, accuracy, organization and the residents understanding of the topic.</p> <p>The resident's ability to apply the information learned from attending round sessions to the patient care setting. The residents interest level in learning.</p>

B. CRITICAL CARE UNIT (INTENSIVE CARE UNIT – ICU)

Educational Purpose:

The goal of the Critical Care faculty is to train the general internist to evaluate and treat critically ill patients, use consultants and paramedical personnel effectively, and stress sensitive, compassionate management of patients and their families. Training in emergency medicine and critical care is crucial for the general internist. Recognition/prioritization medical emergencies is the basic knowledge that should be acquired by the internist. Important aspects of this training include identifying patients who are candidates for intensive care, the bedside approach to the critically ill patient, knowledge of algorithms for diagnosis and management of common problems in the ICU, death, resuscitation issues, and interaction with the families

Content of required knowledge:

Knowledge			
Topic	Sub - Topics	Teaching Strategy	Assessment tool
Cardiovascular Hemodynamics	Pathophysiology and management of shock, heart failure, and hemodynamic monitoring.	LGIS, Bedside teaching, Case based discussion, Seminars, Case presentations, Journal Club	MCQs, SEQs, Literature Search Mini-CEX, CbD
Respiratory Management	Mechanisms of acute lung injury, principles of mechanical ventilation, and non-invasive ventilation.		
Acid-Base Disorders	Understanding arterial blood gases and electrolyte disturbances.		
Sepsis	Pathophysiology, management strategies, and the use of early goal-directed therapy.		
Renal Failure	Acute kidney injury and principles of renal replacement therapy.		
Pharmacology	Use of vasoactive agents, antibiotics, and drug dosing adjustments in critically ill patients.		
Neurologic Emergencies	Recognition and management of coma, seizures, and cerebrovascular accidents.		

Infectious Diseases	Management of hospital-acquired infections, pneumonia, and sepsis.		
Endocrine Emergencies	Diabetic ketoacidosis, adrenal crises, and thyrotoxicosis.		
Nutrition in Critical Care	Enteral and parenteral nutrition guidelines		
Fluid and Electrolyte Management	Resuscitation strategies, correction of imbalances.		
Multisystem Organ Failure Management	Approach to sepsis, shock, and MOF		
Blood Loss	Fluid resuscitation and blood transfusion		
Ethical Issues	End-of-life care, advanced directives, and decision-making in the ICU.		
Skill			
Airway Management	Endotracheal intubation, management of tracheostomy, and use of non-invasive ventilation.	Skill Lab, Stimulation based Learning	OSCE, DOPs
Mechanical Ventilation	Initiation, monitoring, troubleshooting, and weaning from invasive mechanical ventilation.		
Hemodynamic Monitoring	Use of pulmonary artery catheters, central venous catheters, and arterial lines.		
Procedural Skills	Insertion of central lines, arterial catheters, and chest tubes.		
Advanced Cardiovascular Life Support (ACLS)	Leading and managing resuscitation efforts.		
Bedside USG	Use in assessment of fluid status, cardiac function, and guiding procedures.		
Attitude			
Teamwork	Collaborative decision-making in a multidisciplinary team.	Bedside Teaching, ICU rotational training	360-degree Feedback
Ethical Decision-Making	Consideration of patient		

	autonomy and end-of-life issues.		
Professionalism	Maintaining calm, clear communication in high-stress environments.		
Patient-Centered Care	Respect for patient and family preferences, particularly in palliative care scenarios.		
Adaptability	Flexibility in managing complex, evolving clinical situations.		
Leadership	Leading resuscitation and crisis management teams with composure and effectiveness.		

Required Competencies:

Patient Care	<p>Trainees will learn to obtain a logical, chronological history from critically ill patients and their families and to do an effective physical examination in this challenging milieu. Use of information from old charts and private physicians is stressed.</p> <p>Residents will learn to integrate physiological parameters and laboratory data with the clinical history and physical exam to make clinical diagnostic and management decisions.</p> <p>Residents will learn the appropriate use of daily progress notes in patient follow-up, and the need for frequent reevaluation of the unstable patient.</p>
Practice Based Learning Improvement	<p>The resident should use feedback and self-evaluation to improve performance.</p> <p>The resident should read the required material and articles provided to enhance learning.</p> <p>The resident should use the medical literature search tools in the library to find appropriate articles related to interesting cases.</p>
Professionalism	<p>The resident should continue to develop his/her ethical behavior and the humanistic qualities of respect, compassion, integrity, and honesty. In the ICU, these goals are met in several ways:</p> <p>Sensitive handling of a do-not resuscitate order.</p> <p>Respect and compassion for the depersonalized, intubated, non- communicative patient.</p> <p>Appropriate use of consultants and paramedical personnel.</p> <p>Compassionate handling of families and development of rapport with them.</p> <p>Residents should learn to ask permission for an autopsy in a forthright, non- threatening way and should be available to family members to discuss autopsy findings.</p> <p>The resident must be willing to acknowledge errors and determine how to avoid future similar mistakes.</p> <p>The resident must always be responsible and reliable.</p> <p>The resident must always consider the needs of patients, families, colleagues, and support staff.</p> <p>The resident must always maintain a professional appearance.</p>

C. AMBULATORY MEDICINE

Educational Purpose

- To provide the resident guidance and supervision as they develop a timely clinical approach to the patient in the outpatient setting. This would include the ability to formulate differential diagnoses based on the patient's specific complaints, the art of effective and appropriate communication with patients and other members of the health care delivery team.
- To promote and teach the principles of Preventive Medicine, primary and secondary prevention in screening of asymptomatic adults.

Training Protocol:

- Most of the teaching is done through experience of the PGTs at General Care Clinic, Urgent Care Clinics and Subspecialty clinics.
- The Urgent Care clinics consist of patients that are referred for evaluation from the Emergency department, walk-in patients with various complaints and existing patients who need timely attention. Occasionally, patients are referred to these clinics for outpatient preoperative evaluation.
- The Subspecialty clinics that the residents will participate in include HIV clinic, Pulmonary clinic, Hematology/Oncology clinic, GI clinic, Diabetes and Endocrine clinics, Nephrology clinic, Cardiology clinic and Rheumatology clinic. All residents in these clinics are supervised by faculty.
- General and Urgent Care clinics are supervised by the General Medicine faculty. This faculty will review and discuss each case with the clinic residents. The General Medicine faculty supervises no more than four residents.

Content of required knowledge:

Knowledge			
Topic	Sub-Topic	Teaching Strategy	Assessment Tools
Diabetes	Classification, pathogenesis, diagnosis, management, comprehensive preventive care, management and identification of complications in accordance with American Diabetes Association ADA guidelines.	Supervised Training under senior faculty, Case- based Discussion, LGIS, SNAPP, OMP, & SDL	MCQs, SEQ, Mini-CEX, CbD
Hypertension	Diagnosis, classification. Identification of screening interventions for secondary hypertension, management and pathogenesis. Understand the metabolic syndrome and causes of resistant hypertension in accordance with recent JNC guidelines.		
Lipid Disorders	Pathogenesis, diagnosis, screening, therapy and monitoring of lipid disorders in accordance with the ATP III guidelines.		
Anticoagulation Pharmacological Treatment	Pathogenesis, INR goal achievement, indications, length of treatment, complications of anticoagulation therapy in accordance with the most recent ACCP Consensus Conference on Antithrombotic Therapy (CHEST guidelines).		
Congestive heart failure	Pathogenesis, classification, diagnosis, management and prognostication in accordance with		

	ACC guidelines.		
Osteoporosis	Pathogenesis, diagnosis, causes of secondary osteoporosis, and management in accordance with National standards.		
Osteoarthritis	Pathogenesis, diagnosis and management in accordance with National Standards.		
Headache	Pathogenesis, diagnosis and management		
SKILL			
Clinical Assessment	Perform comprehensive history-taking and physical examinations in the outpatient setting.	Skill lab, Observation and feedback, Case based learning	OSCE, Mini-CEX, DOPs
Chronic Disease Management	Develop individualized, long-term management plans for chronic diseases		
Preventive Care	Implement screening strategies for common diseases		
Procedural Skills	Perform common ambulatory procedures e.g., joint injections		
	Interpret and apply office-based tests such as spirometry, blood glucose monitoring, and ECG interpretation.		
Attitude			
Communication Skills	Counsel patients on lifestyle modifications Deliver bad news and manage difficult conversations sensitively (e.g., discussing a new cancer diagnosis). Effectively communicate management plans and follow-up instructions		

Required Competencies:

Professionalism	<p>The resident should continue to develop his/her ethical behavior and must show the humanistic qualities of respect, compassion, integrity, and honesty.</p> <p>The resident must be willing to acknowledge errors and determine how to avoid future similar mistakes.</p> <p>The resident must always be responsible and reliable.</p> <p>The resident must always consider the needs of patients, families, colleagues, and support staff.</p> <p>The resident must always maintain a professional appearance.</p>
Patient-Centered Care	<p>Demonstrate respect for patient autonomy, cultural values, and personal preferences during consultations.</p> <p>Build long-term, trusting relationships with patients by showing empathy and active listening.</p> <p>Display sensitivity to patients' cultural, socioeconomic, and religious backgrounds when developing treatment plans.</p> <p>Adapt care strategies to accommodate diverse patient needs, particularly in the context of the public healthcare system in Pakistan.</p> <p>Advocate for patients' access to necessary healthcare resources and social support systems.</p> <p>Participate in community outreach programs for health promotion and disease prevention, especially in underserved populations.</p>
Practice- based Learning	<p>Stay updated with guidelines, research, and advancements relevant to ambulatory care.</p> <p>Engage in continuous self-reflection and seek feedback for personal growth in outpatient practice.</p>
Inter- personal and communication Skills	<p>Work effectively in a multidisciplinary team, including nurses, pharmacists, and allied health professionals, for comprehensive patient care.</p> <p>Collaborate with specialists when referring patients and ensure smooth coordination for continuity of care.</p>

D. CARDIOLOGY

Educational Purpose

To give the PGTs formal intensive instruction, clinical experience, and the opportunity to acquire expertise in the evaluation and management of cardiovascular disorders.

1. The general internist should be able to provide primary and secondary preventive care and initially manage the full range of cardiovascular disorders.
2. The need for additional competencies in cardiovascular disease will depend on the availability of a cardiologist in the primary practice setting.
3. In some communities, the general internist may be responsible for management of more complex cardiovascular disorders that require intensive hemodynamic monitoring (for example, balloon-tipped pulmonary artery catheters) in the intensive care unit.

Content of required knowledge:

Knowledge			
Topic	Specific Learning Objectives	Teaching Strategies	Assessment Tools
Coronary Artery Disease	Diagnose and manage patient of Stable Angina, Unstable Angina, NSTEMI, STEMI. Diagnose and manage acute and chronic complications of CAD. Apply primary and secondary preventive	Didactic lectures, Outpatient evaluation at cardiology clinic, bedside teaching rounds, learning	MCQs, SEQs, Mini-CEX, CbD

	measures to the patients of ASCVD according to ACC/AHA guidelines.	through monitoring of the stress tests,	
Heart failure	<p>Accurately diagnose and formulate a management plan for patients with chronic heart failure based on clinical assessment and diagnostic findings.</p> <p>Classify the severity of heart failure using echocardiographic parameters.</p> <p>Identify and assess risk factors and underlying etiologies in patients presenting with chronic heart failure.</p> <p>Diagnose and manage acute decompensated heart failure, including prompt stabilization, hemodynamic monitoring, and initiating appropriate pharmacologic and non-pharmacologic treatments.</p>	<p>Exposure to Echocardiograms,</p> <p>Exposure to Nuclear cardiology studies,</p> <p>coach-and-pupil method for daily interpretation of ECGs, Didactic lectures, Seminars,</p> <p>Problem based learning, Case based learning,</p> <p>Clinic pathological conferences</p>	
Arrhythmias	<p>Understand the pathophysiology of common cardiac arrhythmias.</p> <p>Classify arrhythmias based on electrocardiographic (ECG) findings.</p> <p>Identify risk factors and underlying etiologies of various arrhythmias.</p> <p>Recognize clinical</p>		

	<p>presentations and symptoms associated with different types of arrhythmias.</p> <p>Know the indications and interpretation of diagnostic tests, including ECG, Holter monitoring, and electrophysiologic studies.</p> <p>Understand the pharmacologic and non-pharmacologic management strategies for arrhythmias, including antiarrhythmic drugs and electrical cardioversion.</p> <p>Recognize complications and long-term management of recurrent or refractory arrhythmias.</p>		
Valvular heart diseases	<p>Understand the pathophysiology and etiology of common valvular heart diseases.</p> <p>Recognize clinical presentation and symptoms associated with different valvular heart diseases.</p> <p>Diagnose and manage patient with valvular heart disease</p>		
Adult Congenital heart diseases	<p>Understand the pathophysiology and etiology of common congenital heart diseases.</p>		

	<p>Recognize clinical presentation and symptoms associated with different congenital heart diseases.</p> <p>Diagnose and manage patient with congenital heart disease</p>		
Cardiomyopathies	Classify, diagnose, and manage cardiomyopathies.		
Pericardial diseases	<p>Understand pathophysiology, identify etiologies, and know the clinical presentation of different pericardial diseases.</p> <p>Identify and diagnose different pericardial diseases based on ECG, 2-D ECHO and Cardiac MRI findings.</p>		
Infections	<p>Infective Endocarditis: Diagnosis and management of infective endocarditis.</p> <p>Acute Rheumatic Fever: Diagnosis and management of Acute Rheumatic fever.</p> <p>Myocarditis: Diagnosis and management of myocarditis.</p>		
Pulmonary HTN	Classify, diagnose, and manage Pulmonary HTN.		
Skills			
Clinical Examination	Perform comprehensive history-taking and physical	Skill lab, Simulation	OSCE, DOPs

	examinations of cardiac patients.	based learning	
Interpretation of clinical and laboratory Tests	Interpret findings of ECG, 2-D ECHO, Stress testing.		
Procedural Skills	Perform ECG, Cardiopulmonary resuscitation, ACLS, and pericardiocentesis.		
Attitude			
Communication Skills	Keep the patient and family informed about clinical status and test results. Maintain regular communication with the referring physician. Review past medical records and extract relevant cardiovascular information. Understand that patients have the right to accept or decline recommendations. Educate the patient on their condition and treatment options.	Role play, Standardized patient exposure	OSCE, 360-degree feedback

Required Competencies:

Professionalism	<p>The PGT should continue to develop his/her ethical behavior and the humanistic qualities of respect, compassion, integrity, and honesty.</p> <p>The PGT must be willing to acknowledge errors and determine how to avoid future similar mistakes.</p> <p>The PGT must always be responsible and reliable.</p> <p>The PGT must always consider the needs of patients, families, colleagues, and support staff.</p> <p>The PGT must always maintain a professional appearance</p>
Interpersonal and Communication Skills	<p>The PGT should learn when to call a subspecialist for evaluation and management of a patient with a cardiovascular disease.</p> <p>The PGT should be able to clearly present the consultation cases to the staff in an organized and thorough manner.</p> <p>The PGT must be able to establish a rapport with the patients and listen to the patient's complaints to promote the patient's welfare.</p> <p>The PGT should provide effective education and counseling for patients.</p> <p>The PGT must write organized and legible notes</p> <p>The PGT must communicate any patient problems to the staff in a timely fashion.</p>
Practice Based Learning Improvement	<p>The PGT should use feedback and self- evaluation to improve performance.</p> <p>The PGT should read the required material and articles provided to enhance learning</p> <p>The PGT should use the medical literature search tools in the library to find appropriate articles related to interesting cases.</p>
Evaluation of Medical Knowledge	<p>The PGT's ability to answer directed questions and to participate in the didactic sessions.</p> <p>The PGT's presentation of assigned short topics. These will be examined for their competence s, accuracy, organization, and the PGTs' understanding of the topic.</p> <p>The PGT's ability to apply the information learned in the didactic sessions to the patient care setting.</p> <p>The PGT's interest level in learning.</p>

E. DERMATOLOGY

Educational Purpose:

To give the residents formal intensive instruction, clinical experience, and the opportunity to acquire expertise in the evaluation and management of cutaneous disorders.

Content of required knowledge:

Specific Learning Objectives	Topics	Teaching Strategies	Assessment Tools
Knowledge			
<p>Understand the pathogenesis, differential diagnosis, and management of common skin, and mucosal disorders, including inflammatory, infectious, neoplastic, and congenital conditions.</p> <p>Demonstrate competence in recognizing skin manifestations of systemic diseases, common skin malignancies, and benign growths, with proficiency in performing skin examinations and describing findings accurately.</p> <p>Diagnose and manage a variety of common dermatological conditions, making appropriate referrals when necessary.</p>	<p>Principles of dermatologic therapy</p> <p>Benign pigmented lesions</p> <p>Malignant Melanoma</p> <p>Squamous cell and Basal cell Carcinoma</p> <p>Fungal infections of the skin, Mucocutaneous Candidiasis</p> <p>Viral Infections (Herpes Simplex, Herpes Zoster, HIV, Molluscum Contagiosum, Warts)</p> <p>Bacterial Infections (Erysipelas, Cellulitis, Impetigo)</p> <p>Parasitic infestation like Scabies</p> <p>Inflammatory nodules (Erythema Nodosum)</p> <p>Scaly disorders (Psoriasis, Seborrheic Dermatitis, Lichen planus)</p> <p>Skin Manifestations of systemic disorders.</p> <p>Vesicular & blistering dermatoses</p>	<p>LGIS, Case based discussion, OPD and Bedside teaching, Small group discussion, SDL, Clinicopathological Conference, Journal Club</p>	<p>OSCE</p> <p>MCQs</p> <p>SEQs</p> <p>Assignments</p> <p>Case Presentations</p> <p>Mini-CEX</p>

	(Contact Dermatitis, Pemphigus) Acne Vulgaris Steven Johnson Syndrome, TEN		
Skills			
Perform common office procedures and interpret histological test reports.	Application of chemical destructive agents for skin lesions e.g., warts and molluscum, condyloma Skin biopsy Microscopic examination for Scabies Interpretation skin biopsy test report findings.	Skill lab, Simulation based learning, Observation and feedback	OSCE, DOPs

Required Competencies:

Professionalism	The resident should continue to develop his/her ethical behavior and the humanistic qualities of respect, compassion, integrity, and honesty. The resident must be willing to acknowledge errors and determine how to avoid future similar mistakes. The resident must always be responsible and reliable. The resident must always consider the needs of patients, families, colleagues, and support staff. The resident must always maintain a professional appearance.
Interpersonal and Communication Skills	The resident should learn when to call a sub specialist for evaluation and management of a patient with a dermatologic disease. The resident should be able to clearly present the consultation cases to the staff in an organized and thorough manner. The resident must be able to establish a rapport with the patients and listen to the patient's complaints to promote the patient's welfare. The resident should provide effective education and counseling for patients. The resident must write organized and legible notes. The resident must communicate any patient problems to the staff in a timely fashion.
Practice Based	The resident should use

Learning Improvement	<p>Feedback and self-evaluation to improve performance.</p> <p>The resident should read the required material and articles provided to enhance learning.</p> <p>The resident should use the medical literature search tools in the library to find appropriate articles related to interesting cases.</p>
Evaluation of Medical Knowledge	<p>The resident's ability to answer directed questions and to participate in the didactic sessions.</p> <p>The resident's presentation of assigned short topics. These will be examined for their completeness, accuracy, organization, and the resident's understanding of the topic.</p> <p>The resident's ability to apply the information learned in the didactic sessions to the patient care setting.</p> <p>The resident's interest level in learning.</p> <p>The resident will take a pre- and post-test written and color slide exam.</p> <p>Improvement from one end of the rotation to the other should be realized.</p>

F. ENDOCRINOLOGY

Educational Purpose:

To give the residents formal intensive instruction, clinical experience, and the opportunity to acquire expertise in the evaluation and management of endocrine disorders.

Content of required knowledge:

Knowledge			
Topic	Learning Objectives	Teaching Strategies	Assessment Tool
Diabetes Mellitus	<p>Recognize Type 1 from Type 2 DM</p> <p>Plan dietary therapy, oral hypoglycemic agents and insulin therapy for all diabetics, especially Type 2 DM patients</p> <p>Plan and advice recommendations for weight loss</p> <p>Understand the concept of tight control, standards of care and targets of control for both Type 1 and Type 2 DM patients</p> <p>Learn the management of acute decompensation of diabetes, i.e. DKA, hyperosmolar state.</p> <p>Learn how to use a multidisciplinary team approach to diabetes management (including role of cardiology, nephrology, ophthalmology and Podiatry).</p>	<p>Bedside teaching, Diabetic and Endocrinology OPD, Seminars, Case based discussion, Clinicopathological Conferences, Journal Club, SNAPP, OMP</p>	<p>MCQs, SEQs, Case Presentation, Assignments, Long case, Mini-CEX, CbD</p>
Thyroid Disorders	<p>Learn to interpret thyroid function tests, thyroid imaging and to initiate and follow patients on thyroid hormone replacement therapy.</p> <p>Diagnosis, evaluation, differential diagnosis and management of overt and subclinical hyperthyroidism and hypothyroidism, thyroid storm and low uptake versus high uptake thyrotoxicosis.</p> <p>Approach to thyroid nodules and thyroid cancer.</p>		
Pituitary Gland Disorders	Evaluate and develop treatment strategies		

	for Pituitary disorders – pituitary tumors and hypopituitarism, diagnosis, difference between the various etiologies and replacement hormonal therapies.		
Adrenal Gland Disorders	Learning to approach adrenal diseases including Cushing's syndrome and adrenal insufficiency focuses on acute and chronic adrenal insufficiency – diagnosis and management. Endocrine causes of secondary hypertension- Cost efficient evaluation and management		
Parathyroid gland disorders	Evaluation, D/D and management of Osteoporosis, Osteopenia, Vitamin D deficiency, Hypercalcemia (focus on primary hyperparathyroidism) and Hypocalcemia.		
Reproductive Endocrinology	Learn to recognize and treat Poly endocrine autoimmune syndromes. Evaluate and treat male and female hypogonadism (focus on testosterone replacement Therapy. HRT in females and related reproductive endocrine disorders.		
Miscellaneous	Learn to recognize and treat Poly endocrine autoimmune syndromes. Approach to endocrine incidentalomas – (pituitary, adrenal and thyroid with a focus on adrenal incidentalomas). Evaluate and identify the endocrinologic implications of abnormal serum electrolytes, hypertension, fatigue, and other nonspecific presentations. Diagnosis and Management of Endocrine Emergencies		
Skills			
Clinical Skills	Perform focused clinical assessments of	Role play, Observation and	OSCE, Long Case, Short

	patients with endocrine disorders, including detailed history and examination. Interpret laboratory and imaging results related to endocrine diseases accurately and integrate them into patient management plans.	Feedback, Simulation based learning	cases, DOPs
Attitude			
Communication Skills	Exhibit empathy and effective communication when discussing chronic endocrine disorders with patients, ensuring their understanding and adherence to management plans.		

Required Competencies:

Professionalism	<p>The resident should continue to develop his/her ethical behavior and the humanistic qualities of respect, compassion, integrity, and honesty.</p> <p>The resident must be willing to acknowledge errors and determine how to avoid future similar mistakes.</p> <p>The resident must be responsible and reliable always.</p> <p>The resident must always consider the needs of patients, families, colleagues, and support staff.</p> <p>The resident must always maintain a professional appearance.</p>
Interpersonal communication Skills	<p>The resident should learn when to call a subspecialist for evaluation and management of a patient with an endocrine disease.</p> <p>The resident should be able to clearly present the consultation cases to the staff in an organized and thorough manner.</p> <p>The resident must be able to establish a rapport with the patients and listen to the patient's complaints to promote the patient's welfare.</p> <p>The resident should provide effective education on and counseling for patients.</p> <p>The resident must write organized and legible notes.</p> <p>The resident must communicate any patient problems to the staff in a timely fashion.</p>
Practice based learning	<p>The resident should use feedback and self- evaluation to improve performance.</p> <p>The resident should read the required material and articles provided to enhance learning.</p> <p>The resident should use the medical literature search tools in the library to find appropriate articles related to interesting cases.</p>
Evaluation of Medical Knowledge	<p>The resident's ability to answer directed questions and to participate in the teaching sessions.</p> <p>The resident's presentation of assigned short topics will be evaluated based on the following criteria: completeness, accuracy, organization, and the resident's understanding of the topic.</p> <p>The resident's ability to apply the information learned in the teaching sessions to the patient care setting.</p> <p>The resident's interest level in learning.</p>

G. GASTROENTEROLOGY

Educational Purpose:

To give the residents formal instruction, clinical experience, and opportunities to acquire expertise in the evaluation and management of gastroenterological disorders.

Content of required knowledge:

Knowledge			
Specific Learning Objectives	Topics	Teaching Strategies	Assessment Tools
Understand the pathophysiology, clinical presentation, and management of common gastrointestinal diseases.	Malabsorptive/Nutritional disorders		
	Inflammatory Bowel Disease		
	Irritable Bowel Syndrome		
Evaluate and manage patients with a wide variety of digestive disorders in an inpatient and outpatient setting.	Peptic Ulcer Diseases		
	Malignancies of the Digestive System		
Identify the causes, clinical features, and treatment strategies for liver diseases.	GI disorders and pregnancy		
	Gastrointestinal Emergencies (UGIB, LGID)		
Recognize the diagnostic approaches and management options for gastrointestinal emergencies, such as bleeding.	GI motility disorders		
	Biliary disorders		
	Pancreatic disorders		
Discuss the epidemiology, diagnosis, and treatment of pancreatic and functional gastrointestinal disorders.	Viral hepatitis		
	Chronic liver disease and Cirrhosis		
Discuss nutritional deficiencies, screening and prevention, particularly for colorectal cancer.			

Recognize the indications, contraindications, complications, limitations and alternatives for GI procedures.			
Clinical Skills			
<p>Perform a thorough clinical assessment and focused physical examination for gastrointestinal and hepatobiliary diseases.</p> <p>Interpret diagnostic imaging and endoscopic findings, along with relevant laboratory data, to formulate a management plan.</p>	<p>GIT system examination and related general physical examination clinical signs.</p> <p>History taking of GIT system disorders.</p> <p>Interpret diagnostic imaging and endoscopic findings, along with relevant laboratory data, to formulate a management plan.</p>	Role play, Standardized patient encounter, Case based discussion	OSCE, Long case, Short case, Mini-CEX, CbD
Procedural Skills			
<p>Execute essential procedural skills.</p> <p>Interpret diagnostic imaging and endoscopic findings, along with relevant laboratory data, to formulate a management plan.</p>	<p>Diagnostic and Therapeutic Ascitic tap.</p> <p>Liver Biopsy</p> <p>Upper and lower GI endoscopy (Observation)</p>	Simulation based learning, Skill lab	OSCE, DOPs
Attitude			
<p>Demonstrate empathy and professionalism when communicating with patients suffering from chronic and acute gastrointestinal conditions.</p> <p>Collaborate effectively with the multidisciplinary team to provide holistic care for patients with gastrointestinal diseases.</p>	<p>Professionalism, Communication Skills, Ethical practice</p>	Role play	OSCE, Long Case, 360- degree feedback, Mini-CEX

Show commitment to ethical practice, respecting patient autonomy and ensuring informed consent for invasive diagnostic and therapeutic procedures.			
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Competencies required:

Professionalism	<p>Respect for the risks and benefits of diagnostic and therapeutic procedures.</p> <p>Prudent, cost-effective and judicious use of special instruments, test and therapy in the diagnosis and management of gastroenterological disorders.</p> <p>Appropriate method of calling gastroenterology consults.</p> <p>Need for continually reading current literature on gastroenterology–liver diseases to stay current in terms of diagnosis and treatment of diseases</p>
Interpersonal and Communication Skills	<p>The ability to ask gastroenterology consultants a precise and clear Question.</p> <p>The development of critical reading skills for the gastroenterology literature.</p> <p>Ability to give clear patient presentations to consultants and at conferences in gastroenterology.</p>
Practice Based Learning Improvement	<p>The resident should use feedback and self-evaluation to improve performance.</p> <p>The resident should read the required material and article provided to enhance learning.</p> <p>The resident should use the medical literature search tools in the library to find appropriate articles related to interesting cases.</p>
Evaluation of Medical Knowledge	<p>Consultations will be reviewed with the attending physicians.</p> <p>Patient presentations and conference presentations will be reviewed.</p> <p>Procedures done by the resident will be documented, giving the indications, outcomes, diagnoses, level of competence and assessment by the supervisor of the ability of the resident to perform it independently.</p> <p>Mid-rotation evaluation session with the faculty member working with the resident.</p> <p>The residents will also fill out an evaluation of the gastroenterology rotation at the end of the month.</p>

I: GENERAL MEDICINE CONSULT SERVICE

Educational Purpose:

- A. To provide internal medicine residents with the required knowledge base, patient care skills, interpersonal and communication skills, professionalism training and practice-based learning skills to function effectively as a consultant to all other medical specialties.
- B. To perform a comprehensive preoperative evaluation and optimal postoperative follow up of patients for non-cardiac surgery using a systematic approach based on clinical practice guidelines and other pertinent current literature.

Content of required knowledge:

Topic	Learning Objectives	Teaching Strategies	Assessment Tools
Knowledge			
Preoperative evaluation Postoperative care Clinical guidelines	Understand the principles of preoperative evaluation based on clinical practice guidelines for non-cardiac surgery. Recognize the postoperative complications in medical comorbidities and implement prevention strategies. Apply evidence-based literature for optimal perioperative care in non-cardiac surgery.	Didactic lectures Case-based discussions Journal club	MCQs, SEQ CbD, Mini-CEX
Skill			
Comprehensive clinical evaluation Postoperative management	Perform a systematic preoperative assessment in collaboration with surgical teams. Identify and manage postoperative complications effectively.	Bedside teaching Simulation-based training Ward rounds	OSCE Mini-CEX DOPs

	Formulate and communicate a clear consult plan to the referring physician.		
Attitude			
	<p>Demonstrate professionalism in interactions with consulting teams and patients.</p> <p>Show effective communication with the surgical team and other consulting services.</p> <p>Exhibit ethical practice in patient care, ensuring informed decision-making and respecting patient autonomy.</p>	<p>Role-playing</p> <p>Feedback sessions</p> <p>Mentorship</p>	<p>360-degree evaluation</p> <p>OSCE</p>

Required Competencies:

Patient care	<p>Competently interview and examine patients about to undergo an operative procedure or referral by a non-internal medicine service for evaluation of a medical condition.</p> <p>Obtain all other necessary medical information by chart review and review of all other available data.</p> <p>Make informed recommendations about diagnostic and therapeutic options and interventions based on clinical judgment, scientific evidence, and patient preference.</p> <p>Competently and efficiently manage all perioperative and general medical problems as requested by the consulting physician.</p>
Professionalism	<p>Establish a professional patient- physician, physician-family and physician- physician relationships. Respond sensitively to gender, age, culture, religion, socioeconomic status, and beliefs of patients and professional colleagues.</p> <p>Follow HIPPA rules on confidentiality, scientific integrity, and informed consent.</p> <p>Providing clear medical record documentation is expected to avoid all chart conflicts.</p> <p>Clearly and respectfully communicate and Explain recommendations and plan of care to consulting physician and staff.</p>
Interpersonal and Communication Skills	<p>Communicate effectively with patients and families on the consultative service.</p> <p>Communicate promptly, concisely, and respectfully both verbally and through the written record with all other physicians and providers involved in the care of the patient.</p> <p>Promptly and professionally answer all questions raised by the consulting physician.</p> <p>Encourage further consultation by eagerness, promptness, helpfulness, and competence.</p> <p>Assure smooth delegation of patient care responsibilities during outpatient clinic duties.</p>
Practice Based Learning Improvement	<p>Define gaps in knowledge, skills, and attitudes about consultative medicine and use evidence-based medicine to fill these gaps.</p> <p>Adult learning principles of self- determination, goal oriented and respect are the preferred methods for competency and knowledge development during the medical consult service rotation.</p> <p>A biweekly review and discussion session will be held to cover a total of 10 selected articles in perioperative management.</p> <p>Residents and attending will actively seek current literature pertinent to patient care, problems consulted and overall perioperative practice</p>

J. NEUROLOGY

Educational Purpose:

To give residents formal instruction, clinical experience, and the opportunity to acquire expertise necessary to evaluate and manage the common neurological diseases.

Content of the required Knowledge:

Knowledge			
Learning Objectives	Topics	Teaching Strategy	Assessment tool
Understand pathophysiology of neurological diseases.	Headache		
Recognize and manage common neurological disorders.	Epilepsy		
	Dysautonomia		
	TIA		
	Stroke		
Develop differential diagnoses for neurological conditions.	Cerebral Hemorrhage	Didactic lectures	
	SAH	Case based learning	
	Intracranial venous thrombosis	Problem based learning	MCQs, SEQs, Long
Understand neuroimaging and electrodiagnostic studies.	Intracranial and spinal mass lesions (Primary & Secondary tumors)	Interactive seminars	Case, Case
	Pseudotumor cereberi	Small group discussion	presentation,
Interpret diagnostic data for neurological diseases.	Neurocutaneous diseases (Tuberous sclerosis, Neurofibromatosis)	Clinico- pathological conference	Assignments, Mini-
Formulate investigation and management plans.	Movement disorders	Neurology Grand Round	CEX, CbD
	Dementia	Bedside teaching	
Assess prognosis in neurological disorders.	Wernicke's Encephalopathy	Journal club	
	Multiple sclerosis		
	Motor neuron disease		
Recognize and respond to neurological emergencies.	Spinal cord diseases (Syringomyelia, Subacute combined degeneration, Myelopathy)		
Identify neurological signs of	Neuropathies		

systemic diseases.	GBS CIDP Myopathies CNS infections Neurological emergencies (Status epilepticus, acute myasthenia crisis, spinal shock, head trauma)		
Clinical Skills			
Perform a comprehensive neurological examination Accurately assess motor, sensory, cranial nerve, and reflex function in patients. Accurately gather information about neurological disorders to reach diagnosis. Interpret neurological diagnostic tests Competently read and analyze neuroimaging (CT, MRI) and electrodiagnostic results (EEG, EMG).	History taking skills Neurological Examination Techniques Interpretation of Neuroimaging Interpretation of Neurodiagnostic Investigations.	Bedside teaching, Role play, Standardized patient encounters	OSCE, Short cases, Long Case, Mini-CEX
Procedural skills			
Competently perform emergency and diagnostic procedures.	Performing lumbar puncture Administering thrombolysis in stroke patients. Monitoring and managing of intracranial pressure.	Simulation based teaching	DOPs, OSCE
Attitude			
Reporting and documenting neurological findings accurately Communicating neuroimaging and test results to patients and team	Communication and Documentation	Role play, Bedside teaching	OSCE, 360- degree feedback

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Required Competencies:

System based learning	<p>Residents should gain insight into and appreciation of the psychosocial effects of chronic illness.</p> <p>Residents should enhance their utilization of communication with many health services and professionals such as nutritionists, nurse clinicians, physician assistants, social workers podiatrist, ophthalmologist, physical therapist, surgeon, radiologist and nuclear medicine specialist.</p> <p>Residents should learn the importance of preventive medicine in routine health care and specifically in neurological disease management.</p> <p>Residents should be knowledgeable on the use of cost-effective medicine</p> <p>Residents will assist in the development of systems of improvements to correct identified problems.</p>
Professionalism	<p>Development of ethical behavior and humanistic qualities of respect, compassion, integrity, and honesty.</p> <p>Willing to acknowledge errors and determine how to prevent them in the future.</p> <p>Responsibility and reliability always.</p> <p>Consideration of needs from patients, families, colleagues and support staff.</p> <p>Professional appearance always.</p>
Interpersonal and Communication Skills	<p>Residents should be able to decide when to call another Specialist for Evaluation and management on a patient with a neurological disease.</p> <p>Residents should be able to clearly present the problem to the consultant and ask a precise question to the consultant.</p> <p>Residents should continue to develop their ethical behavior and the humanistic qualities of respect, compassion, empathy, and rapport with patients and family to promote the patient's welfare.</p> <p>Residents should provide effective education and counseling to patients.</p> <p>Residents must write organized and legible notes.</p> <p>Residents must communicate to the staff in a timely fashion any problem or conflict that arouse during interaction with the patients.</p>
Practice Based Learning	<p>Use feedback and self- evaluation to improve performance.</p> <p>Read the required material from textbooks, journals and handouts.</p> <p>Use medical literature search tools at the library and through on-line to find appropriate articles that apply to interesting cases.</p>
Medical Knowledge	<p>Answer specific questions and participate in teaching sessions.</p>

Evaluation	Properly present assigned topics (these will be examined for completeness, accuracy, organization, and resident's understanding of the subject. Apply the learned information on patients care setting. Give more than their share and demonstrate ate interest, and enthusiasm in learning.
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K. PSYCHIATRY

Educational Purpose:

To give residents formal instruction, clinical experience, and the opportunity to acquire expertise necessary to evaluate and manage some psychiatric diseases commonly seen in Internal Medicine patients and to know when to request consultation services.

Content of the required Knowledge:

Knowledge			
Learning Objectives	Topic	Teaching Strategies	Assessment Tools
<p>Describe the pathophysiology, clinical features, diagnosis, and treatment of mental disorders, emotional, behavioral, and stress-related issues.</p> <p>Recognize the importance of primary and secondary prevention in managing risk factors for mental disorders.</p> <p>Identify the psychiatric comorbidities contributing to medical morbidity, particularly in hospitalized and ICU patients.</p> <p>Describe the impact of psychiatric, psychological, and behavioral factors in the pathogenesis of medical disorders.</p> <p>Describe the indications and contraindications for the use of psychotropic medications</p>	<p>Psychiatric assessment of common psychiatric disorders.</p> <p>Substance use disorders.</p> <p>Delirium, dementia and other cognitive disorders</p> <p>Geriatric psychiatric disorders</p> <p>Psychiatric problems associated with hospitalization, medical, and surgical disorders</p> <p>Mood disorders</p> <p>Anxiety disorders</p> <p>Somatoform disorders</p> <p>Schizophrenia</p> <p>Personality disorders</p> <p>Eating disorders</p> <p>Puerperal psychiatric disorders</p> <p>Malingering</p>	<p>Bedside teaching, Ward rounds, OPD Psychiatry Clinic, Case based discussion, Seminars, Workshops, Clinicopathological conference, Journal Club, LGIS</p>	<p>MCQs, SEQs, Assignments, Topic presentation, Mini-CEX, CbD, Long case</p>

and ECT in medically ill patients.			
Skill			
<p>Perform a focused psychiatric history, request appropriate diagnostic tests, formulate differential diagnoses, and devise treatment plans, including referrals.</p> <p>Execute psychiatric consultations effectively, addressing the psychological aspects of medical and surgical patients.</p> <p>Utilize non-pharmacologic interventions, such as brief psychotherapy, behavioral management, and family interventions.</p> <p>Provide psychosocial guidance on the role of mental health in medical conditions and medication effects on psychiatric symptoms. and their role in disease management.</p>	<p>History taking skills</p> <p>Depression inventory</p> <p>Mental status examination, including standardized cognitive examinations when indicated</p> <p>Ordering and Understanding Tests</p> <p>Electroencephalography</p> <p>Neuropsychological evaluation</p>	<p>Bedside teaching, Role play, Standardized patient Encounters</p>	<p>OSCE, CbD, Mini-CEX</p>
Attitude			
<p>Demonstrate professionalism and empathy when addressing psychiatric issues in medical and surgical patients.</p>	<p>Communication skills and interprofessional collaboration</p>	<p>Role play, real and standardized patient encounters</p>	<p>OSCE, 360- degree Feedback</p>

<p>Engage in liaison processes with non-psychiatrist staff to increase awareness of psychiatric concerns in the hospital setting.</p> <p>Exhibit openness to specialty consultation for complex psychiatric cases requiring advanced psychotherapeutic interventions.</p> <p>Foster a supportive environment for discussing psychosocial factors</p>			
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Required Competencies:

System based learning	<p>Residents should enhance their utilization of communication with many health services and professionals such as nutritionists, nurse clinicians, physician assistants, social workers podiatrist, ophthalmologist, physical therapist, surgeon, radiologist and nuclear medicine specialist.</p> <p>Residents should learn the importance of preventive medicine in routine health care and specifically in the area of psychiatric disease management.</p> <p>Residents should be knowledgeable on the use of cost-effective medicine.</p> <p>Residents will assist in development of systems of improvements to correct identified problems</p>
Professionalism	<p>Development of ethical behavior and humanistic qualities of respect, compassion, integrity, and honesty</p> <p>Willing to acknowledge errors and determine how to prevent them in the future</p> <p>Responsibility and reliability always</p> <p>Consideration of needs from patients, families, colleagues and support staff</p> <p>Professional appearance always</p>
Interpersonal and Communication Skills	<p>Residents must write organized and legible notes.</p> <p>Residents must communicate to the staff in a timely fashion with any problem or conflict that arises during interaction with the patients.</p>
Practice Based Learning Improvement	<p>Use feedback and self- Evaluation to improve performance</p> <p>Read the required material from textbooks, journals and handouts</p> <p>Use medical literature search tools at the library and through on- line to find appropriate articles that Apply to interesting cases.</p>
Evaluation of Medical Knowledge	<p>Answer specific questions and participate in didactic sessions</p> <p>Properly present assigned topics (these will be examined for completeness, accuracy, organization, and resident's understanding of the subject).</p> <p>Apply the learned information to patients care settings.</p>

L. RADIOLOGY

Educational Purpose:

To give residents formal, informal instruction and clinical experience in the evaluation and clinical correlation of the results of various imaging techniques utilized in a modern radiology department.

Content of the required Knowledge:

Knowledge & Skill			
Learning Objectives	Topics	Teaching Strategies	Assessment Tool
<p>Identify and interpret normal and abnormal chest radiographic findings.</p> <p>Interpret plain abdominal radiographs to identify pathology in acute and chronic conditions.</p> <p>Evaluate radiologic findings indicative of small bowel diseases, including obstruction and inflammatory conditions.</p> <p>Identify musculoskeletal abnormalities and articulate differential diagnoses based on imaging.</p> <p>Recognize common radiologic patterns in chest diseases such as pneumonia, COPD, and malignancies.</p> <p>Describe imaging findings in liver and biliary diseases, including cirrhosis,</p>	<p>Fundamentals of Chest Roentgenology</p> <p>Radiology of Cardiac Disease</p> <p>Plain Film Analysis of the Abdomen</p> <p>Imaging of Small Bowel Disorders</p> <p>Radiologic Differential Diagnoses in Gastrointestinal Disease</p> <p>Radiologic Differential Diagnoses in Musculoskeletal Disease</p> <p>Radiological Findings in Pulmonary Disorders</p> <p>Radiological Assessment of Liver and Hepatobiliary Disorders</p> <p>Imaging of Pancreatic Disease</p> <p>Basic Radiologic Modalities and Their Clinical Applications</p> <p>Radiological Imaging of CNS Disorder</p> <p>Basics of CT scan, interpretation & diagnosis of common diseases</p> <p>Basics of MRI scan, interpretation &</p>	<p>Rotational training, Observation and feedback, Case presentation, Workshop, Journal club</p>	<p>MCQs, OSCE, Mini-CEX, CbD</p>

<p>hepatocellular carcinoma, and biliary obstruction.</p> <p>Identify radiologic features of acute and chronic pancreatitis, cystic lesions, and neoplasms of the pancreas.</p> <p>Identify radiologic features of acute and chronic pancreatitis, cystic lesions, and neoplasms of the pancreas.</p> <p>Understand the indications, advantages, and limitations of common imaging modalities, including CT, MRI, and ultrasound.</p> <p>Understand imaging modalities for CNS disorders, including CT and MRI, and identify radiologic findings in common conditions such as stroke, intracranial hemorrhage, and CNS tumors.</p>	<p>diagnosis of common diseases</p>		
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Required Competencies:

Patient care	Recognizing appropriateness of various imaging procedures Correlating imaging procedures with clinical findings Appreciate concerns with techniques for performing imaging studies Recognizing abnormal radiological findings of the commonly used imaging studies Proper interpretation of the imaging consultation report
System Based learning	The resident should improve in the utilization of and communication with many health services professionals, such as technologists, sonographers and other support staff. The resident should improve in the prudent, cost-effective and judicious use of imaging studies and other diagnostic testing by recognizing the value and limitations of various imaging procedures. The resident should develop a systematic approach to utilize available imaging techniques to work-up the patients with various clinical findings. The resident will assist in determining the root cause of any error which is identified and methods for avoiding such problems in the future. The resident will assist in development of systems' improvement if problems are identified.
Professionalism	The resident should continue to develop his/her ethical behavior and the humanistic qualities of respect, compassion, integrity, and honesty. The resident must be willing to acknowledge errors and determine how to avoid future similar mistakes. The resident must always be responsible and reliable. The resident must always consider the needs of patients, families, colleagues, and support staff. The resident must maintain a professional appearance always.
Interpersonal and Communication Skills	The proper role of radiological consultation Obtaining appropriate clinical information needed to complete an imaging study Addressing patients' concerns about radiation and imaging procedures Understanding technical limitations of imaging procedures in certain settings
Practice Based Learning Improvement	Use feedback and self- evaluation in order to improve performance Read the required material and articles provided to enhance learning Use the medical literature search tools to find appropriate articles related to interesting cases. Develop capabilities in interpreting results of basic radiological studies.

M. HAEM-ONCOLOGY

Educational Purpose

To equip the postgraduate trainees with sufficient knowledge, clinical skills and proficiency for evaluating and managing hematologic disorders, emergencies and malignancies

Content of Required Knowledge:

Knowledge			
Learning Objectives	Topics	Teaching Strategies	Assessment Tools
<p>Classify anemias, leukemias, lymphomas, and myeloproliferative disorders with emphasis on clinical features and diagnostic criteria.</p> <p>Classify the types of anemia and develop structured diagnostic approaches and comprehensive management plans for each type.</p> <p>Explain genetic and acquired hemolytic anemias and outline key diagnostics and treatments.</p> <p>Interpret CBC, peripheral smears, and advanced hematologic tests.</p> <p>Describe the use and risks of anticoagulants, immunosuppressants, and targeted therapies.</p> <p>Explain hemostasis and develop diagnostic and management strategies for bleeding and thrombotic disorders.</p>	<p>Blood disorders</p> <p>Anemias</p> <p>Coagulation disorders</p> <p>Haematological Malignancies</p> <p>Transfusion Medicine</p> <p>Bone marrow disorders</p> <p>Haemoglobinopathies and hemolytic anemias</p> <p>Laboratory diagnostics</p> <p>Pharmacology in hematology</p> <p>Stem cell transplantation</p>	<p>Bedside teaching, Grand ward rounds, Case based discussion, Seminars, Workshops, Journal Club, Clinicopathological conference, LGIS</p>	<p>MCQs, SEQs, Assignments, Logbook, Topic presentations, Mini-CEX, CbD</p>

<p>Describe principles, indications, and safety protocols in blood transfusion.</p> <p>Describe staging, prognosis, and diagnostic tools for leukemias, lymphomas, and myeloma and their management plans.</p> <p>Recognize bone marrow failure syndromes and interpret bone marrow biopsy findings.</p> <p>Outline indications, types, and complications of stem cell transplantation.</p>			
Skills			
<p>Demonstrate proficiency in interpreting peripheral blood smears to guide diagnosis of hematologic conditions.</p> <p>Demonstrate appropriate technique for bone marrow aspiration and biopsy under supervision.</p> <p>Develop a transfusion plan for patients, identifying indications and managing complications.</p> <p>Utilize hematologic tests to support diagnostic decision-making in clinical cases.</p>	<p>Peripheral film interpretation</p> <p>Bone marrow aspiration and biopsy procedure</p> <p>Blood transfusion management</p> <p>Interpretation of hematological test</p> <p>Anticoagulation monitoring and management</p> <p>Focused history and clinical examination to diagnose hematological disorders</p>	<p>Bedside teaching, Observation and feedback, Standardized patient encounters, Case based discussions</p>	<p>OSCE, Long case, Mini-Cex, DOPs</p>

Demonstrate proficiency in initiating, adjusting, and discontinuing anticoagulation based on clinical needs.			
Attitude			
<p>Demonstrate a patient-centered approach by effectively communicating treatment plans with compassion.</p> <p>Apply ethical principles in the decision-making process for transfusion practices.</p> <p>Demonstrate effective teamwork and communication to optimize patient outcomes in complex hematologic cases.</p>	<p>Communication Skill</p> <p>Ethical practice in blood transfusion</p> <p>Interprofessional collaboration</p>	<p>Bedside teaching, Standardized patient encounters</p>	<p>OSCE, 360-degree feedback</p>

Required Competencies:

Systems Based Learning	<p>PGT should improve in the utilization of and communication with many health services and professionals such as the radiologist, surgeon, and pathologist</p> <p>PGT should improve in the use of cost- effective medicine</p> <p>PGT should assist in determining the root cause of any error which is identified and methods for avoiding such problems in the future</p> <p>PGT should recommend the drugs available in hospital pharmacy</p> <p>Bed bureau should be informed for bed issue</p> <p>PGT must assist in development of systems' improvement if problems are identified</p>
Attitudes, Values and Habits	<p>Keeping the patient and family informed on the clinical status of the patient, results of tests, etc.</p> <p>Frequent, direct communication with the physician who requested the consultation</p> <p>Review of previous medical records and extraction of information relevant to the patient's hematologic status. Other sources of information may be used, when pertinent</p> <p>Understanding that patients have the right to either accepts or decline recommendations made by the physician.</p>
Professionalism	<p>PGT should understand the ethical conflict between care of an individual and welfare of the community</p> <p>PGT should understand the ethical conflicts pertinent to antimicrobial therapy, vaccination and preventive measures</p> <p>PGT should acknowledge medical errors and should learn how to avoid mistakes in future</p> <p>PGT should be responsible and timely in consulting with staff & patients</p> <p>PGT should always have professional appearance.</p>
Interpersonal and Communication Skills	<p>PGT should learn when to call a subspecialist to manage patient with hematologic/oncologic problem</p> <p>PGT should clearly present the cases to staff in organized way</p> <p>PGT should be able to establish rapport with patients</p> <p>PGT should listen to the patient's complaints for patient's welfare</p> <p>PGT should effectively educate & counsel patients</p> <p>PGT should not down all complaints of patients in organized manner</p> <p>PGT should timely communicate pt's problem to the staff</p>
Practice Based Learning Improvement	<p>PGT should use feedback and self-evaluation in order to improve performance.</p> <p>PGT should read the required material and articles provided to enhance learning.</p> <p>PGT should use the medical literature search tools in the library to find appropriate articles related to interesting cases</p>
Evaluation of Medical	<p>PGT should be able to answer directed questions & participate in case management</p>

Knowledge	PGT presentations on assigned short topics will be assessed for completeness, accuracy, organization & understanding of topic Ability of PGT to apply the information to the patient care setting interest level of PGT in learning
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N. INFECTIOUS DISEASES

Educational Purpose

To train the postgraduate trainees with the provision of fundamental information, acquisition of clinical skills so that they are well versed in prevention, assessment and management of infectious diseases.

Content of required Knowledge

Knowledge			
Learning Objectives	Topics	Teaching Strategies	Assessment Tools
<p>Define sepsis and septic shock, understand pathophysiology, recognize clinical criteria, and outline initial management approaches, including fluid resuscitation and antimicrobial therapy.</p> <p>Describe the etiology, presentation, and management of common respiratory, CNS, & CVS infections with a focus on risk factors and prevention.</p> <p>Explain the causes, clinical manifestations, and treatment of gastrointestinal infections.</p> <p>Identify major vector-borne and parasitic diseases and describe</p>	<p>Sepsis and septic shock</p> <p>Fever of Unknown origin</p> <p>Infections in an immunocompromised patient</p> <p>Nosocomial infections</p> <p>HIV and AIDS</p> <p>Sexually transmitted Infections</p> <p>Respiratory infections (Pneumonia, Tuberculosis, Lung abscess)</p> <p>CNS infections (Meningitis, Encephalitis, Brain abscess)</p> <p>CVS infections (Infective endocarditis)</p> <p>GIT infections (Acute Diarrhea, Dysentery, Chronic infective diarrhea)</p> <p>Skin, soft tissue infections</p>	<p>Bedside teaching, Infectious diseases OPD, LGIS, Case based discussion, Clinicopathological conferences, Journal club, Grand ward round</p>	<p>MCQs, SEQs, Assignments, Logbook, Mini- CEX, CbD</p>

<p>diagnostic and therapeutic approaches.</p> <p>Describe the transmission, clinical features, and treatment protocols for common STIs.</p> <p>Recognize common healthcare-associated infections and infections in immunocompromised hosts and describe preventive measures.</p> <p>Describe mechanisms of antimicrobial resistance, identify multidrug-resistant organisms, and discuss strategies for prevention and containment.</p>	<p>Bacterial, Viral, Parasitic & Fungal infections</p>		
Skill			
<p>Perform a systematic clinical evaluation of patients with suspected infections, including thorough history-taking and targeted physical examination.</p> <p>Interpret relevant laboratory and imaging results, including blood cultures, serology, PCR, and imaging for infectious disease diagnosis.</p> <p>Develop treatment plans for infectious diseases based on severity, host factors, and susceptibility patterns, including</p>	<p>Clinical Evaluation and Diagnosis</p> <p>Diagnostic Testing</p>	<p>Bedside teaching, Observation and feedback, Case based discussion, Standardized patient encounter</p>	<p>OSCE, Long case, short case, Mini-Cex</p>

dosage adjustments for antimicrobials.			
Implement infection control practices.	Infection control practices		
Attitude			
Demonstrate commitment to antimicrobial stewardship by practicing responsible prescription practices.	Ethical Antimicrobial Stewardship		
Provide evidence-based counseling on vaccination recommendations.	Effective communication	Standardized patient encounters, Bedside teaching, Ward rounds	OSCE, Mini-CEX, 360-Degree feedback
Communicate clearly with patients and caregivers about infection risks, treatment expectations, and preventive measures.			

Required Competencies:

Systems Based Learning	PGT recommend drugs easily available in hospital setting PGT should understand the issues implicated with the transmission of an infectious agent and the responsibility of the physician to protect uninfected individuals. PGT should apply evidence-based, cost-effective strategies for prevention, diagnosis and disease management
Attitudes, Values and Habits	Keeping the patient and family informed on the clinical status of the patient, results of tests, etc. Frequent, direct communication with the physician who requested the consultation Review of previous medical records and extraction of information relevant to the patient's infectious status. Other sources of information may be used, when pertinent Understanding that patients have the right to either accept or decline recommendations made by the physician Education of the patient.
Professionalism	PGT should develop ethical behavior Should reflect humanistic qualities of respect, compassion, integrity, and honesty PGT should admit his errors and must learn how to avoid them in future PGT should always be responsible & reliable PGT should consider the needs of patients, families, colleagues, and support staff PGT should always maintain a professional appearance PGT should understand how personal and cultural characteristics impact the efforts to control spread of communicable diseases
Interpersonal and Communication Skills	PGT should communicate with lab staff to obtain relevant microbiologic data of patients' samples PGT should appropriately call a subspecialist for evaluation and management of a patient with infectious disease PGT should ask precise questions from infectious diseases consultants PGT should arrange the elements of patient's report in a systematic manner to be useful for both patients and consultant PGT should establish rapport with patients PGT should be able to health educate and counsel the patients PGT should write legible and organized consultation notes PGT should clearly present problem to the consultants & infectious diseases conferences
Practice Based Learning	PGT should identify parameters to monitor care

Improvement	PGT should maintain currency with patient's clinical progress PGT should keep up to date with medical literature related to interesting cases seen in consult service
Evaluation of Medical Knowledge	PGT should be able to perform procedures and consult adequately the plan of care PGT should be able to participate in didactic infectious diseases sessions PGT should apply the information learnt in didactic sessions in patient care setting

O. NEPHROLOGY

Educational Purpose

To make postgraduate trainees competent in identification of the problem and provision of care to patients presenting with renal disorders.

Content of Required Knowledge

Knowledge			
Learning Objectives	Topic	Teaching Strategies	Assessment tools
<p>Identify causes, pathophysiology, stages, and diagnostic criteria of AKI, and outline initial management strategies.</p> <p>Describe the stages, progression, and complications of CKD.</p> <p>Explain the pathogenesis, clinical presentation, and treatment of major glomerular diseases, including nephrotic and nephritic syndromes.</p> <p>Describe common electrolyte (e.g., sodium, potassium) and acid-base (e.g., metabolic acidosis) disturbances in renal disease, and outline diagnostic and treatment approaches.</p>	<p>Acute Kidney injury ATN Rhabdomyolysis Interstitial nephritis Glomerulonephritis Cardiorenal syndrome Renal artery stenosis</p> <p>Chronic Kidney diseases Nephritic spectrum Glomerular diseases Nephrotic Spectrum Glomerular diseases Cystic diseases of the kidney Multisystem diseases with variable kidney involvement</p> <p>Hematuria Urinary tract infections Nephrolithiasis</p>	<p>Didactic lectures, Bed side teaching, Case based discussion, Problem based learning, Seminars, CPC, Seminars, Outpatient evaluation in clinical settings / dialysis clinic, Interactive sessions</p>	

<p>Discuss the relationship between renal disease and hypertension, including mechanisms, impact on renal function, and evidence-based treatment strategies.</p> <p>Explain the basics of kidney transplantation, including indications, immunosuppressive therapy, and management of post-transplant complications.</p>	<p>Electrolytes Imbalance Acid base disorders Hypertension</p>		
Skill			
<p>Perform comprehensive history taking and focused physical examination to identify renal diseases.</p> <p>Interpret key renal diagnostic tests, including urinalysis, renal imaging, and biochemical panels for electrolyte and acid-base assessment.</p> <p>Monitor and manage patients on dialysis, recognizing complications and adjusting care plans based on dialysis adequacy.</p> <p>Demonstrate competence in nephrology-related procedures (Urinary catheterization, placement of temporary hemodialysis catheters, & Kidney biopsy)</p>	<p>Patient Assessment and History Taking</p> <p>Diagnostic Interpretation</p> <p>Dialysis Monitoring</p> <p>Procedural Skills in Nephrology</p>	<p>Bedside teaching, Ward round, Standardized patient encounters, Simulation based learning</p>	<p>OSCE, Long Case, Short Case, Mini-CEX, CbD, DOPs</p>
Attitude			
Empathetic counseling to patients	Counselling and communication	Ward rounds, Bedside teaching,	OSCE, 360-Degree

and families regarding disease progression and lifestyle adjustments. Demonstrate collaborative teamwork with nephrologists, dialysis staff, and interdisciplinary teams to provide holistic care for patients with renal disease.	skill Professional Collaboration	Standardized patient encounters	Feedback
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Required Competencies:

Systems Based Learning	PGT should improve in the utilization of and communication with many health services and professionals such as nutritionists, nurses, therapists, surgeons and administrative staff. PGT should improve in the use of cost effective medicine PGT should recommend drugs available in hospital setting PGT should assist in determining the root cause of any error which is identified and methods for avoiding such problems in the future PGT must assist in development of systems' improvement if problems are identified
Attitudes, Values and Habits	Keeping the patient and family informed on the clinical status of the patient, results of tests, etc. Frequent, direct communication with the physician who requested the consultation Review of previous medical records and extraction of information relevant to the patient's renal status. Other sources of information may be used, when pertinent Understanding that patients have the right to either accept or decline recommendations made by the physician Education of the patient
Professionalism	PGT should understand the ethical conflict between care of an individual and welfare of the community PGT should understand the ethical conflicts pertinent to antimicrobial therapy, vaccination and preventive measures PGT should acknowledge medical errors and should learn how to avoid mistakes in future PGT should be responsible and timely in consulting with staff & patients PGT should have professional appearance at all times
Interpersonal and Communication Skills	PGT should learn when to call a subspecialist to manage patient with renal disease PGT should clearly present the cases to staff in organized way

	<p>PGT should be able to establish rapport with patients</p> <p>PGT should listen to the patient's complaints for patient's welfare</p> <p>PGT should effectively educate & counsel patients</p> <p>PGT should not down all complaints of patients in organized manner</p> <p>PGT should timely communicate pt's problem to the staff</p>
Practice Based Learning Improvement	<p>PGT should use feedback and self-evaluation in order to improve Performance.</p> <p>PGT should read the required material and articles provided to enhance learning.</p> <p>PGT should use the medical literature search tools in the library to find appropriate articles related to interesting cases</p>
Evaluation of Medical Knowledge	<p>PGT should be able to answer directed questions & participate in case management</p> <p>PGT presentations on assigned short topics will be assessed for completeness, accuracy, organization & understanding of topic</p> <p>Ability of PGT to apply the information to the patient care setting</p> <p>interest level of PGT in learning</p>

P. PULMONARY

Educational Purpose

To give a broad view of pulmonary diseases to postgraduate trainees to facilitate them in diagnosing and managing acute and chronic pulmonary diseases and when to pursue pulmonary subspecialty consultations.

Content of Required Knowledge

Knowledge			
Learning Objectives	Topics	Teaching Strategies	Assessment Tools
Describe the clinical presentation, diagnostic workup, and treatment of common and opportunistic pulmonary infections.	Pulmonary Infections		
Explain the pathophysiology, transmission, and diagnostic criteria for tuberculosis, including latent and active TB.	Tuberculosis		
Identify the principles of TB management, including first line and second-line treatments, drug resistance, and public health considerations.			
Differentiate between asthma, chronic bronchitis, emphysema, and bronchiectasis based on clinical features, pathophysiology, and diagnostic approaches.	Obstructive Airway Lung diseases	LGIS, Bedside teaching, Grand Ward rounds, Case based discussion, Small group learning, Clinicopathological Conference, Journal Club	MCQs, SEQs, SAQs, Mini-CEX, CbD, Long Case, Assignments, Logbook
Summarize pharmacologic and non-			

<p>pharmacologic management strategies for obstructive lung diseases, emphasizing individualized patient care.</p> <p>Recognize risk factors, symptoms, and diagnostic approaches for primary and metastatic malignancies affecting the lung, pleura, and mediastinum.</p> <p>Outline staging, therapeutic options, and prognostic factors for lung cancer.</p> <p>Identify the causes, clinical presentation, and diagnostic criteria for pulmonary embolism and pulmonary hypertension. Describe the principles of managing pulmonary embolism.</p> <p>Describe the respiratory complications of systemic diseases and Discuss the diagnostic and therapeutic considerations for managing these disorders.</p> <p>Outline the diagnostic and therapeutic approaches for acute respiratory distress syndrome (ARDS), including the use of ventilatory support.</p> <p>Explain the pathophysiology, clinical features, management options, and preventive strategies for</p>	<p>Primary and Secondary Lung malignancies</p> <p>Pulmonary hypertension and Pulmonary Embolism</p> <p>Systemic disorders with pulmonary involvement</p> <p>ARDS</p> <p>Occupational Lung diseases</p> <p>Interstitial Lung diseases</p>		
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<p>occupational lung diseases.</p> <p>Explain the clinical features, classification, diagnostic criteria, and management options for interstitial lung disease.</p> <p>Explain the pathophysiology, clinical manifestations, diagnostic criteria, management options for sleep-related breathing disorders.</p>	<p>Sleep related lung disorders</p>		
Skill			
<p>Conduct a comprehensive history specific to pulmonary complaints.</p> <p>Perform a thorough inspection, palpation, percussion, and auscultation of the chest.</p> <p>Correlate findings of history taking clinical examination and laboratory investigation to reach the correct diagnosis.</p> <p>Demonstrate competence in respiratory system-related procedures (Thoracocentesis, Pleural biopsy, Chest tube placement, Bronchoscopy)</p>	<p>History taking</p> <p>Clinical examination</p> <p>Diagnostic Accuracy</p> <p>Procedural Skills in Pulmonology</p>	<p>Bedside teaching, Observation and feedback, Standardized and real patient encounters, Simulation based learning</p>	<p>Mini- CEX, DOPs, OSCE, Short Cases, Long Case</p>
Attitude			
<p>Show empathy and respect when interacting with patients experiencing respiratory illnesses, recognizing the impact of chronic</p>	<p>Patient Care and Interpersonal & Communication Skills</p>	<p>Standardized and real patient encounters, Bedside teaching, Workshop</p>	<p>360- degree Feedback, OSCE, CbD</p>

<p>lung diseases on patients' quality of life.</p> <p>Uphold patient confidentiality and informed consent, especially during sensitive procedures like bronchoscopy, pleural biopsy, and thoracocentesis.</p>	<p>Ethical Practice and Professionalism</p>		
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Required Competencies:

Systems Based Learning	<p>PGT should improve in the utilization of and communication with many health services and professionals such as the radiologist, surgeon, and pathologist</p> <p>PGT should improve in the use of cost effective medicine</p> <p>PGT should recommend drugs available in hospital setting</p> <p>PGT should assist in determining the root cause of any error which is identified and methods for avoiding such problems in the future</p> <p>PGT must assist in development of systems' improvement if problems are identified</p>
Attitudes, Values and Habits	<p>Keeping the patient and family informed on the clinical status of the patient, results of tests, etc.</p> <p>Frequent, direct communication with the physician who requested the consultation</p> <p>Review of previous medical records and extraction of information relevant to the patient's pulmonary status.</p> <p>Other sources of information may be used, when pertinent</p> <p>Understanding that patients have the right to either accepts or decline recommendations made by the physician</p> <p>Familiar with how to deal with difficulties of disease management within different age groups, socio- economic status, educational & cultural backgrounds</p> <p>Education of the patient</p>
Professionalism	<p>PGT should understand the ethical conflict between care of an individual and welfare of the community</p> <p>PGT should understand the ethical conflicts pertinent to antimicrobial therapy, vaccination and preventive measures</p> <p>PGT should acknowledge medical errors and should learn how to avoid mistakes in future</p> <p>PGT should be responsible and timely in consulting with staff & patients</p> <p>PGT should always have professional appearance</p>
Interpersonal and Communication Skills	<p>PGT should learn when to call a subspecialist to manage patient with endocrine disease.</p> <p>PGT should clearly present the cases to staff in organized way</p> <p>PGT should be able to establish rapport with patients</p> <p>PGT should listen to the patient's complaints for patient's welfare</p> <p>PGT should effectively educate & counsel patients</p> <p>PGT should not down all complaints of patients in organized manner</p> <p>PGT should timely communicate pt's problem to the staff</p>
Practice Based Learning Improvement	<p>PGT should use feedback and self-evaluation in order to improve performance.</p> <p>PGT should read the required material and articles provided to enhance learning.</p> <p>PGT should use the medical literature search tools in the library to find appropriate articles related to interesting cases</p>

Evaluation Knowledge	of Medical PGT should be able to answer directed questions & participate in case management PGT presentations on assigned short topics will be assessed for completeness, accuracy, organization & understanding of topic Ability of PGT to apply the information to the patient care setting interest level of PGT in learning
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Q. RHEUMATOLOGY

Educational Purpose

To provide the postgraduate trainees with intensive instruction, clinical experience, and the opportunity to be proficient in evaluation and management of rheumatologic disorders.

Content of Required Knowledge

Knowledge			
Learning Objective	Topic	Teaching Strategies	Assessment tools
<p>Describe the pathophysiology, clinical presentation, and diagnostic criteria for common rheumatologic diseases.</p> <p>Recognize and describe the systemic manifestations of rheumatologic diseases.</p> <p>Competently interpret lab results (e.g., ANA, RF, anti-CCP) and imaging findings specific to rheumatologic disorders, recognizing normal and abnormal values.</p> <p>Explain the principles of immunologic testing, imaging, and pharmacologic management, including the use of DMARDs, biologics, and corticosteroids in treating rheumatic diseases.</p>	<p>Osteoarthritis and Crystal Induced arthropathies</p> <p>Rheumatoid arthritis</p> <p>Adult Onset Still diseases</p> <p>SLE</p> <p>Systemic Sclerosis</p> <p>Dermatomyositis</p> <p>Polymyositis</p> <p>Sjogren Syndrome</p> <p>Mixed Connective disorder</p> <p>Antiphospholipid Syndrome</p> <p>Vasculitic Syndrome</p> <p>Seronegative</p>	<p>LGIS, Bedside teaching, Grand ward round, small group teaching, Case based discussions, CPC, Journal Club</p>	<p>MCQs, SEQ, SAQs, Mini-CEX, CbD, Case presentations, Assignments</p>

Develop management plan for the treatment of common rheumatological disorders.	Spondyloarthropathies Osteomyelitis Septic Arthritis Potts diseases		
Skill			
Perform a thorough musculoskeletal and systemic examination, and accurately document history and examination findings pertinent to rheumatologic diseases. Demonstrate proficiency in procedural skills such as joint aspiration and injection.	Conduct Focused History and Examination Procedural Skills	Bedside teaching, Observation and feedback, Standardized and real patient encounters, Simulation based learning	Mini- CEX, DOPs, OSCE, Short Cases, Long Case
Attitude			
Demonstrate sensitivity and understanding toward patients coping with chronic, often debilitating rheumatologic conditions, addressing concerns and fostering shared decision-making. Uphold professional ethics by ensuring patient autonomy and confidentiality. Engage in continuous learning to keep updated with advances in rheumatology and collaborate effectively with allied healthcare providers to optimize patient outcomes.	Communication Skills Ethical practice Interprofessional collaboration	Standardized and real patient encounters, Bedside teaching, Workshop	360- degree Feedback, OSCE, CbD

Required Competencies:

Systems Based Learning	<p>PGT should improve in the utilization of and communication with many health services and professionals such as radiologists, surgeon, and pathologist</p> <p>PGT should recommend drugs available in hospital setting</p> <p>Bed bureau should be informed for bed issues.</p> <p>PGT should improve in the use of cost effective medicine</p> <p>PGT should assist in determining the root cause of any error which is identified and methods for avoiding such problems in the future</p> <p>PGT must assist in development of systems' improvement if problems are identified</p>
Attitudes, Values and Habits	<p>Keeping the patient and family informed on the clinical status of the patient, results of tests, etc.</p> <p>Frequent, direct communication with the physician who requested the consultation</p> <p>Review of previous medical records and extraction of information relevant to the patient's rheumatologic status.</p> <p>Other sources of information may be used, when pertinent</p> <p>Understanding that patients have the right to either accept or decline recommendations made by the physician</p> <p>Education of the patient</p>
Professionalism	<p>PGT should understand the ethical conflict between care of an individual and welfare of the community</p> <p>PGT should understand the ethical conflicts pertinent to antimicrobial therapy, vaccination and preventive measures</p> <p>PGT should acknowledge medical errors and should learn how to avoid mistakes in future</p> <p>PGT should be responsible and timely in consulting with staff & patients</p> <p>PGT should always have professional appearance</p>
Interpersonal and Communication Skills	<p>PGT should learn when to call a subspecialist to manage patient with rheumatologic disease</p> <p>PGT should clearly present the cases to staff in an organized way</p> <p>PGT should be able to establish rapport with patients</p> <p>PGT should listen to the patient's complaints about patient's welfare</p> <p>PGT should effectively educate & counsel patients</p> <p>PGT should not down all complaints of patients in organized manner</p> <p>PGT should timely communicate pt's problem to the staff</p>
Practice Based Learning Improvement	<p>PGT should use feedback and self-evaluation to improve performance.</p> <p>PGT should read the required material and articles provided to enhance learning.</p> <p>PGT should use the medical literature search tools in the library to find appropriate articles related to</p>

		interesting cases
Evaluation Knowledge	of Medical	<p>PGT should be able to answer directed questions & participate in case management</p> <p>PGT presentations on assigned short topics will be assessed for completeness, accuracy, organization & understanding of topic</p> <p>Ability of PGT to apply the information to the patient care setting</p> <p>interest level of PGT in learning</p>

R. EMERGENCY MEDICINE

Educational Purpose

To learn to practice emergency medicine, prioritization of care and triage, interaction with ambulance and other emergency personnel and basic approach to common emergencies; traumatic, medical, pediatric and adult.

Knowledge			
Learning Objective	Topic	Teaching Strategies	Assessment
<p>Describe the pathophysiology, clinical manifestations, and diagnostic criteria of common medical emergencies.</p> <p>Explain the principles of rapid assessment, stabilization, and management for life-threatening conditions.</p> <p>Identify key laboratory and imaging findings for emergent conditions (e.g., ECG changes in MI, ABG interpretation, radiographic signs of pneumothorax) to support rapid diagnosis and management decisions.</p> <p>Take decision regarding hospitalization or timely referral to other consultants / subspecialty.</p>	<p>Poisoning</p> <p>Shock (Septic, Cardiac, Anaphylactic and Hypovolemic shock)</p> <p>CNS emergencies (stroke, meningitis, Status Epilepticus)</p> <p>CVS emergencies (Cardiac arrhythmias, Pulmonary edema, ACS, Cardiac arrest)</p> <p>Respiratory system emergencies (Respiratory failure, Acute exacerbation of Asthma & COPD, ARDS,</p>	<p>LGIS, Bedside teaching, Grand ward round, small group teaching, Case based discussions, CPC, Journal Club</p>	<p>MCQs, SEQ, SAQs, Mini-CEX, CbD, Case presentations, Assignments</p>

Explain the management plan of common medical emergencies.	<p>Pneumonia, Pneumothorax, Pleural effusion)</p> <p>GIT emergencies (upper and lower GI bleed, hepatic failure, gastroenteritis, dysentery)</p> <p>Endocrinology emergencies (DKA, HHS, Myxedema coma, Thyroid storm, Addisonian crisis)</p> <p>Nephrology (AKI, ESRD, Electrolytes imbalance)</p> <p>Infections (Complicated Malaria, Dengue, COVID-19)</p>		
Skill			
<p>Demonstrate proficiency in conducting rapid and focused assessments (e.g., ABCDE approach) to prioritize interventions in critically ill patients.</p> <p>Competently perform critical emergency procedures.</p> <p>Resuscitate a critically ill patient.</p>	<p>History and clinical examination skills</p> <p>Procedural skills</p>	<p>Bedside teaching, Observation and feedback, Standardized and real patient encounters, Simulation based learning</p>	<p>Mini- CEX, DOPs, OSCE, Short Cases, Long Case</p>

Attitude			
<p>Demonstrate clear and concise communication with the healthcare team and maintain situational awareness to ensure efficient patient handovers and continuity of care.</p> <p>Show empathy and provide emotional support to patients and families.</p>	<p>Counselling and communication skills</p>	<p>Standardized and real patient encounters, Bedside teaching, Workshop</p>	<p>360- degree Feedback, OSCE, Cb</p>

Required Competencies:

Systems Based Learning	<p>PGT should improve in the utilization of and communication with many health services and professionals such as the radiologist, surgeon, and pathologist</p> <p>PGT should advise the use of cost effective medicine</p> <p>PGT should assist in determining the root cause of any error which is identified and methods for avoiding such problems in the future</p> <p>PGT must assist in development of systems' improvement if problems are identified</p> <p>PGT should recommend medicines easily available from hospital pharmacy</p> <p>PGT should recommend lab tests that could easily be done in hospital</p> <p>For bed issue, bed bureau should be informed</p>
Attitudes, Values and Habits	<p>Keeping the patient and family informed on the clinical status of the patient, results of tests, etc.</p> <p>Frequent, direct communication with the physician who requested the consultation</p> <p>Review of previous medical records and extraction of information relevant to the patient's hematologic status. Other sources of information may be used, when pertinent</p> <p>Understanding that patients have the right to either accepts or decline recommendations made by the physician</p> <p>Education of the patient</p>
Professionalism	<p>PGT should understand the ethical conflict between care of an individual and welfare of the community</p> <p>PGT should understand the ethical conflicts pertinent to antimicrobial therapy, vaccination and preventive measures</p> <p>PGT should acknowledge medical errors and should learn how to avoid mistakes in future</p> <p>PGT should be responsible and timely in consulting with staff & patients</p> <p>PGT should have professional appearance at all times</p>
Interpersonal and Communication Skills	<p>PGT should learn when to call a subspecialist to manage patient with medical / surgical emergencies</p> <p>PGT should clearly present the cases to staff in organized way</p> <p>PGT should be able to establish rapport with patients</p> <p>PGT should listen to the patient's complaints for patient's welfare</p> <p>PGT should effectively educate & counsel patients</p> <p>PGT should not down all complaints of patients in organized manner</p> <p>PGT should timely communicate pt's problem to the staff</p>
Practice Based Learning Improvement	<p>PGT should use feedback and self- evaluation in order to improve performance.</p> <p>PGT should read the required material and articles provided to enhance learning.</p> <p>PGT should use the medical literature search tools in the library to find appropriate articles related to interesting cases</p>

THE EXPECTED LEARNING OUTCOMES OF RESIDENT YEARWISE.

The following outlines the expected learning outcomes for residents in each year of a four-year medical program

YEAR	LEARNING OUTCOMES	MODE OF TEACHING	ASSESSMENT
FIRST YEAR MD RESIDENT	<ul style="list-style-type: none"> • Act as primary physician for patients. • Perform detailed history and physical exams. • Contribute to patient plans under supervision. • Understand pathophysiology of disease processes. • Present patient cases during rounds. • Perform procedures under supervision. • Attend outpatient clinics under supervision of senior resident. 	Bedside teachings in emergency, inpatient, and outpatient department. Workshops, seminars and conferences. Formal teaching sessions with the supervisors. Mock courses	Formative assessment workplace-based assessments. (Mini-CXE. CBDs, DOPS, ACATs, MCQs and OSCE, 360-degree evaluation Summative assessment First year in training exam
SECOND YEAR MD RESIDENT	<ul style="list-style-type: none"> • Work alongside first-year resident as a role model. • Have increasing responsibilities on inpatient rotations. • Attend outpatient clinics. • Demonstrate understanding of pathophysiology and lab/radiology findings. Come up with a reasonable differential diagnosis and management plan. 	Bedside teachings in emergency, inpatient and outpatient department. Workshops, seminars and conferences. Formal teaching sessions with the supervisors Mock courses	Formative assessment workplace based assessments (Mini-CXE. CBDs, DOPS, ACATs, MCQs and OSCE, 360-degree evaluation Summative assessment MTA

THIRD YEAR MD RESIDENT	<ul style="list-style-type: none"> • Take on leadership and supervisory roles for first and second-year residents. • Demonstrate interpersonal and communication skills. • Understand literature on diagnosis, prognosis, and management of disease processes. • Teach junior residents. Articulate findings and plan systematically. • Conduct procedures with minimal supervision 	Bedside teachings in emergency, inpatient and outpatient department. Workshops, seminars and conferences. Formal teaching sessions with the supervisors Mock courses	Formative assessment workplace-based assessments (Mini-CXE. CBDs, DOPS, ACATs, MCQs and OSCE, 360-degree evaluation Summative assessment Third year in training exam
FOURTH YEAR MD RESIDENT	<ul style="list-style-type: none"> • Build on leadership, mentor, and supervisory role. • Be actively involved in teaching junior residents. • Have a solid knowledge base of disease processes and management. • Be actively involved in outpatient clinic. • Carry out most procedures independently and supervise junior residents. • Analyze articles skillfully and present thesis. 	Bedside teachings in emergency, inpatient and outpatient department. Workshops, seminars and conferences. Formal teaching sessions with the supervisors Mock courses	Formative assessment workplace-based assessments (Mini-CXE. CBDs, DOPS, ACATs, MCQs and OSCE, 360-degree evaluation Summative assessment FTA exam

Our program is competency-based and outcome-driven, with a focus on providing a supportive learning environment for residents to develop their skills and knowledge and achieve their career goals.

SECTION NO. 3

WORKSHOPS

INTRODUCTION

The workshops conducted for first- and second-year MD Internal Medicine residents at Rawalpindi Medical University aim to equip residents with essential skills and knowledge to enhance their clinical and academic proficiency. These workshops include:

- **University Residency Program Orientation.**

This workshop introduces residents to the structure, expectations, and resources of the residency program, helping them transition smoothly into their roles.

- **Communication Skills**

This session develops residents' interpersonal skills for effective patient communication and teamwork, essential for fostering therapeutic relationships and collaborative healthcare environments.

- **Cardiac first response**

Residents gain life-saving skills through ACLS training, covering the recognition and management of cardiac emergencies to enhance patient survival in critical situations.

- **Biostatistics and Research Methodology**

Designed to introduce the fundamentals of medical research, this workshop emphasizes data analysis, statistical interpretation, and research planning, preparing residents to conduct and evaluate research.

- **Synopsis Writing**

This workshop provides guidance on structuring and drafting a research synopsis, a key component for scholarly submissions and research projects.

- **Introduction to Computers/ Information Technology and Software**

Residents are introduced to essential IT skills, including medical software and digital tools that streamline clinical documentation, data management, and research activities.

These workshops are structured to develop both clinical and academic competencies, supporting residents in becoming skilled, informed, and confident healthcare professionals.

YEAR OF TRAINING	WORKSHOPS
FIRST YEAR MD Training	University Residency Program orientation Communication skills Cardiac first response
SECOND YEAR MD Training	Research methodology Synopsis writing IT (Information technology) skills

WORKSHOP DETAILS:

WORKSHOPS (3 hours each for 2-5 days)

S.NO	NAME OF THE WORKSHOP	LEARNING OBJECTIVES	TOPICS TO BE COVERED
1.	Biostatistics & Research Methodology (2 days)	<ul style="list-style-type: none">• To understand the basics of Bio- Statistics• To critique why research is important?• To discuss the importance of Selecting a Field for Research• To prepare oneself for Participation in National and International Research• To prepare oneself for Participation in Pharmaceutical Company Research• To interpret the importance of research ideas & Criteria for a good research topic• To discuss Ethics in Health Research• To learn to write a Scientific Paper• To learn to make a Scientific Presentation• To learn to make a purposeful literature search	<ol style="list-style-type: none">1. Introduction to Biostatistics2. Introduction to Bio- Medical Research Why research is important?3. What research to do?<ol style="list-style-type: none">i. Selecting a Field for Researchii. Drivers for Health Researchiii. Participation in National and International Researchiv. Participation in Pharmaceutical Company Researchv. Where do research ideas come fromvi. Criteria for a good research topic Ethics in Health Research4. Writing a Scientific Paper5. Making a Scientific Presentation & Searching the Literature
2.	Introduction to computer/Information	By the end of this workshop student should be able to:	<ol style="list-style-type: none">1. Hardware and Software<ul style="list-style-type: none">• Understand the main components of a computer,

	Technology & Software (3 days)	<ul style="list-style-type: none"> • Appropriately start up and shut down your computer. • Navigate the operating system and start applications. • Perform basic functions of file management. • Perform basic functions in a word processor and spreadsheet. • Manage print settings and print documents. • Receive and send email. • Use a web browser to navigate the Internet. • work with windows, toolbars, and command menus • perform basic word processing and graphic tasks • make a Power Point presentation • explore Web browsing basics • back up files • save, copy, and organize your work • to enter data accurately in software of Statistical Package for Social Sciences 	<ul style="list-style-type: none"> including input and output devices. • Understand the function of communication devices such as smartphones and tablets. • Understand the role of Operating Systems, programs and apps. <p>2. Windows</p> <ul style="list-style-type: none"> • Turning on the computer and logging on. • The Windows screen. • Running programs from the Start Menu. • Minimizing, maximizing, moving, resizing and closing windows. • Logging off and shutting down your computer. <p>3. Working with Programs</p> <ul style="list-style-type: none"> • Running multiple programs. • Desktop icons and creating a desktop shortcut. • Managing programs from the taskbar. • Closing programs. <p>4. File Management</p> <ul style="list-style-type: none"> • Managing Windows Explorer. • Creating, moving, renaming and deleting folders and files. • Understanding file extensions. • Viewing storage devices and network connections. • Managing USB flash drives. <p>5. Word Processing</p> <ul style="list-style-type: none"> • Creating documents in Microsoft Word. • Typing text, numbers and dates into a document. • Easy formatting. • Checking the spelling in your document. • Making and saving changes to your document. • <p>6. Power Point Making Power Point presentation</p> <p>7. Spreadsheets</p> <ul style="list-style-type: none"> • Understanding spreadsheet functionality.
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			<ul style="list-style-type: none"> • Creating spreadsheets in Microsoft Excel. • Typing text numbers and dates into a worksheet. • Easy formulas. • Easy formatting. • Charting your data. • Making and saving changes to your workbook. • Printing a worksheet. <p>8. Printing</p> <ul style="list-style-type: none"> • Print preview. • Print settings. • Managing the print queue. <p>9. Using Email</p> <ul style="list-style-type: none"> • The Outlook mail screen elements. • Composing and sending email messages. • Managing the Inbox. <p>10. Accessing the Internet</p> <ul style="list-style-type: none"> • Going to a specific website and bookmarking. • Understanding how to search/Google effectively. • Copy and paste Internet content into your documents and emails. • Stopping and refreshing pages. • Demystifying the Cloud. • Understanding social media platforms such as Facebook and Twitter. • Computer security best practices. <p>11. Statistical Package for Social Sciences</p> <ul style="list-style-type: none"> • general understanding for data entry •
3.	Communication skills (2 days)	<ul style="list-style-type: none"> • To learn to use Non-medicinal Interventions in Communication Skills of Clinical Practice • To discuss the importance of counseling • To role play as a counselor • To learn to manage a conflict 	<ol style="list-style-type: none"> 1. Use of Non-medicinal Interventions in Clinical Practice Communication Skills 2. Counseling 3. Informational Skills 4. Crisis Intervention/Disaster 5. Management Conflict Resolution 6. Breaking Bad News

		<p>resolution</p> <ul style="list-style-type: none"> • To learn to break a bad news • To discuss the importance of Medical Ethics, Professionalism and Doctor-Patient Relationship Hippocratic Oath • To learn to take an informed consent • To illustrate the importance of confidentiality • To summarize Ethical Dilemmas in a Doctor's Life 	<p>7. Medical Ethics, Professionalism and Doctor-Patient Relationship Hippocratic Oath</p> <p>8. Four Pillars of Medical Ethics (Autonomy, Beneficence, Non-maleficence and Justice)</p> <p>9. Informed Consent and Confidentiality</p> <p>10. Ethical Dilemmas in a Doctor's Life</p>
4.	<p>Clinical Audit (2 days) (Workshop is specific for MD Internal Medicine only)</p>	<p>Road Map for workshop:</p> <ol style="list-style-type: none"> 1. Step 1:Topic selection 2. Step 2: Setting of criteria and standards 3. Step 3: First data collection 4. Step 4: Evaluation and comparison with criteria and standards 5. Step 5: Implementation of change 6. Step 6: Second data collection – evaluation of change <p>The following are factors that may affect your choice of audit topic:</p> <ul style="list-style-type: none"> • Strong impact on health • Convincing evidence available about appropriate care • Common condition which can be clearly defined • Good reasons of believing that current performance can be improved • Readily accessible data which can be collected within a reasonable length 	<ol style="list-style-type: none"> 1. To understand clinical audit process. To help clinicians decide exactly why they are doing a particular audit and what they want to achieve through carrying out the audit. 2. To determine, how clinical audit relates to other activities related to accountability for the quality and safety of patient care. 3. To select the right subject for audit. 4. To use evidence of good practice in designing clinical audits. 5. To help clinicians formulate measures of quality based on evidence of good practice, as the basis for data collection and also to develop data collection protocols and tools and advise on data collection for clinical audits. 6. To help in understanding how to handle data protection issues related to clinical audit. 7. To understand use of statistics for analyzing and presenting findings of data collection and thus help clinicians to analyze causes of problems that are affecting the quality of care. This helps in applying principles and strategies for taking action to achieve changes in clinical practice.

		<p>of time</p> <ul style="list-style-type: none"> • Consensus on the audit topic among the practice members 	<ol style="list-style-type: none"> 8. To help clinicians manage review of clinical audit findings with their colleagues. 9. To be able to prepare clinical audit reports. 10. To recognize and handle ethics issues related to clinical audit.
5.	Cardiac first response (2 days)	<p>Upon successful completion of the workshop, the student will be able to:</p> <ul style="list-style-type: none"> • Recognize and initiate early management of pre-arrest conditions that may result in cardiac arrest or complicate resuscitation outcome • Demonstrate proficiency in providing BLS care, including prioritizing chest compressions and integrating automated external defibrillator (AED) use • Recognize and manage respiratory arrest • Recognize and manage cardiac arrest until termination of resuscitation or transfer of care, including immediate post-cardiac arrest care • Recognize and initiate early management of ACS, including appropriate disposition • Recognize and initiate early management of stroke, including appropriate disposition • Demonstrate effective communication as a member or leader of a resuscitation team and recognize the impact of team dynamics on overall team 	<p>The workshop is designed to give students the opportunity to practice and demonstrate proficiency in the following skills used in resuscitation:</p> <ol style="list-style-type: none"> 1. Systematic approach 2. High-quality BLS 3. Airway management 4. Rhythm recognition 5. Defibrillation 6. Intravenous (IV)/intraosseous (IO) access (information only) 7. Use of medications 8. Cardioversion 9. Transcutaneous pacing 10. Team dynamics 11. Reading and interpreting electrocardiograms (ECGs) - Be able to identify—on a monitor and paper tracing—rhythms associated with bradycardia, tachycardia with adequate perfusion, tachycardia with poor perfusion, and pulseless arrest. These rhythms include but are not limited to: <ul style="list-style-type: none"> ○ Normal sinus rhythm ○ Sinus bradycardia ○ Type I second-degree AV block ○ Type II second-degree AV block ○ Third-degree AV block ○ Sinus tachycardia ○ Supraventricular tachycardias ○ Ventricular tachycardia ○ Asystole

		Performance	<ul style="list-style-type: none"> ○ Ventricular fibrillation ○ Organized rhythm without a pulse <p>12. Basic understanding of the essential drugs used in:</p> <ul style="list-style-type: none"> ○ Cardiac arrest ○ Bradycardia ○ Tachycardia with adequate perfusion ○ Tachycardia with poor perfusion ○ Immediate post–cardiac arrest care
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SECTION NO. 4

Research and Thesis Writing

INTRODUCTION:

The research component of the MD Medicine curriculum at RMU is structured to systematically develop residents' research skills over a four-year program. This approach integrates critical aspects of research design, data management, statistical analysis, and academic writing to ensure that residents can independently conduct meaningful research by the end of their training. The curriculum aligns with international standards and provides milestones that must be achieved each year, incorporating workshops, lectures, and assessments to support continuous learning and application in research.

YEAR-WISE RESEARCH & THESIS WRITING PATHWAY

Year 1: Residents are introduced to research fundamentals, including research topic selection and initial stages of project planning. By the end of the year, residents are expected to complete a statistical review of one disease and possibly submit one research paper to the RMU Journal of Medical Sciences (R-JRMC).

Year 2: The focus shifts to refining the research proposal. Residents will submit their synopsis, undergo technical and ethical committee evaluations, and receive approval. This phase emphasizes the development of the research protocol and ensures that projects align with ethical and institutional standards.

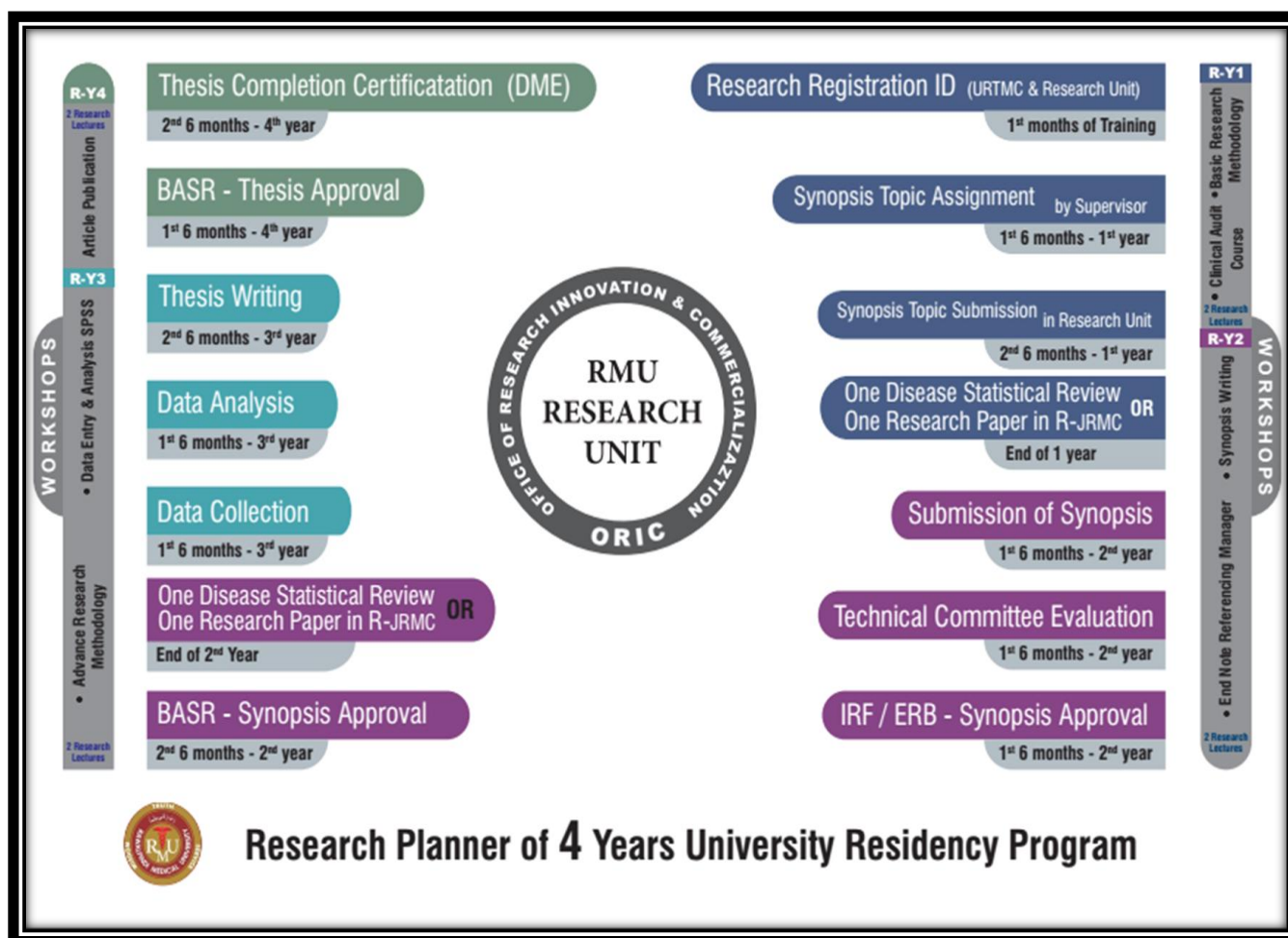
Year 3: Residents engage in active data collection and analysis. This hands-on phase includes mastering data entry, analysis, and SPSS. They will also be required to complete thesis writing workshops and start drafting their thesis based on collected data.

Year 4: This final year is dedicated to thesis completion and certification. Residents submit their completed thesis for BASR approval and work toward publication. By the end of this year, residents are expected to have developed the competence to produce and defend a substantial research project.

STRUCTURED FRAMEWORK OF RESEARCH AND THESIS WRITING

Training Year	Details
Year 1	<ol style="list-style-type: none">1: Obtaining Research Registration ID through URTMC and Research Unit.2: Selecting and finalizing research topic with supervisor's guidance.3: Submitting synopsis topic to the Research Unit.4: Completing one disease-focused statistical review or one research paper for publication in RMJRC by the end of the year.
Year 2	<ol style="list-style-type: none">1: Submitting complete synopsis for evaluation and approval.2: Undergoing review by the Technical Committee.3: Obtaining approval from the Institutional Review Board (IRB) or Ethical Review Board (ERB) for the research project.4: Completing additional research paper or statistical review for RMJRC by year-end.
Year 3	<ol style="list-style-type: none">1: Conducting data collection for the research study.2: Performing detailed data analysis using statistical methods and software.3: Beginning of thesis writing based on analyzed data.4: Participating in advanced research methodology workshops, focusing on data entry and statistical software.
Year 4	<ol style="list-style-type: none">1: Finalizing and submitting thesis for completion certification by DME.2: Obtaining BASR approval for the thesis.3: Submitting research article(s) for publication based on thesis findings.4: Attending workshops on article publication to facilitate dissemination of research.

FOUR YEAR RESEARCH PLANNER OF UNIVERSITY RESIDENCY PROGRAMME



EXPECTED LEARNING OUTCOMES OF RESEARCH COMPETENCY

The purpose of MD Teaching programme is to provide advanced training to researchers on the concepts and principles of research, ethical conduct of

research using human subjects, and the skills necessary for the development of research questions and scientific writing.

TRAINING YEAR	LEARNING OUTCOMES OF RESEARCH AND THESIS WRITING	MODE OF TEACHING	ASSESSMENTS
YEAR 1-4	<ul style="list-style-type: none">• Successfully completing the research workshops and obtaining certification.• Formulating research questions, critically appraising literature, and synthesizing evidence for their research topics.• Describing the key features of different sections of a scientific publication.• Explaining the differences between scientific research methods and approaches.	<ul style="list-style-type: none">• Research Workshops• Journal club presentations.• Lectures• Research conferences and symposia.• Participation in Clinical/ward Audit	<p>FORMATIVE ASSESSMENT (one disease statistical report) Synopsis presentation in Departmental review board (DRB), ethical review board (ERB) and BASR.</p> <p>SUMMATIVE ASSESSMENT (thesis defense)</p>

	<ul style="list-style-type: none"> • Drafting and refining the background/literature review sections of their research proposal. • Developing a thesis/research paper 		
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Overall, MD teaching programme aims to equip researchers with the necessary knowledge and skills to conduct ethical and high-quality research, and to effectively communicate their findings through scientific publications.

RMU THESIS GUIDELINES

Thesis Writing Guidelines

Thesis writing is a fundamental requirement for MD/MS residency programs, documenting the research conducted by postgraduate residents. Its purpose is to guide residents in conducting scientific research, selecting a topic relevant to local clinical practice, and developing essential skills in research planning, data collection, literature review, results analysis, and medical writing.

General Information

After data collection and analysis, thesis writing follows, encompassing 10,000-15,000 words or 80-100 pages, excluding references. The document must be free of typographical and spelling errors, double-spaced, and formatted with specific font sizes for headings, subheadings, and text. Pages should be sequentially numbered and contain standard margins.

Thesis Structure:

The thesis includes the following sections, each starting on a new page:

1. **Title Page:** Includes RMU monogram, thesis topic, author name, department, supervisor details, and submission date.
2. **Approval, Declaration, Dedication, and Acknowledgment Pages:** Optional pages for certification and acknowledgments.
3. **Abstract:** Provides a concise summary under specific headings (e.g., objectives, methods, results, and conclusions) to facilitate quick understanding.
4. **Introduction:** Outlines the research objectives, context, significance, and scope.
5. **Literature Review:** Critically evaluates relevant studies, identifies knowledge gaps, and sets the research question.
6. **Methodology:** Describes the research design, study population, data collection tools, and analytical techniques.
7. **Results:** Summarizes findings in an objective format, using tables and figures as necessary.
8. **Discussion:** Interprets results, addresses study limitations, and compares findings with existing literature.
9. **Conclusion and Recommendations:** Summarizes findings, implications, limitations, and suggestions for future research.
10. **References:** Cites sources in Vancouver style, with at least 50% from the last five years.
11. **Annexures:** Includes relevant approvals, ethical reviews, and necessary certifications including Approved copy of synopsis, Certificate of Approval of Board of Advanced Studies and Research, ethical review board approval (IRF/ERB), supervisory certificate, study Performance and Similarity index less than 20% PDF report.

Submission: Submit five hard copies of the thesis, bound and formatted, along with a digital copy. Following approval, the thesis may be submitted to a medical journal for publication with the resident as the primary author.

SECTION NO. 4.1

RESEARCH CURRICULUM

INTRODUCTION

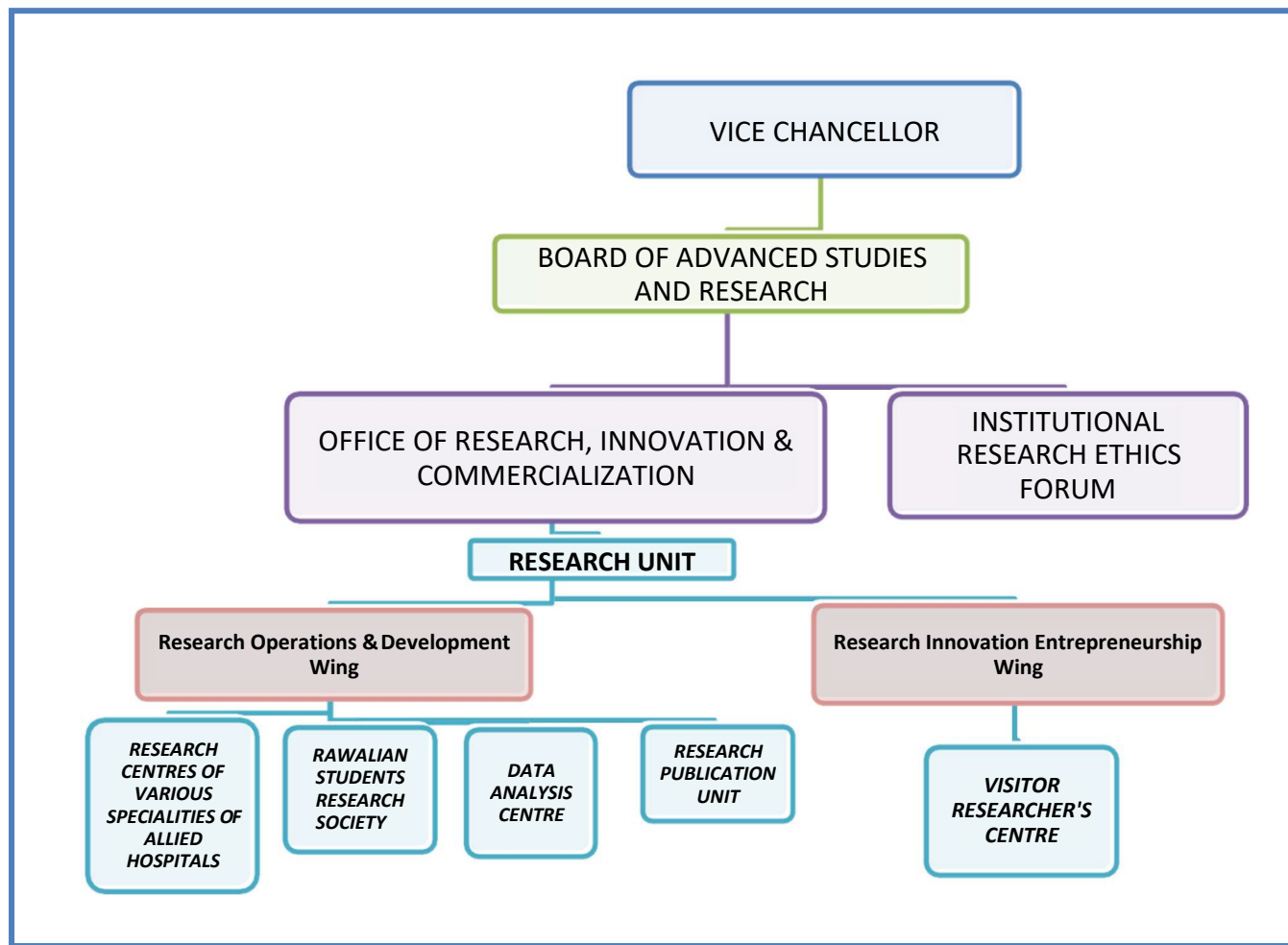
With the advent of Evidence Based Practice over the last two to three decades in medical science, merging the best research **evidence** with good clinical expertise and patient values is inevitable in decision making process for patient care. Therefore, apart from receiving pre-excellent knowledge of the essential principles of medicine and necessary skills of clinical procedures, the trainees should also be well versed and skillful in research methodologies. So, the training in research being imperative is integrated longitudinally in all four year's training tenure of the trainees.

The purpose of the research training is to provide optimal knowledge and skills regarding research methods and critical appraisal. The expected outcome of this training is to make trainees dexterous and proficient to conduct practical quality research through amalgamation of their knowledge, skills and practice in research methodologies.

ORIENTATION SESSION FOR POST GRADUATE TRAINEES

- I. At the beginning of the research course, an orientation session or an introductory session of one hour duration will be held, organized by Director, Deputy Directors of ORIC (Office of Research Commercialization and Innovation) of RMU to make trainees acquainted with the research courses for four years post graduate training, the schedule of all scholarly and academic activities related to research and the assessment procedures.
- II. Trainees will also be introduced to all the facilitators of the course, organizational structure of ORIC and the terms of references of corresponding authorities for any further information and facilitation.
- III. All the curriculum details and materials for assistance and guidance will be provided to trainees during the orientation session.
- IV. The research model of RMU as given in Figure 1 and will be introduced to the newly inducted trainees of RMU.

Figure 1. MODEL OF RESEARCH AT RAWALPINDI MEDICAL UNIVERSITY



The research training component for Post Graduate Trainees comprises of four years and the Distribution and curriculum for each year is mentioned as follows:

RESEARCH COURSE OF FIRST POST GRAUDATION TRAINING YEAR R-Y1

PURPOSE OF R-Y1 RESEARCH COURSE:

The RESEARCH YEAR 1 or R-Y1 research course of the post graduate trainees intends to provide ample knowledge to trainees regarding the importance of research, its necessity and types. This course will provide them with clarity of concepts that what are the priority problems that require research, how to sort them out and select topics for research. It will also teach them the best techniques for exploring existent and previous evidence in research through well-organized literature search and how to critically appraise them. The course will not only provide them with comprehensive knowledge but will also impart optimum skills in how to practically and logically plan and design a research project by educating and coaching them about various research methodologies. The trainees will get familiarized with research ethics, concepts of protection of human study subjects, practice-based learning, evidence-based practice in addition to the standard ethical and institutional appraisal procedures of Rawalpindi medical University by Board of Advanced Studies and Research and Institutional and Ethics Research Forum of RMU.

LEARNING OUTCOMES OF R-Y1 RESEARCH COURSE

After completion of the R-Y1 course the trainees should be efficiently able to:

1. Discuss the value of research in health service in helping to solve priority problems in a local context.
2. Identify, analyze and describe a research problem
3. Review relevant literature and other available information
4. Formulate research question, aim, purpose and objectives
5. Identify study variables and types
6. Develop an appropriate research methodology
7. Identify appropriate setting and site for a study
8. Calculate minimally required sample size for a study.
9. Identify sampling technique, inclusion and exclusion criteria
10. Formulate appropriate data collection tools according to techniques

11. Formulate data collection procedure according to techniques
12. Pre-test data collection tools
13. Identify appropriate plan for data analysis
14. Prepare of a project plan for the study through work plans and Gantt charts
15. Identify resources required for research and means of resources
16. Prepare a realistic study budget in accordance with the work plan.
17. Critically appraise a research paper of any national or international journal.
18. Present research papers published in various national and international journals at journal club.
19. Prepare a research proposal independently.
20. Develop a strategy for dissemination and utilization of research results.
21. Familiarization with application Performa for submission of a research proposal to BASR or IREF.
22. Familiarization with format of presentations and procedure of presentation and defiance of a research proposal to BASR or IREF.
23. Familiarization with the supervisor, nominated by the Dean and to develop a harmonious rapport with supervisor.

RESEARCH COURSE OF FIRST TRAINING YEAR

The following academic and scholarly activities will be carried out during year 1 i.e. R-Y1 of Research course catering the post graduate trainees

A. TEACHING SESSIONS:

Research will be taught to the trainees through the following methods in various sessions. Each session will comprise of all or either one or two or all five of the following techniques.

1. Didactic lectures through power-point presentations.
2. On spot individual exercises.
3. On spot group exercises.
4. Take home individual assignment
5. Take home group assignment.

The facilitators of these sessions will be staff members (that are director, deputy directors (managers), research associates, statistician and publication in charge) of the Office of Research Innovation and commercialization (ORIC) of RMC. While visitor lecturers including renowned national and international public health consultants, researchers, epidemiologists and biostatisticians will also be invited, according to their availability, for some modules of these courses.

Format for teaching sessions:

- i. During year 1, i.e. R-Y1, 23 teaching sessions in total will be taken, with an average of three sessions per month. Each session will comprise of a didactic lecture delivered initially, to attain the mentioned learning outcomes.
- ii. Each didactic lecture will be of 30 minutes' duration using the power-point medium that will be followed by 30 minutes on spot individual or group exercises of trainees during the same session.
- iii. By the end of each session, a take home individual task/assignment will be given to trainees, either individually or in groups, that will be duly evaluated and marked each month.

Course content of teaching sessions:

- i. The course materials will be based on an updated modified version of course titled as “Designing Health Services Research (Basic)” that was developed in collaboration of Rawalpindi Medical College & Nuffield Institute for Health, University of Leeds, UK based adapted from “Designing and Conducting Health Systems Research Projects” by CM. Varkevisser KIT Publishers, Amsterdam (International Development Research Centre) in association with WHO Regional Office for Africa.
- ii. The trainees will be provided with hard copies as well as soft copies of the course content in a folder at the beginning of the course.
- iii. In addition to it they will be provided with various soft copies and links of updated and good resource materials regarding research by the course facilitators.

The details of the 22 teaching sessions of the trainees during year one R-Y1 along with the tentative time framework, teaching strategies, content of curriculum and objectives/Learning outcomes of each session are displayed in table 1.

TABLE 1. TEACHING SESSIONS OF RESEARCH CURRICULUM OF YEAR 1 OF TRAINEES OF POST GRADUATE TRAINEES/MD SCHOLARS OF RMU

SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES
SESSION 1 WEEK 1 Month 1	Lecture through power point presentation followed by both individual exercise & Group exercise.	A. Introduction to health system research. B. Identifying and prioritizing research problems.	1: Describe the purpose, scope and characteristics of health systems research. 2: Identify criteria for selecting health-related problems to be given priority in research.
SESSION 2 WEEK 2 Month 1	Lecture through power point presentation followed by Individual exercise	Analysis and statement of problem & Introduction to Literature review	1: Analyze a selected problem and the factors influencing it and understand how to prepare the statement of the problem for research. 2: Describe the reasons for reviewing available literature and other information for preparation of a research. 3: Identify the resources that are available for carrying out such a review.
SESSION 3 WEEK 3 Month 1	Lecture through power point presentation followed by Individual exercise & Take home assignment	Literature review Referencing systems; Vancouver & Harvard referencing systems	1: Describe the methods for reviewing available literature and other information for preparation of a research. 2: Should be familiar with referencing systems and its importance. 3: Use Vancouver and Harvard referencing systems and should be able to differentiate between them.
SESSION 4 WEEK 1 Month 2	Lecture through power point presentation followed by Individual exercise & Take home assignment	Literature review Referencing managing systems	1: Describe the methods for reviewing available literature and other information for preparation of research. 2: Should be familiar with the use and importance of reference managing systems; Endnote & Mendeley. 3: Use the literature review and other information pertaining to a research topic that will adequately describe

			the context of study and strengthen the statement of the problem.
SESSION 5 WEEK 2 Month 2	Lecture through power point presentation followed by Individual exercise & Take-home assignment	Plagiarism	<p>1: Describe the significance and necessity of plagiarism detection</p> <p>2: Use online plagiarism detection tools and turn- it-in for detecting plagiarism through assessment of originality scores/similarity index for plagiarism</p>
SESSION 6 WEEK 3 Month 2	Lecture through power point presentation followed by Individual exercise	Formulation of research objectives	<p>1: State the reasons for writing objectives for a research project.</p> <p>2: Define and describe the difference between general and specific objectives.</p> <p>3: Define the characteristics of research objectives.</p> <p>4: Prepare research objectives in an appropriate format.</p> <p>5: Develop further research questions, and research hypotheses, if appropriate for study.</p>
SESSION 7 WEEK 4 Month 2	Lecture through power point presentation followed by Individual Assignment	Formulation of Hypothesis for a research	<p>1: State the reasons and scenario for formulating research hypothesis.</p> <p>2: Define and describe the types of difference between one side and two-sided hypothesis.</p> <p>3: Formulate Null hypothesis and Alternate hypothesis in an appropriate format.</p> <p>4: Identify the importance of hypothesis testing and to identify type I & type II errors.</p>
SESSION 8 WEEK 1 Month 3	Lecture through power point presentation followed by a group exercise.	Research Methodology, Variables and Indicators	<p>1: Define what study variables are and describe why is their selection important in research.</p> <p>2: State the difference between numerical and categorical variables and define the types of scales of measurement.</p> <p>3: Discuss the difference between dependent and independent variables and how they are used in research designs.</p> <p>4: Identify the variables that will be measured in a research project and development of operational definitions with indicators for those variables that cannot be measured directly.</p>

SESSION 9 WEEK 2 Month 3	Lecture through power point presentation followed by a group exercise.	Research methodology; Study types	1: Describe the study types mostly used in HSR. 2: Define the uses and limitations of each study type. 3: Describe how the study design can influence the validity and reliability of the study results. 4: Identify the most appropriate study design for a study.
SESSION 10 WEEK 1 Month 4	Lecture through power point presentation	Data collection techniques	1: Describe various data collection techniques and state their uses and limitations. 2: Advantageously use a combination of different data collection techniques. 3: Identify various sources of bias in data collection and ways of preventing bias. 4: Identify ethical issues involved in the implementation of research and ways of ensuring that informants or subjects are not harmed. 5: Identify appropriate data-collection techniques.
SESSION 11 WEEK 2 Month 4	Lecture through power point presentation	Data collection tools	1: Prepare data-collection tools that cover all important variables.
SESSION 12 WEEK 1 Month 5	Lecture through power point presentation	Sampling	1: Identify and define the population(s) to be studied 2: Describe common methods of sampling. 3: Decide on the sampling method(s) most appropriate for a research design.
SESSION 13 WEEK 2 Month 5	Lecture through power point presentation Group exercises	Sampling	1: List the issues to consider when deciding on sample size. 2: Calculate minimally required sample size according to study designs 3: Use WHO's (World Health Organization's) sample size calculator. 4: Decide on the sample size(s) most appropriate for a research design.
SESSION 14 WEEK 3 Month 5	Lecture through power point presentation	Plan for Data Entry, storage and Statistical Analysis	1: Identify and discuss the most important points to be considered when starting to plan for data collection. 2: Determine what resources are available and needed to carry out data collection for study. 3: Have knowledge of resources, available for data recording, storage and carrying out data analysis of a

			<p>study?</p> <p>4: Describe typical problems that may arise during data collection and how they may be solved.</p> <p>5: Identify important issues related to sorting, quality control, and processing of data.</p> <p>6: Describe how data can best be analyzed and interpreted based on the objectives and variables of the study.</p> <p>7: Prepare a plan for the processing and analysis of data (including data master sheets and dummy tables) for the research proposal being developed.</p>
SESSION 15 WEEK 1 Month 6	Lecture through power point presentation and individual exercises	Introduction to Statistical Package of Social Sciences (SPSS)	<p>1: Introduction to Statistical Package of Social Sciences.</p> <p>2: Entry of various types of variables in SPSS.</p>
SESSION 16 WEEK 2 Month 6	Lecture through power point presentation and individual exercises	Pilot and project planning	<p>1: Describe the components of a pre-test or pilot study that will allow to test and, if necessary, revise a proposed research methodology before starting the actual data collection.</p> <p>2: Plan and carry out pre-tests of research components for the proposal being developed.</p> <p>3: Describe the characteristics and purposes of various project planning and scheduling techniques such as work scheduling & GANTT charting.</p> <p>4: Determine the various tasks and the staff needed for a research project and justify any additional staff (research assistants, supervisors) apart from the research team, their recruitment procedure, training and supervision.</p> <p>5: Prepare a work schedule, GANTT chart and staffing plan for the project proposal.</p>
SESSION 17 WEEK 3 Month 6	Lecture through power point presentation and individual exercises	Budgeting for a study	<p>1: Identify major categories for a budget.</p> <p>2: Make reasonable estimates of the expenses in various budget categories.</p> <p>3: List various ways a budget can be reduced, if necessary, without substantially damaging a project.</p> <p>4: Prepare a realistic and appropriate budget for the project proposal.</p>

SESSION 18 WEEK 1 Month 7	Lecture through power point presentation.	Project administration <ul style="list-style-type: none"> • Plan for dissemination • Research ethics & concepts of protection of human study subjects 	1: List the responsibilities of the team leader and project administrator related to the administration and monitoring of a research project. 2: Prepare a brief plan for administration and monitoring of a project. 3: Identify the ethical considerations mandatory during execution of a research project and their importance. 4: Prepare a plan for actively disseminating and fostering the utilization of results for research the project proposal.
SESSION 19 WEEK 2 Month 7	Lecture through power point presentation.	Differences between original articles, short communications, case reports, systematic reviews and meta-analysis	1: Differentiate between original articles, short communications, case reports, systematic reviews and meta-analysis.
SESSION 20 WEEK 3 Month 7	Lecture through power point presentation and group exercises	Writing a Case report	1: Identify important components of a good case report. 2: Formulate a quality case report of any rare case presented in the clinical unit during the training period.
SESSION 21 WEEK 1 Month 8	Lecture through power point presentation and group exercises	Undertaking a clinical audit.	1: Identify Clinical audit as an essential and integral part of clinical governance. 2: Differentiate between research and clinical audit. 3: Identify types of Clinical Audit. 4: Understand steps of process of Clinical Audit.
SESSION 22 WEEK 2 Month 8	Lecture through power point presentation and group project	Critical Appraisal of a research paper.	1: Identify the importance and purpose of critical appraisal of research papers or articles. 2: Have ample knowledge of important steps of critical Appraisal. 3: Can effectively critically appraise a research paper published in any national or international journal.
SESSION 23 WEEK 3 Month 8	Lecture through power point presentation and individual exercises	<ul style="list-style-type: none"> • Making effective power-point presentations • Making effective posters presentations • Presenting a research 	1: Determine various tips for making effective power-point presentations. 2: Determine various tips for making effective posters and its presentations. 3: Identify important components of research paper that

		paper	essentially should be communicated in a presentation. 4: Can effectively and confidently make a power-point presentation of a research paper published in any national or international journal. 5: Can formulate a poster of a research paper published in any national or international journal.
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Minimal Attendance of teaching sessions:

The attendance of the trainees in the Research training sessions must be 80% or above during year 1, and it will be duly recorded in each session and will be monitored all the year round.

Assessment of Trainees for teaching sessions:

- i. *For didactic lectures*, the learning and knowledge of the trainees will be assessed during the end of year examination or Annual Research Paper.
- ii. One examination paper of Research of R-Y1 will be taken that will comprise of 75 marks in total and will consist of two sections. Section one will be of 50 marks in total and will comprise of 25 MCQ's (multiple choice questions) while section two will comprise of 5 SAQ's (Short answer questions) and Problems/Conceptual questions.
- iii. The total duration of the paper will be 90 minutes.
- iv. The papers will be checked by the research associates and Deputy Directors of ORIC.

Assessment of individual and group exercises:

- i. The quality, correctness and completeness of the individual as well as group exercises will be assessed during the teaching sessions, when they will be presented at the end of each session by trainees either individually or in groups respectively.
- ii. The mode of presentations will be oral using media of charts, flip charts & white boards.
- iii. There will be no scores or marks specified for the individual or group exercises but the feedback of evaluation by the facilitators will be on spot by the end of presentations.

Assessment of individual or group; take home tasks/assignments:

- i. The correctness, quality and completeness of the individual or group exercises will be determined once these are submitted after completion to the facilitators after period specified for each task. Assignments should be submitted in an electronic version and no manually written assignment will be accepted.
- ii. Each assignment will be checked for plagiarism through turn-it-in software. Any assignment that will have originality score less than 90% or similarity index more than 10% will be returned to trainees for rephrasing and resubmission.
- iii. Assignments will be assessed and checked during the sessions and will be scored by the facilitators who have taken the session.
- iv. A total of 50 marks in total will be assigned for evaluation of all these take home tasks/assignments.

B: PARTICIPATION IN JOURNAL CLUB SESSIONS

- i. The journal club of every department will comprise of an academic meeting of the head of department, faculty members, trainees and internees at departmental level.
- ii. The purpose of journal club will be to collectively attempt to seek new knowledge through awareness of current and recent research findings and to explore the best current clinical research and means of its implementation and utilization.
- iii. Apart from the teaching sessions of the trainees should attend the journal club sessions of the departments and should attempt to actively participate in them too.
- iv. One journal club meeting must be organized in the department every two months of the year and its attendance by the trainees will be mandatory.
- v. The journal club meeting will be chaired by the Dean of specialty.
- vi. The purpose of participation of the trainees in the journal club will be to enhance their scientific literacy and to have optimal insight into the relationship between clinical practice and evidence-based medicine to continually improve patient care.

Format of Journal Club Meetings:

- i. In a journal club meeting, one or two research paper/s published in an indexed national or international journal, selected by the Dean of the department will be presented by year 2 trainees: R-Y2 trainees.

- ii. The research paper will be presented through power-point, and the critical appraisal of the paper will follow it.
- iii. The topic will also be discussed in comparison to other evidence available according to the latest research.
- iv. The year one trainee, i.e. R-Y1 trainees, will only participate in the journal club and will not be present during the first year of training. He/she will be informed regarding the selected paper one and a half months prior to the meeting and should do extensive literature search on the topic and of the research paper that will be presented in meeting.
- v. The trainees should actively participate in the question & answer session of the journal club meeting that will be carried out following the presentation of the critical appraisal of the research paper. It will be compulsion for each R1 trainee to ask at least one question or make at least one comment relevant to the topic and/or the research paper, during the journal club meeting.

Minimal Attendance of Journal Club meetings by R-Y1 trainees:

The R-Y1 trainees should attend at least 5 out of 6 journal club meetings during their first year of training.

Assessment of Trainees for Journal Club sessions:

There will be no formal quantitative or qualitative assessment of the trainees during year one for their participation in the journal club.

**B. OBSERVATION OF THE MONTHLY MEETING OF INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREF) OF
RMU**

- i. In order to provide exposure to R-Y1 trainees regarding standard operational procedures and protocols of the research activities of Rawalpindi Medical University, each R-Y1 trainee should attend at least two monthly meetings of the Institutional Research Ethics Committee of RMU and should observe the proceedings of the meeting.
- ii. He/she will be informed by the research associates of ORIC about the standard procedures of application to IREF step wise including guidance regarding how an applicant should access the RMU website and download the application Performa and then how to electronically fill it in for final submission. They will also be provided with a format of presentation for their future presentations at IREF meetings.

Minimal Attendance of IREF meetings by R-Y1 trainees:

The R-Y1 trainees should attend at least at least two (out of 12) monthly meetings of IREF during their first year of training.

Assessment of Trainees for participation in the IREF meetings:

There will be no formal quantitative or qualitative assessment of the trainees during year one for their participation in the IREF meetings.

C. NOMINATION OF THE SUPERVISOR OF THE TRAINEE FOR THE DISSERTATION PROJECT

- i. During the first year of training, the supervisor of each trainee must be nominated within the first six months. The Dean of the specialty will decide on the nomination of the supervisor for the post graduate trainee as well as MDscholars.
- ii. A meeting will be held in the middle of the year, in June, preferably, that will be attended by all heads of the departments and the Dean. The list of all the first-year trainees and the available supervisors in each department will be presented by the respective heads of each department in a meeting. All the eligible trainees and supervisors will also be around for brief interviews during the meeting.
- iii. The head of departments, prior to interviews with the trainees and supervisors, will inform the Dean in the meeting, their own personal observation of the level of performance, talent personality and temperament of both the trainees and the supervisors. Based on their consideration of the compatibility of both eligible trainees and the supervisors, the Head of departments (HOD's) will recommend or propose the most suitable supervisors for each trainee after eloquent discussions and justifications.
- iv. The Dean will then call each trainee individually to inform him/her the suggested Supervisor for him/her and will also give right and time for objection or reservation in nomination, if any. The Dean will seek the trainee's final consent and then after asking the trainee to leave the meeting room, will call the supervisor for final consent.
- v. If the supervisor is also willing to happily supervise the trainee, then the Dean will finally approve the nomination.
- vi. A tentative list will be issued by the office of the Dean, within three days of the meeting, copied to the HOD's and the trainees and supervisors.
- vii. Both the trainees and the supervisors will be given two weeks to challenge the nominations, in case either of the two have any qualms or objections regarding the nominations. They will also be given the right to personally approach the Dean for any request for change. In case of any objection, the Dean will make changes in consultation with the HOD's, after final consent and satisfaction of both trainee and supervisor
- viii. The final revised list of nominations will be then issued by the office of Dean and will be sent to the Board of Advanced studies and Research

of RMU (BASR).

- ix. The Board of Advanced studies and Research of RMU will issue final approval of the list and the Vice chancellor will endorse the nominations as final authority.
- x. During the last few months of the first year of training, the trainees and supervisors will be advised by the Dean to get familiar with each other and try to identify their abilities to efficiently and successfully work together as a team, especially during the project on Clinical Audit mentioned in the next section.
- xi. In case of any issues, either of both will have the right to request any change in nomination to the Dean, till last week of the first year of training. The Dean will then consider the case and will seek modification in nomination from the BASR.
- xii. After completion of first year of training, no substitution in nomination will be allowed. In case of any serious incompatibility between the trainee and the supervisor, the issue will be brought to the Vice chancellor directly by the Dean as a special case, who will make the final decision accordingly, as the final authority.
- xiii. As regards the MD scholars, the external supervisors will also be nominated, and those nominations will be made by Vice chancellor of RMU in consultation with the Dean of specialty. The consent of the trainees and supervisors will follow the same protocol as specified above and the final list of nominations will then be submitted to BASR for final approval.
- xiv. After finalization of nominations a letter of supervision agreement will be submitted by the trainee to the office of Dean, including consent and endorsement of both trainee and the internal and/or external supervisor, with copies to HOD, ORIC and BASR.
- xv. The supervisor and the trainee will be bound to meet on a weekly basis exclusively for research activity with documented records of the activity done during the meeting in the logbook.

D. UNDERTAKING A CLINICAL AUDIT PROJECT

- i. During the ninth month of training year 1; R-Y1 the head of department will form groups of trainees, either two or three trainees in one group (along with each supervisor of each trainee), depending on the total number of trainees available in that respective first year.
- ii. These groups will undertake clinical audits on various aspects of the department as a project assignment, on one topic assigned to each group by the Dean and Heads of Departments.

- iii. If the group compromises between two trainees and their supervisors' then there will be four group members in that group and if there are three trainees in one group, then there will be six members of that group after inclusion of their supervisors.
- iv. The trainees during session 21 conducted in the first week of the eighth month of training R-Y1 will already have been taught how to undertake a clinical audit and this task of undertaking a clinical audit will be assigned to them as its group project. This project will also provide the trainees and the supervisors with an opportunity to work closely and will help them understand and foresee their group dynamics for future dissertations.
- v. The clinical audits completed in groups will be published as Annual Audit Reports of the departments by the Dean and HOD's and each member of the group will be acknowledged as author in the Annual Audit reports or if also published in any research journal.
- vi. The clinical audit will also be presented in weekly Clinico-pathological conferences (CPC) of the University, if approved by the Dean. The presentation will be supervised by HOD.
- vii. The contribution of the post graduate trainees'/ MD trainees in audits will be qualitatively assessed by the supervisors and the head of departments.

E. MONITORING OF RESEARCH COURSE OF YEAR 1

- i. All the concerned faculty members, at department, research units of specialties (including supervisors, senior faculty members and Head of Department) and the Deputy Directors and Director at the Office of Research Innovation & Commercialization of RMU will keep vigilant and continuous monitoring of all the academic activities of each trainee.
- ii. There will be a separate section of research in Structured Logbooks of trainees and also a section of Research in portfolio records of the trainees specific to research components of the training that will be regularly observed, monitored and endorsed by all the concerned faculty members, supervisor and facilitators. The Log and portfolio for the research curriculum of each training year will be entered separately.
- iii. The Structured Research section in Logbooks specific to research curriculum of training year 1 will include the record of attendance of all the teaching sessions of the trainee that will be monthly updated and endorsed by the Department of Medical Education (DME) of RMU.
- iv. There will also be submission records, and scores attained for the individual and group assignments of the trainees, endorsed by the facilitators of ORIC, including Deputy Directors and Research Associates.

- v. The logbooks will also include the attendance of the trainees in the Journal club sessions of the department and with qualitative assessment of the trainee regarding any active participation of the trainee during the journal club. It will specifically mention whether any question or comment was raised by the trainee during each journal club session. This information will be endorsed by the supervisor of the trainee and the Head of Department.
- vi. The attendance record of the trainees in the monthly meetings of the Institutional Research Ethics Forum (IREF) of RMU will also be part of the Logbook that will be endorsed by the convener of the IREF by the end of each attended meeting.
- vii. The HOD will monitor the weekly meetings through observation of the documented record of meetings in logbooks by the end of every month.
- viii. The result of the annual research paper of R-Y1 will be entered in the Logbooks and will be endorsed by Deputy Directors and Research Associates of ORIC.
- ix. The research portfolio of the trainee R-Y1 will be qualitative and quantitative self-assessment of the trainee in narrative form. It will also include an individual assessment of the objectives and aims defined by the trainee during the year and elaboration of the extent of attainment of these. The trainee will be able to specify his/her achievements or knowledge gained in any aspect of research that was not even formally part of the research curriculum. It will include reporting on any research courses, online or physically attended by the trainee, contribution in any research paper or publication, any participation and/or presentation in any research conference, competition etc. during year R-Y1.
- x. The research portfolio will assist the trainees to reinforce the importance of strategic thinking to understand their context and look to the future. By having a recorded insight into the individual achievements, weaknesses and strengths, the trainee will be able to maximize his/her talent and potential of all the activities and projects of research with an aim of further progression in career development.

F. OVERALL ASSESSMENT OF PERFORMANCE OF TRAINEES FOR YEAR 1

- i. Quantitative assessment of the performance and accomplishment of trainees will be done in an unbiased, impartial and equitable manner by the supervisor, ORIC department and the senior faculty members at the department.
- ii. The assessment of trainees will not only serve as an effective tool for evaluation of the extent and quality of knowledge gained and skills learnt by trainees but it will also effectively provide an evidence of the level of standards of teaching and training by the facilitators, supervisor and the faculty members.

- iii. For annual assessment of every trainee 75 marks of Annual Research Paper of R-Y1 will be included, while 25 marks will be included from the home tasks assignments. The 50 marks of the home task assignments will be converted to 25 marks, to get an aggregate of 100 total marks. Out of these 100 total marks, 40% will be passing marks of this Research course and in case of failure in it, second attempt will be allowed to the trainees and if any one fails in second attempt too then he/she should appear next year with next batch's first attempt.

G. EVALUATION/ FEEDBACK OF RESEARCH COURSE OF YEAR 1

Success of any academic or training activities greatly rely on the honest and constructive evaluation that opens pavements of improved and more effective performances and programs. The research course of the trainees will not only be evaluated by the trainees themselves but also by the deputy directors of ORIC, supervisors and HOD's through end of sessions forms and then collectively through end of course feedback forms.

- i. ***The feedback of trainees*** will include structured evaluation of each teaching session through structured and anonymous feedback forms/questionnaire that will be regularly distributed amongst the trainees. Anonymity will ensure an honest and unbiased response. They will be requested to provide their feedback regarding various aspects of teaching sessions e.g. content, medium used, facilitators performance and knowledge, extent of objectives attained etc. through the Likert scale. They will mark, through their personal choice without any pressure or peer consultation, one category amongst five scales specified ranging from 1- 5, 1 represent the poorest quality while 5 represents excellence. Apart from this structured assessment, open-ended questions will also include an in-depth perspective and insight. Similarly, an overall feedback questionnaire will also be rotated amongst trainees.
- ii. ***The feedback of trainers*** will include structured evaluation of each teaching session by the facilitators, supervisors and senior faculty members involved in the Research training course. They will provide their feedback through structured and anonymous feedback forms/questionnaire, including closed and partially closed questions that will be regularly provided by them. They will provide their inputs and opinions regarding the effectiveness of the course contents, curriculum, teaching methodologies, teaching aids and technologies, content and usefulness of the exercises and assessments etc.
- iii. ***Three focus group discussions;*** one of the R-Y1 trainees, the second of the facilitators and third of the supervisors will also be organized by the ORIC to evaluate the research course, its benefits and weaknesses and scope for improvement.
- iv. ***The research portfolio*** will be checked and endorsed by the supervisor and the Director of ORIC.

- v. ***A final evaluation report of the Research Course R-Y1*** will be formulated and compiled by the ORIC of RMU. The report will be presented with all concerned stakeholders, since the course evaluations will play a significant role in curriculum modification and planning.

I. QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 1

- i. The final quality evaluation report along with all the feedback material, randomly selected log books, research portfolios, submitted individual & groups assessments and randomly selected annual research course examination papers will be observed by an evaluation team of Research course. The quality evaluation team of research course will include the Head of departments, Deans, selected representatives of BASR, IREF, Director DME (Department of Medical Education), Director of ORIC, Director of Quality enhancement cell (QEC) and Vice chancellor of RMU, individually. The selection of representatives of the concerned departments will be made by the Vice chancellor of RMU.
- ii. All the materials will be observed and evaluated by the above-mentioned once during the course and finally by the end of the course year.
- iii. The evaluation during the year will be done at any random occasion by members of evaluation teams individually or in teams and will be done without any prior information to the trainees and trainers.
- iv. The evaluation will include not only physical observation of the materials, but the evaluators may also make a visit to observe any proceedings or activities of the research course e.g. a lecture, a group exercise, a journal club session and/or an IREF meeting.
- v. ORIC will be responsible for submission of the evaluation content to all including a copy to the Quality Enhancement Cell (QEC) of RMU for internal evaluation.
- vi. The QEC will organize an external evaluation too through the involvement of a third party that may include members of the Quality assurance department of Higher Education Department based on their availability.
- vii. An annual meeting of the quality assessment and enhancement will also be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, DME, QEC & IREF and will be chaired by Vice chancellor. During the meeting all participants will review and discuss all the evaluation material. The quality evaluation team will also share their experiences of their evaluation visits and observations to validate the existing materials.

- viii. In perspective of the quality assessment, the Vice Chancellor and the Board of Advanced study and Research will finalize any modifications or enhancement in the next Research course.

The activities related to research training of post graduate trainees is also displayed in figure 1. Successful completion of above mentioned requirements of research course is one component of the all clinical and scholarly requirements for mandatory advancement to the next Post Graduate Year level i.e. year 2 training year or R-Y2.

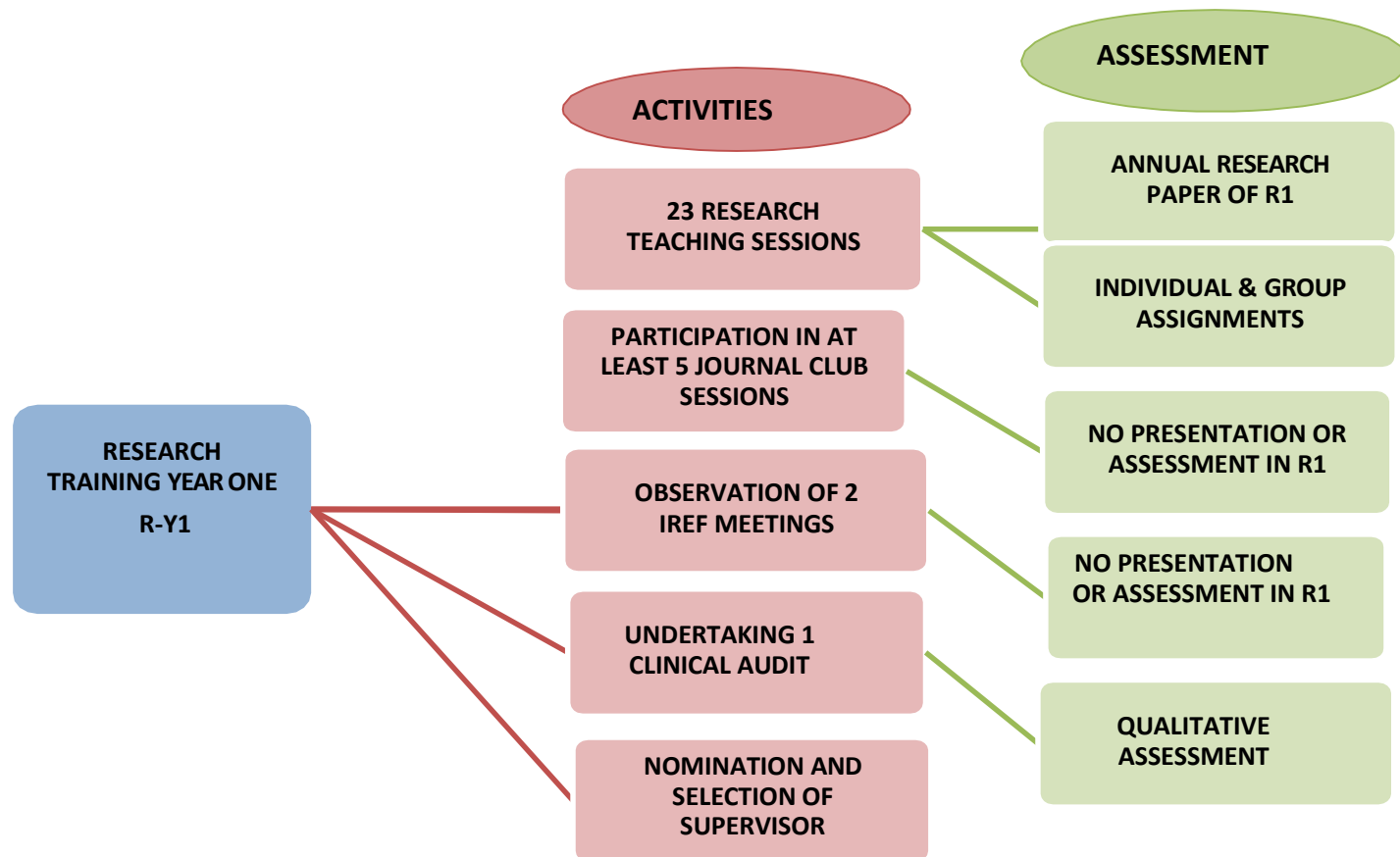


Figure 3. A FLOW CHART OF RESEARCH ACTIVITIES O GRADUATE/MD TRAINEE OF RMU AND THEIR ASSESSMENT

RESEARCH COURSE OF SECOND POST GRAUDATION TRAINING YEAR R-Y2

PURPOSE OF R-Y2 RESEARCH COURSE:

The YEAR 2-R2 research course of the post graduate trainees will provide optimum skills to trainees to formulate their individual research proposal of the research project/dissertation, prerequisite to their degrees, in perspective of the knowledge acquired during year one of the training i.e. R-Y1. This course will provide them with clarity of basic epidemiological and biostatistics concepts that they essentially require to transform their data into substantial evidence, to answer their research questions for their individual research project/dissertation. The course will also make them proficient to follow the standard ethical and institutional appraisal procedures of Rawalpindi medical University by Board of Advanced Studies and Research and Institutional and Ethics Research Forum of RMU. It will also impart expertise to explore evidence in research through well-organized literature search and how to critically appraise them.

LEARNING OUTCOMES OF R-Y2 RESEARCH COURSE

After completion of R-Y2 course the trainees should be efficiently able to:

1. Identify and define the basic concepts of Epidemiological measures and biostatistics.
2. Formulate and pretest to finalize all the data collection tools for the research projects
3. Identify and execute proficiently all procedures required for data analysis and interpretation.
4. Analyze and interpret the data collected for a research project and draw conclusions related to the objectives of study.
5. Write a clear and concise research report (paper for a peer reviewed journal/dissertation) and a summary of the major findings and recommendations for each of the different parties interested in the results.
6. Present the major findings and the recommendations of a study to policy-makers managers and other stakeholders to finalize the recommendations.
7. Prepare a plan of action for the dissemination, communication and utilization of the findings and (if required) make recommendations for additional future research.
8. Critically appraise a research paper of any national or international journal.

9. Present research papers published in various national and international journals at the journal club.
10. Prepare final draft of the research proposal of the Dissertation project, requisite to the post-graduation degree of trainee, under the guidance of the nominated supervisor.
11. Fill in an application Performa for submission of Dissertation's research proposal to BASR or IREF.
12. Present and defend a research proposal to BASR or IREF.

RESEARCH COURSE OF SECOND TRAINING YEAR

The following academic and scholarly activities will be carried out during year 2 i.e. R-Y2 of Research course catering the post graduate trainees

A. TEACHING SESSIONS:

- i. Basic and advanced Biostatistics and Epidemiological concepts will be taught to the trainees through the following methods in various sessions. Each session will comprise of all or either one or two or all four of the following techniques.
 1. Didactic lectures through power-point presentations.
 2. On spot individual exercises.
 3. Take home individual assignment
 4. Take home group assignment.
- ii. The facilitators of these sessions will be staff members of the Office of Research Innovation and commercialization (ORIC) of RMC including Director, Deputy Directors, Research Associates, Statistician and Publication In charge. While visitor lecturers including renowned national and international public health consultants, researchers, epidemiologists and biostatisticians will also be invited, according to their availability, for some modules of these courses.

Format for teaching sessions:

- i. During year 2 i.e. R-Y2, 16 teaching sessions in total will be conducted, with an average of three sessions per month.
- ii. Each session will comprise of a didactic lecture delivered initially, to attain the learning outcomes mentioned. Each didactic lecture will be of 30 minutes duration using the power-point medium that will be followed by 30 minutes on spot individual exercises of trainees

during the same session.

iii. Since most of the curriculum will comprise of quantitative calculations so trainees will be encouraged to work individually on exercises assigned both manually as well on the Statistical Package of Social Sciences, instead of group exercises. These exercises will require calculations and numerical solving too.

iv. By the end of each session, a take-home individual task/assignment will be given to trainees, that too preferably individually rather than in groups, that will be duly evaluated and marked each month.

Course content of teaching sessions:

i. The course materials will be based on an updated modified version of course titled as “Designing Health Services Research (Advanced)” that was developed in collaboration of Rawalpindi Medical College & Nuffield Institute for Health, University of Leeds, UK based adapted from “Designing and Conducting Health Systems Research Projects” by CM. Varkevisser KIT Publishers, Amsterdam (International Development Research Centre) in association with WHO Regional Office for Africa.

ii. The trainees will be provided with hard copies as well as soft copies of the course content in a folder at the beginning of the course.

iii. In addition to it they will be provided various soft copies of various data sets for practicing data analysis in addition to links of updated and good resource materials regarding research by the course facilitators.

Curriculum of teaching sessions:

The details of the 16 teaching sessions of the trainees during year two R-Y2 along with the tentative time framework, teaching strategies, content of curriculum and objectives/Learning outcomes of each session are displayed in table 2.

TABLE 2. TEACHING SESSIONS OF RESEARCH CURRICULUM OF YEAR 2 OF TRAINEES OF POST-GRADUATE TRAINEES/MD SCHOLARS OF RMU

SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES
SESSION 1 WEEK 1 Month 1	Lecture through power point presentation followed by Individual exercises and Take home individual Assignments.	Introduction to Biostatistics Description of Variables Numerical methods of Data summarization (Manual as well as through Statistical Package of Social Sciences)	1: Describe the purpose, scope and importance of Biostatics in Health systems research. 2: Identify the four basic steps of Biostatistics. 3: Describe data in terms of frequency distributions, percentages, and proportions. 4: Explain the difference between mean, median and mode. 5: Calculate the frequencies, percentages, proportions, ratios, rates, means, medians, and modes for the major variables of a study manually as well as through Statistical Package of Social Sciences (SPSS).
SESSION 2 WEEK 2 Month 1	Lecture through power point presentation followed by individual exercises & Take-home individual assignments.	Graphical presentation of data	1: Identify various types of graphs 2: Identify the graphical presentations appropriate for each type of variable. 3: Describe data in terms of figures. 4: Use of Microsoft Excel and SPSS in formulation of graphs.
SESSION 3 WEEK 3 Month 1	Lecture through power-point presentations & Take-home assignments.	Cross-tabulation of quantitative data.	1: Describe the difference between descriptive and analytical cross-tabulations. 2: Construct all important cross-tabulations which will help meet the research objectives manually as well as through SPSS. 3: Interpret the cross-tabulations in relation to study objectives and study questions.
SESSION 4 WEEK 1 Month 2	Lecture through power point Presentation followed by Individual exercise & Take-home assignment	Measures of Association based on risk.	1: Define incidence, risk, relative risk and odds ratio. 2: Calculate relative risk for appropriate study designs (cross-sectional comparative studies, cohort studies, case-control studies and experimental studies). 3: Calculate measures of association manually and through SPSS and med-calculator.
SESSION 5 WEEK 2 Month 2	Lecture through power point Presentation followed by Individual exercise & Take	Confounding and methods to control confounding.	1: Identify what confounding is and what are confounder variables. Explain different ways of dealing with confounding at the design and analysis stage of a study.

	home.		<p>2: Evaluate whether an association between two variables may be influenced by another confounding variable/risk factor.</p> <p>3: Calculate association in a way that takes into consideration the effect of potential confounding by another variable/risk factor.</p>
SESSION 6 WEEK 3 Month 2	Lecture through power point Presentation followed by Individual exercise & Take home individual assignments.	Basic statistical concepts. Measure of dispersion and confidence Intervals.	<p>1: Explain what is meant by a range, a percentile, a standard deviation, a normal distribution, a standard error and a 95% confidence interval.</p> <p>2: Calculate ranges, standard deviations, standard errors and 95% confidence intervals for data, manually as well as through SPSS.</p>
SESSION 7 WEEK 1 Month 3	Lecture through power point presentation	Hypothesis testing for a Research.	<p>1: State the concept of hypothesis testing.</p> <p>2: Define and describe the types of difference between one sided and two-sided hypothesis.</p> <p>3: Formulate Null hypothesis and Alternate hypothesis in an appropriate format.</p> <p>4: Identify the importance of hypothesis testing and to identify type I & type II errors.</p>
SESSION 8 WEEK 2 Month 3	Lecture through power point presentation followed by a Take home individual assignment.	Tests of Significance	<p>1: Explain what a significance test is and what its purpose.</p> <p>2: Explain what probability value or p- Value.</p> <p>3: Identifying various tests of significances.</p> <p>4: Identifying appropriate test of significance for a specific research design.</p>
SESSION 9 WEEK 1 Month 4	Lecture through power point presentation followed by an individual exercise & a Take home individual assignment.	Determining difference between two groups- categorical data Paired & unpaired observations.	<p>1: Decide when to apply for the chi-square test.</p> <p>2: Calculate chi-square values.</p> <p>3: Use the chi-square tables to assess whether calculated chi-square values are significant.</p> <p>4: Decide when to apply for the McNemars test and calculate its values.</p> <p>5: Make a decision concerning whether these tests can be used on give data and, if so, what test should be used on which data.</p> <p>6: Perform these tests on data manually as well as through SPSS.</p>
SESSION 10 WEEK 2 Month 4	Lecture through power point presentation followed by an individual exercise & Take-home individual assignment.	Determining difference between two groups- numerical data Paired & unpaired observations.	<p>1: Decide when to apply for the independent and dependent t-test.</p> <p>2: Calculate paired and unpaired t- values.</p> <p>3: Use the t tables to assess whether calculated t values are significant.</p> <p>4: Decide when to apply the independent and dependent T-test and calculate its values.</p> <p>5: Make a decision concerning whether these tests can be used on give data and, if so, what test should be used on which data.</p>

			6: Perform these tests on data manually as well as through SPSS.
SESSION 11 WEEK 1 Month 5	Lecture through power point Presentation followed by an individual exercise & Take-home individual assignment.	Determining difference between more than two groups- numerical data ANOVA (Analysis of Variance)	<p>1: Decide when to apply the ANOVA test.</p> <p>2: Calculate F- values.</p> <p>3: Use the F tables to assess whether calculated t values are significant.</p> <p>4: Make a decision concerning whether this test can be used on giving data and, if so, what test should be used on which data.</p> <p>5: Perform ANOVA tests on data through SPSS.</p>
SESSION 12 WEEK 2 Month 5	Lecture through power point presentation followed by an Individual exercise.	Determining Correlation between variables.	<p>1: Decide when to apply the Pearson's and Spearman's correlation tests.</p> <p>2: Calculate Pearson's correlation coefficient and Spearman's Pearson's correlation coefficient.</p> <p>3: Use the p-values to assess whether calculated coefficients are significant.</p> <p>4: Perform correlation tests on data through SPSS.</p>
SESSION 13 WEEK 3 Month 5	Lecture through power point presentation followed by an individual exercise	Regression Analysis	<p>1: Explain what a regression analysis is.</p> <p>2: Differentiate between simple linear and multiple logistic regression analysis.</p> <p>3: Decide when to apply the regression analysis and how to interpret.</p> <p>4: Make a decision concerning whether these tests can be used on give data and, if so, what test should be used on which data.</p> <p>5: Perform these tests on data through SPSS.</p>
SESSION 14 WEEK 1 Month 6	Lecture through power point presentation and individual exercises	Diagnostic Accuracy of a test	<p>1: Identify what is a diagnostic accuracy of a test compared to gold standard tests.</p> <p>2: Identify what are true positives, true negatives, false positive and false negatives in a diagnostic testing.</p> <p>3: Calculate Sensitivity, specificity, Positive and negative predictive values of a diagnostic test using standard formulae.</p>
SESSION 15 WEEK 2 Month 6	Lecture through power point presentation and individual exercises	Writing a research paper	<p>1: List the main components of a research paper.</p> <p>2: Make an outline of a research paper.</p> <p>3: Write drafts of reports in stages.</p> <p>4: Check the final draft for completeness, possible overlaps for clarity and smoothness of style.</p> <p>5: Draft recommendations for action based on research findings.</p>

SESSION 16 WEEK 3 Month 6	Lecture and individual exercises	Writing a dissertation	1: List the main components of a dissertation 2: Explain how a research paper differs from a dissertation 3: Make an outline of a dissertation.
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Minimal Attendance of Teaching Sessions

Trainees must maintain at least 80% attendance in research training sessions during Year 2, with records monitored throughout the year.

Assessment of Teaching Sessions

Knowledge is assessed in the Year 2 exam.

A 75-mark research exam consists of 25 MCQs (50 marks) and 5 conceptual problems (25 marks) over 120 minutes.

Papers are evaluated by research associates and biostatisticians of ORIC.

Assessment of Individual Exercises

Exercises are evaluated during sessions based on correctness and completeness.

Presentations may be oral, electronic, or written using media tools.

Data analysis tasks are assessed on-site via SPSS, with immediate feedback.

Assessment of Take-Home Assignments

Assignments focus on numerical analysis and SPSS tasks, submitted electronically.

Plagiarism screening requires an originality score $\geq 90\%$ and similarity index $\leq 10\%$.

Evaluated within one week and scored out of 50 marks.

Journal Club Presentations

Trainees must attend 5 out of 6 journal club meetings in Year 2.

Each trainee must present two research papers, selected by the Dean.

Presentations (30 min) include a critical appraisal, comparison with recent research, and audience Q&A.

Assessment of Journal Club Presentations

The first presentation is unscored but provides feedback.

The second is evaluated (out of 25) by the HOD and senior faculty using a structured checklist.

Evaluation covers presentation effectiveness, critical appraisal, and application to clinical practice.

Research Proposal Formulation

Trainees finalize research questions by the third month of Year 2, approved by the supervisor and ORIC.

A literature review and feasibility check are completed before submission to the Dean and BASR.

MD scholars submit one research proposal, while FCPS trainees may submit one dissertation proposal or two article proposals.

Development and Submission Process

Research topics are finalized by the fourth month and approved by BASR.

Proposals (~1000–1500 words) include title, rationale, objectives, methodology, ethics, and budget.

Completed by the eighth month, proposals undergo plagiarism screening and statistical validation.

Data collection tools are finalized with supervisor guidance and pre-tested.

Timeline for Research Progression

Research projects should be feasible within the training period.

Year 3 focuses on data collection, and Year 4 is dedicated to writing and submission.

FCPS trainees opting for article publication complete shorter-duration studies.

**A. PRESENTATION OF RESEARCH PROPOSAL/S TO INSTITUTIONAL RESEARCH ETHICS COMMITTEE (IREF) OF
RMU**

- i. The R-Y2 trainees will already be aware of the standard operational procedures and protocols of the Institutional Research Ethics Committee of RMU as they had, as a mandatory activity, participated and observed the proceedings of the meeting during R-Y1. However, he/she will be informed about any modifications or updates regarding the standard procedures of application to IREF if will have occurred during the last year.
- ii. Trainees will be individually provided an updated step wise guidance by the research associates of ORIC, regarding how an applicant should access the RMU website and download the application Performa and then how to electronically fill it in for final submission. They will also be provided with an updated format of presentation for their Research Proposal presentations at IREF meetings. The trainees must submit ten sets of hard copies of all the documentation including the research proposal with all annexes, plagiarism detection report and application Performa to ORIC, at least ten days prior to the monthly meeting. ORIC will provide them with the date and month of the IREF meeting for presentation and the trainee must present in the meeting along with his/her supervisor.
- iii. The trainees must make a five- to ten-minute presentation through power-point at the Institutional Research Ethics Forum during 9-10 months of R-Y2. By the end of presentation, he/she will respond to all the queries of the forum and the supervisor will facilitate in defense of the proposal.
- iv. The IREF will appraise and scrutinize every aspect of the proposal/s and if found acceptable then will provide on spot verbal approval of the project followed by a written approval letter within the next two weeks to the trainees.
- v. If members of IREF will find any modifications required in the proposal/s they will recommend them to trainee and supervisor. The trainee must incorporate those changes and will resubmit the corrected version of proposal/s within next one week's period.
- vi. The written approval letter of IREF will be issued within next two weeks of meeting, to the trainee.
- vii. In case the trainee will be working on option B of CPSP i.e. publication of two research papers, instead of writing dissertation, then he/she will present both research proposals to IREF for the two topics already approved by CPSP.

B. ASSURANCE OF FEASIBILITY & AVAILABILITY OF RESOURCES FOR RESEARCH PROJECTS

- i. The trainee will ensure that for his/her research project/s ample resources in terms of monetary, human or physical will be available to complete the project. He will also provide documented proof and justification to avoid any unforeseen problems that may lead to incompleteness of research project/s.
- ii. No individual funding will be provided to the trainees for their research projects requisite to their post graduation degrees by Rawalpindi Medical University. The trainee may be bearing all the expenses on individual basis or may be applying to any of national or international funding agencies for research project/s.
- iii. In case the trainee will be applying for any external source of funding from any national or international funding agency, the funding application and approval process must be completed by the end of year 2 of training.
- iv. The trainee may also be pursuing the degree, through any scholarship that also will include the research project expenses.
- v. In either of the above mentioned circumstances, the trainee must provide and submit the budget details and documented evidences of the funding or availability of monetary resources to the supervisor and Dean who will ensure the feasibility of the resources available to the trainees.
- vi. Moreover, if any tools, kits, equipment or physical materials will be required for research project, the trainee will provide documented evidence of its availability.
- vii. If the data collection will require hiring of additional human resources, then the trainee will provide documented evidence like consent of staff members contributing to his/her research or details of training expenses or honorarium details if any to the supervisor.
- viii. The supervisor will also consult the Dean and HOD's in ensuring the feasibility and availability of resources of a trainee during second year of training.

C. SUBMISSION OF RESEARCH PROPOSAL/S TO CPSP/BASR OF RMU

- i. Post graduate trainees applying for their CPSP fellowship using option A (Submission of one dissertation in specialty field as requisite to FCPS degree) after receiving appraisal of IREF of RMU, must submit their proposal to CPSP during last quarter of second year of training. The approval process from CPSP takes approximately 3 months on an average but in case any corrections are suggested the resubmission and acceptance procedure may take 6 months on an average. These trainees will initiate data collection as soon as they receive the acceptance by CPSP authorities.
- ii. However, the post graduate trainees who will opt to publish two original research articles in any CPSP recognized journals, as requisite to FCPS degree, will not require any submission of their proposals to CPSP. They will directly initiate the data collection as soon as they will receive the IREF acceptance letter. Hence the data collection phase of both research projects will begin in last quarter of R-Y2.
- iii. The MD scholars of RMU will submit their research proposals to the Board of Advanced Studies and Research (BASR) of RMU for appraisal. BASR will issue an acceptance letter of the research proposal endorsed by the Vice chancellor of RMU copied to the concerned stake holders and authorities including office of Dean and ORIC. If members of BASR will find any modifications required in the proposal they will recommend them to the trainee and supervisor. The trainee must incorporate those changes and will resubmit the corrected version of proposal to BASR within next one-week period. The written approval letter of BASR will then be issued within the next two weeks to the trainee. The trainees will thus receive formal permission to initiate the data collection phase through this acceptance of BASR.
- iv. All trainees who require data collection from any RMU or its teaching hospitals, that are Benazir Bhutto Hospital, District Headquarters Hospital and Holy Family Hospital, will not require any permission from the administration of these hospitals. The appraisal letters of IREF and BASR will be considered as acceptance by all authorities of the RMU.
- v. If any trainee needs to collect data from any institution other than RMU or its teaching hospital, they must seek that institution's approval too according to their standard protocols parallel to the period when they will have submitted proposals to CPSP/BASR to save their time.
- vi. All the post graduate trainees will follow the guidelines regarding the format and content of the research proposals provided by the authorities to whom they will be presenting their research proposals that are Board of Advanced Studies and Research (BASR) for MD scholars or College of Physicians and surgeons of Pakistan (CPSP)

D. MONITORING RESEARCH COURSE OF YEAR 2

- i. An alert and continuous monitoring of all the scholarly activities of each trainee will be carried out by all the faculty concerned, i.e. research units of specialties, supervisor, Head of Department and the deputy Directors and research fellows at the Office of Research Innovation & Commercialization of RMU.
- ii. The structured Research component of Logbooks and Research portfolio of the trainees specific to research component of the training of year 2; R-Y2 will also be regularly observed, monitored and endorsed by all the concerned faculty members, supervisor and facilitators.
- iii. The Logbooks section R-Y2 specific to research curriculum of training year 2 will include the record of attendance of all the teaching sessions of the trainee that will be updated monthly and endorsed by the department of Medical Education (DME) of RMU.
- iv. It will also comprise of all the submission records and scores attained for the individual and group assignments of the trainees, endorsed by the supervisor and the research associates and Deputy Directors of ORIC.
- v. The logbooks will also include the attendance and presentation scores of the trainees in the Journal club sessions of the department. It will also include observation notes catering to qualitative evaluation for active participation by the trainee during each journal club session. This information will be endorsed by the supervisor of the trainee and HOD.
- vi. The record of the trainees regarding timely completion and quality of each activity related to completion of research proposals and its presentation in the monthly meeting of the Institutional Research Ethics Forum (IREF) of RMU will also be part of the Logbook that will be endorsed by the supervisor, research associates of ORIC and conveners of the IREF and BASR.
- vii. The result of the annual research paper of R-Y2 will also be entered in the Logbooks by Research Associates and will be endorsed by the Deputy Directors of ORIC.
- viii. The research portfolio of the trainee R-Y2 will again include qualitative and quantitative self-assessment of the trainee in narrative form. It will include an individual assessment of the objectives and aims defined by the trainee during the second year of training and extent of their successful attainment. The trainee will also mention individual achievements or knowledge and skills acquired in any aspect of research that was either formally part of the research curriculum or even not. It will also include reporting of any research courses, online or physically attended by the trainee, contribution in any research paper or publication, any participation and/or presentation in any research conference, competition etc. during year R-Y2.

E. OVERALL ASSESSMENT OF PERFORMANCE OF TRAINEES FOR YEAR 2

- i. The overall assessment of the performance of the trainee for R-Y2 will rely on marks attained out of a total of 100 obtainable marks. These total 100 marks will include 50 marks for the Annual Research Paper of R2 (where the 75 marks of paper will be converted to 50 marks), while 25 marks will be included from the home tasks assignments (by conversion of 50 marks of the home task assignments into 25 marks) and actual 25 marks of presentation of journal club will be included in assessment (without any conversion), to get an aggregate of 100 total marks.
- ii. Out of the total attainable 100 total marks, 40% will be passing marks of this Research course and in case of failure in it, a second attempt will be allowed to the trainees and if anyone fails in second attempt too then he/she should appear next year with next batch's first attempt.

I. EVALUATION/ FEEDBACK OF RESEARCH COURSE OF YEAR 2

Like evaluation of year one of research course R-Y1, the second year of training R-Y2 will also be evaluated not only by the trainees themselves but also by the Deputy Directors, supervisors and senior faculty through end of sessions forms and then collectively through end of course feedback forms.

- i. ***The feedback of trainees*** will include structured evaluation of each teaching session of R-Y2 through structured and anonymous feedback forms/questionnaires that will be regularly distributed amongst the trainees. The forms will include questions phrased as Likert scales (1-5 categories) inquiring their responses regarding various aspects of teaching sessions. Category 1 will represent the poorest quality, increasing till category 5 representing excellence and the trainees will choose either of the 5 based on their honest and unbiased personal choice. The open-ended questions in the form will indicate a qualitative evaluation of the trainees. There will also be an overall feedback questionnaire for the entire second year of training course administered to trainees.
- ii. ***The feedback of trainers*** will be obtained through structured and anonymous feedback forms/questionnaire, including closed and partially closed questions that will be regularly provided by them. They will provide their inputs and opinions regarding effectiveness of the R-Y2 course contents, curriculum, teaching methodologies, teaching aids and technologies, content and usefulness of the exercises and assessments etc.

- iii. Three focus group discussions;* one of the R-Y2 trainees, the second of the facilitators and third of the supervisors will also be organized by the ORIC to evaluate the research course, its benefits and weaknesses and scope for improvement.
- iv. A final evaluation report of the Research Course R-Y2* will be formulated and compiled by the ORIC of RMU. The report will be presented to all concerned stakeholders.

J. QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 2

- i. The evaluation of research course of R-Y2 will follow the same pattern of R-Y1, but all the feedback material will pertain to R-Y2 course (including feedback forms of R-Y2, randomly selected logbooks, research portfolios, individual & group assessment record and randomly selected annual research course examination papers).
- ii. The evaluation team that will observe all these R-Y2 course evidence will be the same team that will evaluate R-Y1 course. The team of R-Y2 will include the Head of departments, Deans, selected representatives of BASR, IREF, Director of ORIC, Director DME, Director of Quality enhancement cell (QEC) and Vice chancellor of RMU, individually.
- iii. The random visit for physical observation of the materials and of all the academic activities through uninformed visits will also follow the same protocol as mentioned in the quality assurance procedure of R-Y1.
- iv. ORIC will be responsible for submission of the evaluation content of R-Y2 to all including a copy to the Quality Enhancement Cell (QEC) of RMU for internal evaluation.
- v. The QEC will organize an external evaluation too through the involvement of a third party that may include members of the Quality assurance department of Higher Education Department based on their availability.
- vi. An annual meeting of the quality assessment and enhancement, by the end of year 2, will also be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, DME, QEC & IREF, who will be then collectively, review all the evaluation material of R-Y2. The evaluation team will also share their experiences of their evaluation visits and observations to validate the existing materials.
- vii. The quality of the R-Y2 course will be determined with recommendations for further enhancement and modifications.

Successful completion of above-mentioned requirements of research course will be mandatory requirement for advancement to the next Post Graduate Year level i.e. year 3 training year or R-Y3.

An overview of activities related to research training in third year, R-Y3 is also displayed in figure 3.

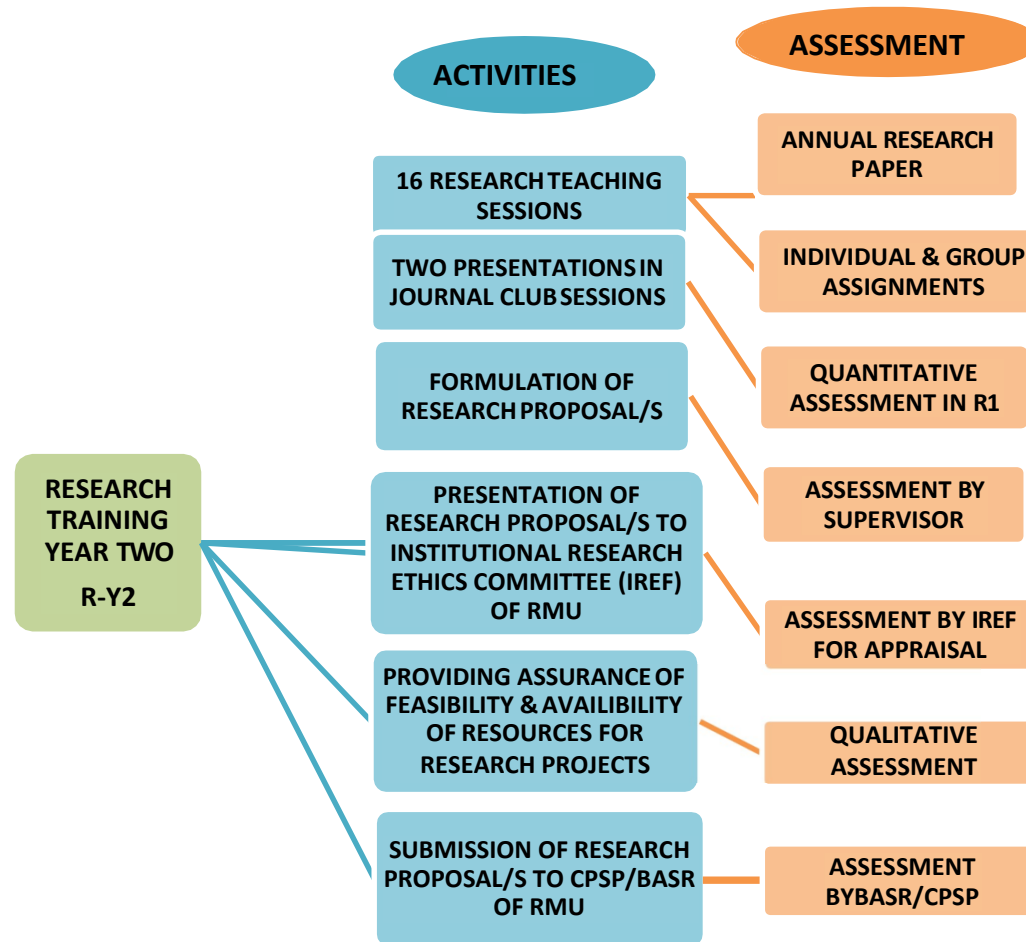


Figure 3. A FLOW CHART OF RESEARCH ACTIVITIES OF R-Y2 POSTGRADUATE/MD TRAINEE OF RMU AND THEIR ASSESSMENTS

RESEARCH COURSE OF THIRD POST GRAUDATION TRAINING YEAR R-Y3

PURPOSE OF R-Y3 RESEARCH COURSE

Utilizing all the knowledge and skills in research, accrued during first two years, the post graduate trainees of RMU will be dexterous enough to execute a research project and implement efficiently and proficiently all the activities of the research project that they will have planned during period of R-Y1 to R-Y2. During the third year of training post graduate trainees will collect all the information and data and explore the answers to their research questions formulated for their individual research project/dissertation, prerequisite to their degrees. This course will provide them with an opportunity to revitalize and update their concepts, knowledge and skills in research methodologies.

LEARNING OUTCOMES OF R-Y3 RESEARCH COURSE

After completion of the R-Y3 course the trainees should be efficiently able to:

1. Revise and rejuvenate all the basic concepts of Epidemiological measures and biostatistics.
2. Collate the information gathered through an extensive literature review relevant to study topics finalized and formulate an extensive write up of literature for research project.
3. Collect and store high quality information for their research project in an honest and unambiguous way.
4. Utilize skills to enter, analyze and interpret the data collected for a research project
5. Write a clear and concise research report (research paper for a peer reviewed journal/dissertation) and a summary of the major findings and recommendations for each of the different parties interested in the results.

RESEARCH COURSE OF THIRD TRAINING YEAR

During the third year of training, revision and refreshing up of previously secured knowledge and concepts related to research will enhance the productivity and efficiency of the post graduate trainees.

A. ELECTIVE REFRESHER SHORT COURSES/WORKSHOPS:

The elective refresher short courses of one day to three days duration will be held to rejuvenate concepts Basic and advanced Biostatistics and Epidemiological concepts that will be taught to the trainees during initial first two years of training. The short courses will comprise of one to three days workshops. These workshops will provide the trainees hands on training of all the components of research methodologies, basic and advanced biostatistics and epidemiological calculations. Each workshop will comprise of following teaching methodologies

- Power-point presentations of basic theoretical concepts during workshops.
- On spot individual/group exercises.

These short courses will be conducted by the staff members of Office of Research Innovation and commercialization (ORIC) of RMC including the Statistician, Deputy Directors and Director while they will be facilitated by the Research Associates. Visitor lecturers; including renowned national and international public health consultants, researchers, epidemiologists and biostatisticians will also be invited, according to their availability, for some workshops.

Format of short courses:

- i. A total of 10 short courses will be offered and the post graduate trainee must attend a minimum of 5 of these short courses during R-Y3, according to their needs, choice and preferences.
- ii. Each workshop will comprise of 8-12 modules in total.
- iii. For each module, power-point presentations will be delivered initially, to restore the memories of the trainees regarding the previous knowledge attained by them in R-Y1 and R-Y2. These presentations will be on an average 15-20 minutes of duration for each module and will teach the basic and advanced concepts.
- iv. Following the presentations, on an average 30-60 minutes of individual and group exercises will be supervised by the facilitators to provide the trainees hands on experience. Depending on the type and content of courses, trainees will mostly work through computer soft-wares. These exercises will require calculations and numerical solving too.
- v. By the end of each day of workshop, brief take home individual or group task/assignments will be given to trainees that will be duly evaluated by facilitators within three days of the short course and will provide their feed back to each trainee individually.

Content of short courses:

- i. The course materials for these workshops will be formulated by the Deputy Directors and Director of ORIC, specifically to the needs and requirements of the post graduate trainees, using various national and international resource materials.
- ii. The trainees will be provided with hard copies as well as soft copies of the course content in a folder at the initiation of the course. This takes away resource material will also include handouts of presentations of all the modules taught during the workshops.

Following ten short courses will be offered to the post graduate trainees during year three; R-Y3 along with the tentative time frame work and title of workshops in table 3. However, the details of modules, duration and objectives/Learning outcomes of each workshop are not specified right now as these will be formulated based on the needs and requirements of the trainees and also they will depend on the visitor facilitators choice, that will be decided and confirmed at least one month prior to conducting each workshop.

TABLE 3.TEN ELECTIVE SHORT COURSES TO BE OFFERED DURING TRAINING YEAR 3.

<i>TIME FRAMEWORK DURING THIRD YEAR R-Y3</i>	<i>TOPICS OF SHORT REFRESHER COURSES</i>
MONTH 1	End note referencing manager
MONTH 2	Mendeley referencing manager
MONTH 3	Effective write up of Literature review
MONTH 4	Data entry in Statistical Package of Social Sciences
MONTH 5	Graphical presentation of data in Microsoft Excel
MONTH 6	Univariate, Bivariate and Multivariate analysis in Statistical Package of Social Sciences
MONTH7	Effectively writing up of a dissertation.
MONTH 8	Research article write up
MONTH9	Critical appraisal of research
MONTH 10	How to Present Research through power-point or posters

Assessment of Trainees for short courses

No formal assessment through any examination paper will be carried out during year three since they will be already involved in data collection and entry of their research projects. So they will not be strained with any formal examinations.

Assessment of individual and group exercises

- i. The quality, correctness and completeness of the individual as well as group exercises will be assessed during the workshops by the facilitators.
- ii. The exercises will be presented during each module of the workshop by trainees either individually or in groups accordingly.
- iii. The mode of presentations will be oral using media of charts, flip charts & white boards or through power-point presentations depending on the nature of the tasks.
- iv. There will be no scores or marks specified for the individual or group exercises but the feedback of evaluation by the facilitators will be on spot by the end of presentations.

Assessment of individual or group; take home tasks/assignments:

- i. The correctness, quality and completeness of the individual or group exercises that will be given during the short courses/workshops will also be determined.
- ii. These will be submitted after completion to the facilitators within three days of the workshop. No Assignments will be acceptable after three days.
- iii. The assignments will be assessed and checked by facilitator within one week of submission along with extensive feedback of these assignments.
- iv. No formal quantitative assessment or scoring of any of these take home tasks/assignments of R-Y3 will be done.

A. PRESENTATION IN JOURNAL CLUB

- i. During third year of training, the trainees should continue to actively participate in the journal club sessions of the department on regular basis.
- ii. The R-Y3 trainees must present at least one research paper in the journal club. The format of presentation and procedure for year 3 trainee will exactly be same as it will be for R-Y1 and R-Y2 trainees as mentioned before.
- iii. After oral presentation in monthly journal club session on the selected research paper and the critical appraisal of the paper R-Y3 trainee should actively participate in question & answer session of the journal club too. It will be compulsion for each R-Y3 trainee to ask at least one question or make at least one comment relevant to the topic and/or the research paper, during the journal club meeting.

Minimal Attendance of Journal Club meetings for R-Y3 trainee:

The R-Y3 trainees must attend at least 5 out of 6 journal club meetings during their third year of training and should make at least one presentation as a compulsion.

Assessment of presentation of the trainees at Journal Club:

- i. During the presentation of R-Y3 trainee in journal club, even though the head of department and two other senior faculty members will evaluate trainee's ability to make effective presentation of the research paper and also his/her skills to critically appraise a research paper, but no formal scoring will be done
- ii. The assessment will be qualitative rather than a quantitative assessment. Even though not scored in numbers, but by the end of paper presentation, evaluators will inform the strengths, mistakes, weaknesses and scope for improvement to each trainee.
- iii. The evaluators will assess that how far the presenter was successful to identify the strengths and weaknesses of a research article, to determine the appropriateness of the study methodology and design for the research question and to assess suitability of the statistical methods used. The appropriateness of presentation, interpretation and discussion will also be considered.

B. DATA COLLECTION, ENTRY AND ANALYSIS OF RESEARCH PROJECT/S OF DISSERTATION/RESEARCH PAPERS

- i. By the beginning of year 3, the trainees will have received the approval from the IREF, BASR and respective examination authorities for their research proposals of dissertations or research papers. Moreover, till then all the data collection tools for their research projects will also have been ready after pretesting.
- ii. During first quarter of year 3, it will be mandatory for the trainees to initiate the data collection phase of their project/s. If the trainee will be collecting the data individually for his/her research project, it will be started under continuous guidance of their supervisors and continuous facilitation by the research centers of specialties, the data analysis center and Research Associates of ORIC of RMU.
- iii. In case the data collection will require more human resources, other than trainee himself/herself, either as honorary or hired data collection staff, they should be properly trained for data collection by the trainee. The supervisor will also ensure that the additional data collection staff will be adequate in number within data within the time framework and should also make sure that they will be proficient enough to collect high quality and authentic data.
- iv. The data storage will also be finalized by trainee under the guidance of Supervisor and research center of specialty.
- v. The trainee will initiate data collection phase and will seek assistance of statisticians at Data analysis centre of ORIC for compilation of data sheets in SPSS/or any other statistical software for data coding and entry. The trainees will be encouraged by statisticians to collect the data and enter it simultaneously after cleaning into the soft ware to save time.
- vi. By the end of R-Y3, the data collection and entry of data must be completed.
- vii. In case the trainee will be working on option B of CPSP i.e. publication of two research papers, keeping in consideration, the lengthy period required for submission and then acceptance of papers by journals, he/she should be vigilant in data collection and must do it at faster pace as compared to those writing dissertation. So such trainees should complete data collection of both papers within first half of year 3 of training simultaneously. Otherwise, they can also collect data for first paper within first three months of year 3 of training and then will initiate data collection of second paper from sixth to ninth month of year 3 of training. Whatever the option is followed by the trainee, the data collection phase should not extend beyond ninth month of R-Y3, in order to complete both papers for submission till end of R-Y3.

viii. The trainees and MD scholars writing dissertation must also complete data collection and analysis till last month of R-Y3.

C. COMPLETION AND SUBMISSION OF TWO RESEARCH PAPERS AS REQUISITE TO CPSP FELLOWSHIP DEGREE

This section D implies only for the trainees who will be following option B of CPSP i.e. publication of two research papers, as a requisite to fellowship of CPSP, instead of submitting a dissertation.

i. The trainees opting for the publication of two research papers should complete and submit manuscripts of both research papers by the end of third year of training. Keeping in consideration, the lengthy period required for submission and then acceptance of papers by journals (that varies from journal to journal and may range from 3 months to even one year) he/she should be vigilant in data collection and paper completion at faster pace as compared to those writing dissertation.

ii. These trainees will be provided the following options and they will choose either of it based on their will and their supervisor's advice:

OPTION 1: The trainees should complete data collection of both papers within first 6 months of year 3 of training simultaneously. Then after analyzing data and completing write up of original article in next 5-6 months must submit both papers during last month of R-Y3 to journals of choice.

OPTION 2: The trainees should complete data collection of first paper within first three months of year 3 of training and then submit first paper after completion of manuscript till sixth month of R-Y3 to journal of choice. Then the trainee will initiate data collection of second paper till ninth month of year 3 of training and then submit second manuscript after completion till last month of R-Y3 to journal of choice.

iv. Whatever is the option followed by the trainee, both of his/her paper should be submitted to journals of choice before initiation of year 4 of trainee, keeping adequate time secured in advance, in case any paper will not be accepted and will have to be sent to another journal accordingly.

- iv. During the data collection and entry phase, trainees will receive continuous assistance from the Research Associates and Data analysis unit of ORIC of RMU.
- v. When the data entry will be completed in the statistical software, the trainee will be provided full assistance in data analysis, interpretation and write up of results by the statisticians of ORIC.
- vi. The supervisors and publication in charge of ORIC will also guide the trainee to write the section “Discussion” based on the comparison of the findings of their study with the previously available research nationally as well as internationally.
- vii. They should also be able to identify strengths and weaknesses of their studies and should make recommendations with a statement of conclusion.
- viii. The trainees will identify the target journals for publication and after formatting their write-up according to the specific format required by both journals.
- ix. The research papers will be reviewed by publication in charge of ORIC for plagiarism through turn-it-in software. Any article that will have an originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission. Only when the eligible scores are reached, then the trainee will be allowed to proceed further and to submit their research in the form of original articles under continuous assistance of Publication unit of ORIC.
- x. The trainee should also submit copies of submitted papers to the Dean, Director of ORIC and Chairperson of BASR that will be kept with them as confidential documents.
- xi. In case the research paper/s is/are sent back with recommended corrections or modifications, the supervisor and associated staff at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days’ time.
 - xi. In case any of the paper is refused publication by a journal even then the supervisor and publication unit at ORIC will assist the trainee on urgent basis, to get it rectified and resubmitted to another target journal of choice within next 10 days’ time and not delaying it all.

Since the trainees who will be submitting dissertation in specialty field as requisite to FCPS degree or as a requisite to their MD degree will not comply with this section D, they will continue with data collection and entry and will also initiate write up of literature review for their dissertations during this last half of R-Y3.

D. MONITORING RESEARCH ACTIVITIES OF YEAR 3

- i. Continuous monitoring of all the research activities of each trainee will be carried out by research centers of specialties, supervisors, Head of Departments and the research fellows & Deputy Directors at the Office of Research Innovation & Commercialization of RMU.
- ii. The structured Log books specific to research component of the training of year 3; R-Y3 and Research portfolio of the trainees will also be regularly observed, monitored and endorsed by all the concerned faculty, supervisor and facilitators.
- iii. The section of research training in Structured Log books of R-Y3 will be specific to short refresher courses of research conducted during training year 3. It will also include the record of attendance of all the short course/workshops attended by the trainee endorsed by the facilitators of each course and Office of Research Innovation & Commercialization (ORIC) in addition to the Department of Medical Education of RMU.
- iv. It will also comprise of all the submission record of the individual and group assignments of the trainees, endorsed by the facilitators of ORIC along with their comments.
- v. The log books will also include the attendance and presentation details of the trainees in the Journal club sessions of the department. The observation notes catering to qualitative evaluation for active participation by the trainee during each journal club session will also be inclusive. This information will be endorsed by the supervisor of the trainee and HOD.
- vi. The record of the trainees regarding timely completion and quality of each research activity related to completion of data collection and entry phase will also be part of the Log Book that will be endorsed by the supervisor, research associates and relevant facilitators of ORIC.
- vi.** The research portfolio of the trainee R-Y3 will again include qualitative and quantitative self assessment of the trainee in narrative form.

It will include the individual assessment of the objectives and aims defined by the trainee during the third year of training and extent of their successful attainment. The trainee will also mention individual achievements or knowledge and skills acquired in any aspect of research that was either formally part of the research curriculum or even not. It will also include reporting of any research courses, online or physically attended by the trainee, contribution in any research paper or publication, any participation and/or presentation in any research conference, competition etc. during year R-Y3.

E. OVERALL ASSESSMENT OF PERFORMANCE OF TRAINEES DURING R-Y3

- i. The overall assessment of performance of trainee will be more qualitative in R-Y3, so it will not rely on any scores or marks attained by trainees hence there will not be any examination paper of research or scoring for the home tasks assignments or presentation of journal club.
- ii. The Heads of department and the director of ORIC will observe the log books for assessments of facilitators of short courses, their comments regarding the home tasks/assignments, comments of evaluators of presentation at journal club and the remarks of supervisor regarding his/her opinion regarding the trainee's overall performance during third year of training.
- iii. The Heads of department and the director of ORIC will also observe the research portfolio of the trainees. Based on their observations, they will evaluate the completeness and quality of performance of each trainee.
- iv. In case of any deficiencies or weaknesses they will personally call the trainee and supervisor and will guide them how to correct or improve accordingly.

F. EVALUATION/ FEEDBACK OF RESEARCH COURSE OF YEAR 3

The research course and activities of third year of training will be evaluated by the trainees, facilitators of ORIC and supervisors.

- i. The feedback of trainees will include structured evaluation of short courses/workshops of R-Y3 through structured and anonymous feedback forms/questionnaire that will be administered by the end of each short course/workshop. The forms will include questions phrased as Likert scales (1-5 categories) inquiring their responses regarding various aspects of workshops. Category 1 will represent the poorest quality while category 5 will represent excellence, and the trainees will choose either of 5 based on their honest and unbiased personal choice. The open-ended questions in form will indicate qualitative evaluation. There will also an overall feedback questionnaire for entire third year of research training.
- ii. The feedback of trainers will be obtained through structured and anonymous feedback forms/questionnaire to provide their inputs and opinions regarding effectiveness of the R-Y3 short course contents, curriculum, teaching methodologies, teaching aids and technologies, content and usefulness of the exercises and assessments etc.
- iii. Three focus group discussions; one of the R-Y3 trainees, the second of the facilitators and third of the supervisors will also be organized by the ORIC to evaluate the research course, its benefits and weaknesses and scope for improvement.
- iv. A final evaluation report of the Research Course R-Y3 will be formulated and compiled by the ORIC of RMU. The report will be presented to all concerned stakeholders.

G. QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 3

- i. The quality assessment of research course of R-Y3 will involve meticulous review of materials of R-Y3 course (including randomly selected data sheets and completed data collection tools, feedback forms of R-Y3 short course/workshops, log books, research portfolios, individual & group assessment records).
- ii. The quality evaluation team of R-Y3 will include the Head of departments, Deans, selected representatives of BASR, IREF, Director of ORIC, Director DME (Department of Medical Education), Director of Quality enhancement cell (QEC) and Vice chancellor of RMU. The random visits for physical observation of the materials and also of all the short courses proceedings through uninformed visits will also follow same protocol as mentioned in quality assurance procedure of R-Y1 and R-Y2.

- iii. The research papers submitted by post graduate trainees following option of publication of two original articles to CPSP accredited journals will be observed as confidential evidences by Director of ORIC, Dean and chairperson of BASR for quality assessment. No other person will have access to these manuscripts in order to avoid any risk of potential plagiarism.
- iv. ORIC will submit evaluation content of R-Y3 to all stake holders including a copy to the Quality Enhancement Cell (QEC) of RMU for internal evaluation.
- v. The QEC will organize an external evaluation too through involvement of a third party that may include members of Quality assurance department of Higher Education Department based on their availability.
- vi. Since the R-Y3 will primarily comprise of the data collection phase of research projects of trainees, therefore, Quality Enhancement Cell (QEC) in liaison with the research centers of the specialty, will ensure the originality, transparency and unambiguity of data, during entire data collection.
- vii. An annual meeting of Quality assurance, by end of year 3, will be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, DME, QEC & IREF, who will be then collectively, review all the evaluation material of R-Y3. The meeting will be chaired by the Vice Chancellor of RMU. The evaluation team will also share their experiences of their evaluation visits and observations to validate the existing materials.
- viii. The quality of R-Y3 course will be stringently determined with recommendations for further quality enhancement.

Successful completion of above-mentioned requirements of research course, also outlined in Figure 4 ((A) and 4 (B), will be mandatory requirement for advancement to the next Post Graduate Year level i.e. last, final or fourth year or R-Y4.

Figure 4 (A). A FLOW CHART OF RESEARCH ACTIVITIES AND ASSESSMENTS OF R-Y3 POSTGRADUATE/MD TRAINEE OF RMU WHO WILL OPT FOR DISSERTATION WRITING

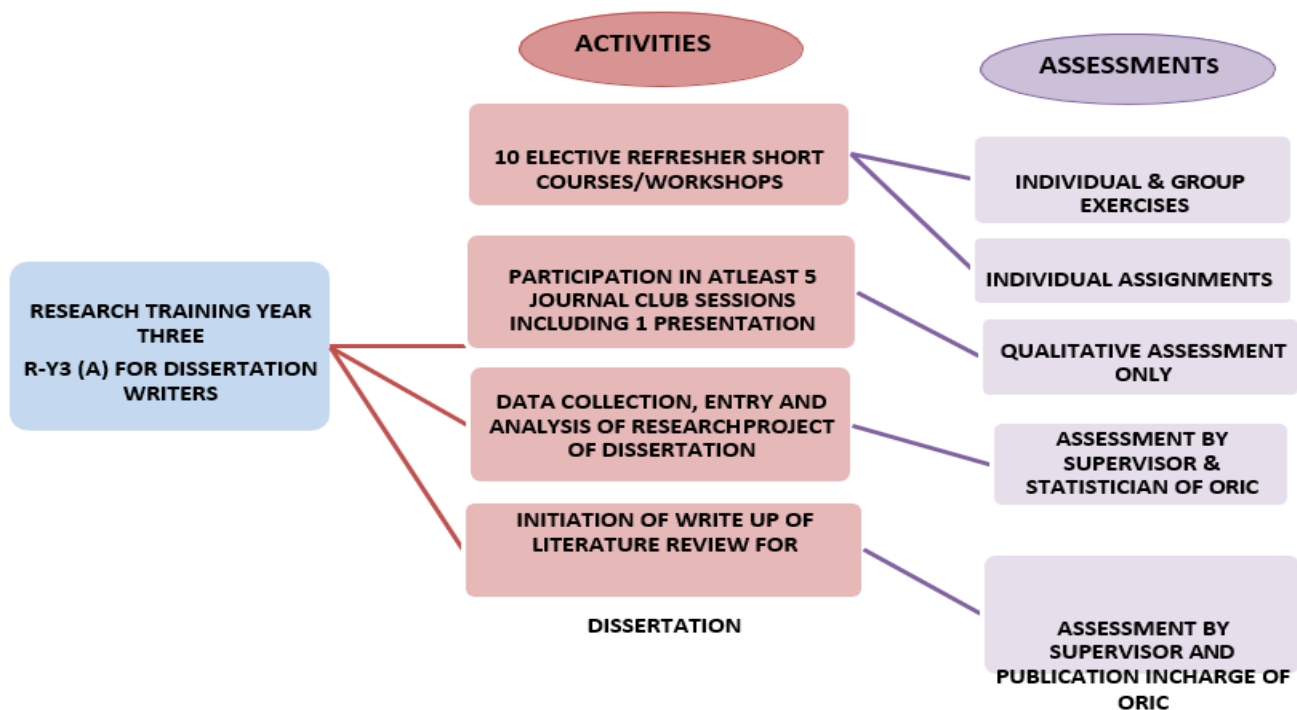
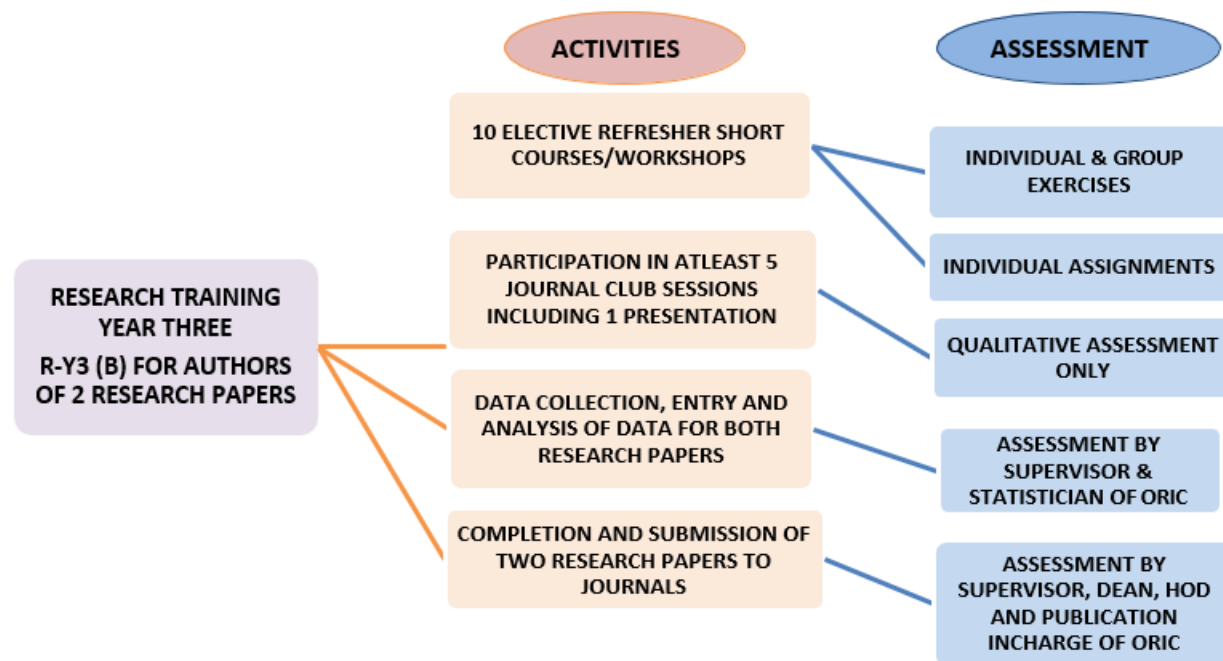


Figure 4 (B) . A FLOW CHART OF RESEARCH ACTIVITIES AND RELEVANT ASSESSMENTS OF R-Y3 POST GRADUATE TRAINEES OF RMU OPTING FOR PUBLICATION OF TWO RESEARCH PAPERS AS REQUISITE TO CPSP FELLOWSHIP DEGREE



RESEARCH COURSE OF FOURTH POST GRAUDATION TRAINING YEAR R-Y4

PURPOSE OF R-Y4 RESEARCH COURSE:

During the fourth year of training the post graduate trainees will receive extensive practical hands on experience of conducting individual research project and then transformation of this project's report into a dissertation or original articles, in perspective of the knowledge and skills they will acquire during year initial three years of post graduate training. This course will make them proficient to conduct extensive literature search and using available information delve into existent findings and evidences of research, critically appraise them and then explore how to transform them into clinical practice. The fourth year of training will be purely practical where no formal didactic lectures or sessions will be held.

LEARNING OUTCOMES OF R-Y4 RESEARCH COURSE

After completion of R-Y4 course the trainees should be efficiently able to:

1. Identify and execute proficiently all procedures required for data analysis and interpretation.
2. Analyze and interpret the data collected for a research project and draw conclusions related to the objectives of study.
3. Write a clear and concise research report (paper for a peer reviewed journal/dissertation) and a summary of the major findings and recommendations for each of the different parties interested in the results.
4. Present the major findings and the recommendations of a study to policy-makers, managers and other stakeholders to finalize the recommendations.
5. Prepare a plan of action for the dissemination, communication and utilization of the findings and (if required) make recommendations for additional future research.
6. Critically appraise a research paper of any national or international journal.
7. Present research papers published in various national and international journals at journal club.
8. Prepare and complete final research Dissertation/ original articles, requisite to the post graduation degree of trainee, under the guidance of the nominated supervisor.
9. Present and defend a research final research Dissertation/ original article project to concerned authorities.

RESEARCH COURSE OF FOURTH TRAINING YEAR

The fourth year of post graduate of training will be purely practical where no lectures, courses or workshops will be held and the trainee will be directly involved under the supervisor's and staff members (of ORIC) guidance in actual implementation of research. The following activities related to research will be carried out by the trainee during the last and final year of research course.

A. COMPLETION OF RESEARCH PROJECT AND ITS WRITE UP AS A DISSERTATION

This section A implies only for the trainees who will be either MD scholars or those post graduate trainees following option A of CPSP i.e. writing dissertation, as requisite to fellowship of CPSP.

- I. The trainees writing dissertations should have completed their data collection and entry by the end of third year of training and will have also initiated write up literature view for the dissertation.
 - ii. As soon as the year four of training commences, these trainees should complete the introduction and literature review sections of their dissertations along with proper referencing during first three months of R-Y4. They will be continuously guided in this task by their supervisors, research associates and the publication in charge at the ORIC.
 - iii. The trainees, In the meanwhile, will also seek continuous assistance of statisticians of Data analysis unit of ORIC for data analysis in statistical soft ware. Trainees will be guided how to interpret the results, how to determine the statistical significances and how to write these results in textual, tabulated and graphical forms. They will have to complete their data analysis and write up of results till fourth month of year 4.
 - iv. The supervisor and publication in charge at ORIC will also guide the trainee to write the section of "discussion" for their dissertations based on the comparison of the findings of their study with the previously available research nationally as well as internationally.
 - v. The trainees will also identify strengths and weaknesses of their study and should make recommendations with statement of final conclusion.
 - vi. According to the required referencing systems the reference lists and in text citation will also be completed correctly.
- vii.** After writing the abstract and cover pages and annexure of the dissertation, the trainee will submit his/her dissertation's final draft to publication in charge ORIC for plagiarism detection through turn-it-in soft ware. Any dissertation that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing till the eligible scores will be reached.

viii. Then the trainee should submit final draft of dissertation to the supervisor and head of department till end of fifth month of year for final modifications. Since the supervisor will be incessantly involved in every aspect of the project since the beginning and will be persistently guiding the procedure, so he/she should not take more than 10 days to give final review to dissertation of the trainee with written feedback that will be entered in a structured performa with recommendations for improvement or corrections. The Head of Department will also provide his feedback within 10-15 days.

ix. Based on the feedback of the reviews, the trainee will make final editing and will get the dissertation printed and submitted to the degree awarding authority accordingly (BASR for MD trainees and CPSP for post graduate trainees of fellowship) for review for acceptance before third week of sixth month of year 4.

x. The trainee will also submit a copy of dissertation to head of department, the Dean, Director of ORIC and Chairperson of BASR that will be dealt as a confidential document in order to avoid potential risk of plagiarism.

xi. While the dissertations will be under review by the degree awarding authority for acceptance, the trainees will be continuously guided by the supervisor and the research associates at ORIC regarding defense of their dissertation. They will be guided how to make effective presentations according to the format provided by the examination authorities and also how to successfully and confidently respond to the queries of examiners.

xii. In case the dissertation is sent back with recommended corrections or modifications, the supervisor and research associates at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within at least 10 days' time and not more than it.

B. RESUBMISSION OF RESEARCH PAPER/S IN CASE MODIFICATIONS ADVISED OR REJECTED FOR PUBLICATION BY A JOURNAL

This section B implies only for the post graduate trainees who will be opt for two research paper submission as requisite to fellowship of CPSP and provided one or both of their research paper/s is/are sent back for modifications or rejected publication.

i. In case the research paper/s is/are sent back with recommended corrections or modifications, the supervisor, publication in charge and concerned facilitators at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time.

ii. In case any of the paper is refused publication by a journal even then the supervisor and publication unit at ORIC will assist the trainee on urgent basis, to get it rectified and resubmitted to another target journal of choice within next 10 days' time without any delay.

C. SUBMISSION OF ACCEPTANCE LETTERS OF APPROVED RESEARCH PAPER/PAERS AND SUBMISSION OF HARD AND SOFT COPIES OF PUBLISHED RESEARCH PAPER/S TO CPSP

This section C implies only for the post graduate trainees who will be opt for two research paper submission as requisite to fellowship of CPSP and provided their research paper/s is/are approved by journals and are published.

- i. In case the research paper/s is/are approved by the target journals, the trainee will submit the letter of acceptance/s to CPSP in addition to copies to supervisor, HOD, Dean and Publication in charge of ORIC.
- ii. When the original article will be published in journal/s, then the trainee will submit hard and soft copies of the original journal with his/her published articles to CPSP in addition to copies to supervisor, HOD, Dean and Publication in charge of ORIC and BASR.

D. PARTICIPATION IN JOURNAL CLUB SESSIONS

- i. Since the journal club is one of the best sources to provide awareness of best current clinical research, its implementation and utilization so its importance cannot be overlooked. In spite of a demanding and eventful fourth year of training, the participation of trainee in the journal club will still be mandatory.
- ii. The participation of trainees in journal club during R-Y4 will complement their knowledge and skills that will be beneficent in write up as well as defense of dissertation but also enhance their evidence based clinical skills.
- iii. However, to decrease the trainees' workload during final year of training, only participation in journal club will be mandatory and he/she will be exempted from making a presentation during R-Y4.
- iv. The R-Y4 trainee will still be expected to actively participate in discussion and also in question & answer session of the journal club meeting. It will be compulsion for each R-Y4 trainee to ask at least one question or make at least one comment relevant to the topic and/or the research paper, during the journal club meeting.

Minimal Attendance of Journal Club meetings by R-Y4 trainee:

The R-Y4 trainees should attend at least 5 out of 6 journal club meetings during their last year of training.

Assessment of Trainees for Journal Club sessions:

There will be no formal quantitative or qualitative assessment of the trainee and they will also not make any formal presentation in the journal club during R-Y4.

E. MONITORING OF RESEARCH ACTIVITIES OF YEAR 4

- i. During the last year of training of post graduate trainees, they will be scrutinized for each and every activity of dissertation completion by research centers of specialties, supervisors, Head of Departments and the research associates and Deputy Directors at the Office of Research Innovation & Commercialization of RMU.
- ii. The structured component of research in Log books of fourth training year will pertain to various components of their research projects including timing and completeness of data analysis, result write up, introduction, literature review's write up, methodology, discussion, recommendations, conclusions and cover pages.
- iii. The logbooks will also include the attendance details of the trainees in the Journal club sessions of the department during R-Y4. This information will be endorsed by the supervisor of the trainee and the HOD.
- iv. The Logbooks of the trainees in addition to the Research portfolio during the fourth year will be endorsed by the supervisor and Deputy Directors of ORIC. The research portfolio of the R-Y4 will again include self-assessment regarding research activities of the trainee in narrative form. In addition to individual assessment of the objectives and aims formulated for the fourth year of training and their successful attainment, it will also include participation in any research course/s, conference/s and/or competition/s etc. during year R-Y4.

F. OVERALL ASSESSMENT OF PERFORMANCE OF TRAINEES DURING R4

- i. The overall assessment of performance of trainee will not rely on any scores or marks attained by trainees since there will not be any examination Paper or scoring for the home tasks assignments or presentation of journal club.
- ii. The Heads of department and the director of ORIC will observe research portfolio of trainees in addition to the log books for attendance record and the remarks of supervisor regarding his/her opinion regarding the trainee's overall performance during fourth year of training. Based on their observations, they will evaluate the completeness and quality of performance of each activity of trainee during fourth year.
- iv. In case of any deficiencies or weaknesses, the trainee and supervisor will be called by the Heads of department and the director of ORIC who will direct them on how to improve accordingly.

G. EVALUATION/ FEEDBACK OF RESEARCH COURSE OF YEAR 4

The research course and activities of third year of training will be evaluated by the trainees, facilitators ORIC and supervisors.

- i. The end of year R-Y4 and end of four years' research training feedback of trainees will include structured evaluation through feedback questionnaire not only for fourth year but also for entire four year of research training. It will be anonymous and apart from questions phrased in Likert scale, open ended questions will also be included for the opinions of trainees.
- ii. The end of year R4 and end of four years' research training feedback of trainers will also reflect the anonymous feedback for the opinions of all supervisors and facilitators regarding benefits, drawbacks or weaknesses of R-Y4 course as well as of entire four year's research training course.
- iii. Three focus group discussions; one of the R-Y4 trainees, second of the concerned facilitators and third of the supervisors will also be organized by the ORIC to evaluate the entire four year's research course, its benefits and weaknesses and scope for improvement.
- iv. A final evaluation report of the Research Course R-Y4 and entire 4 years' research training Course will be formulated and compiled by the ORIC of RMU. The report will be presented to all concerned stakeholders.

H. QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 4

- i. The quality assessment of research course of R-Y4 as well as the entire four years' research course will be carried out through review of materials and observations of proceedings by the evaluation team of RMU.
- ii. The research dissertations submitted by post graduate trainees will be observed as confidential evidences by Director of ORIC, Dean and chairperson of BASR for quality assessment. No other person will have access to these manuscripts in order to avoid any risk of potential plagiarism.
- iii. ORIC will submit evaluation content of R-Y4 to all stakeholders including a copy to the Quality Enhancement Cell (QEC) of RMU for internal as well as external evaluation.
- v. An annual meeting of the trainers by end of year 4, will be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, QEC, DME & IREF, to review and discuss all the evaluation materials of R-Y4, its quality and any recommendations for quality enhancement, under the chairmanship of Vice chancellor of RMU.

The activities of trainees of RMU are displayed in figure 5(A) and 5 (B), according to their concerned options. Successful completion of above-mentioned requirements of research course will be mandatory requirement for completion of Post Graduate training final year as well as for MD scholar's training at RMU.

Figure 5 (A). A FLOW CHART OF RESEARCH ACTIVITIES AND ASSESSMENTS OF R-Y4 POSTGRADUATE/MD TRAINEE OF RMU WHO WILL OPT FOR DISSERTATION WRITING

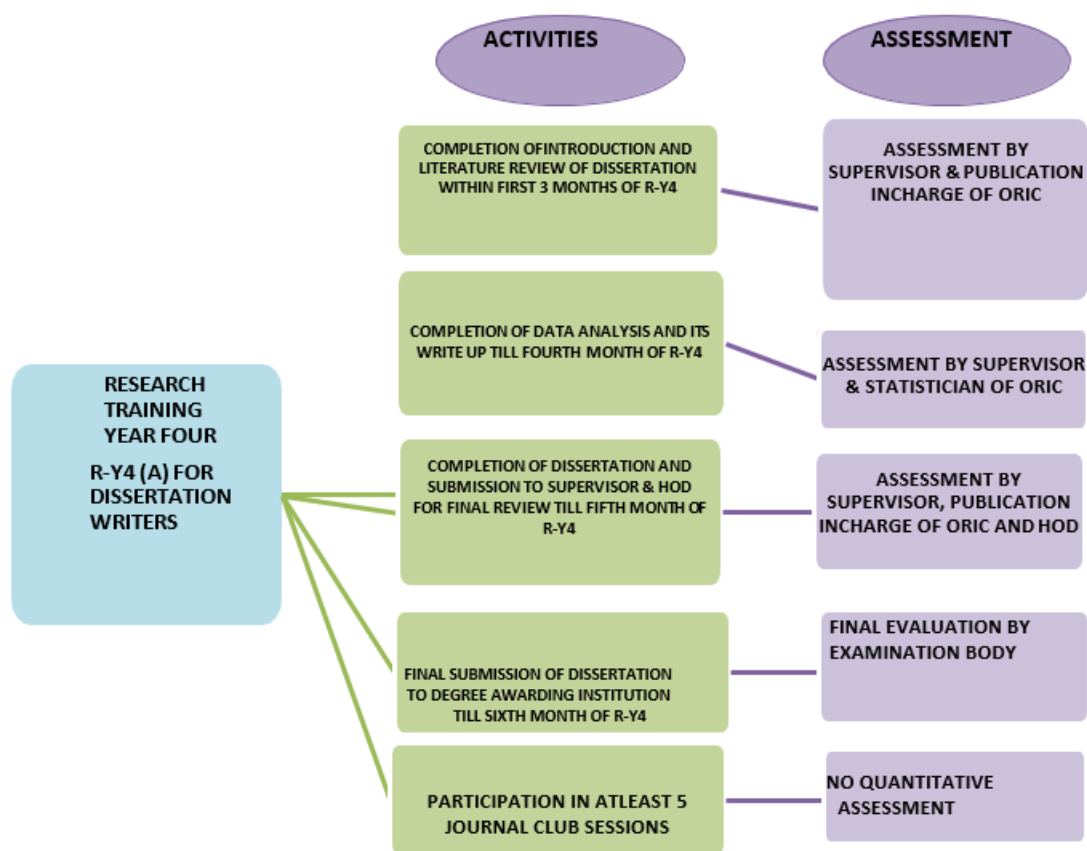
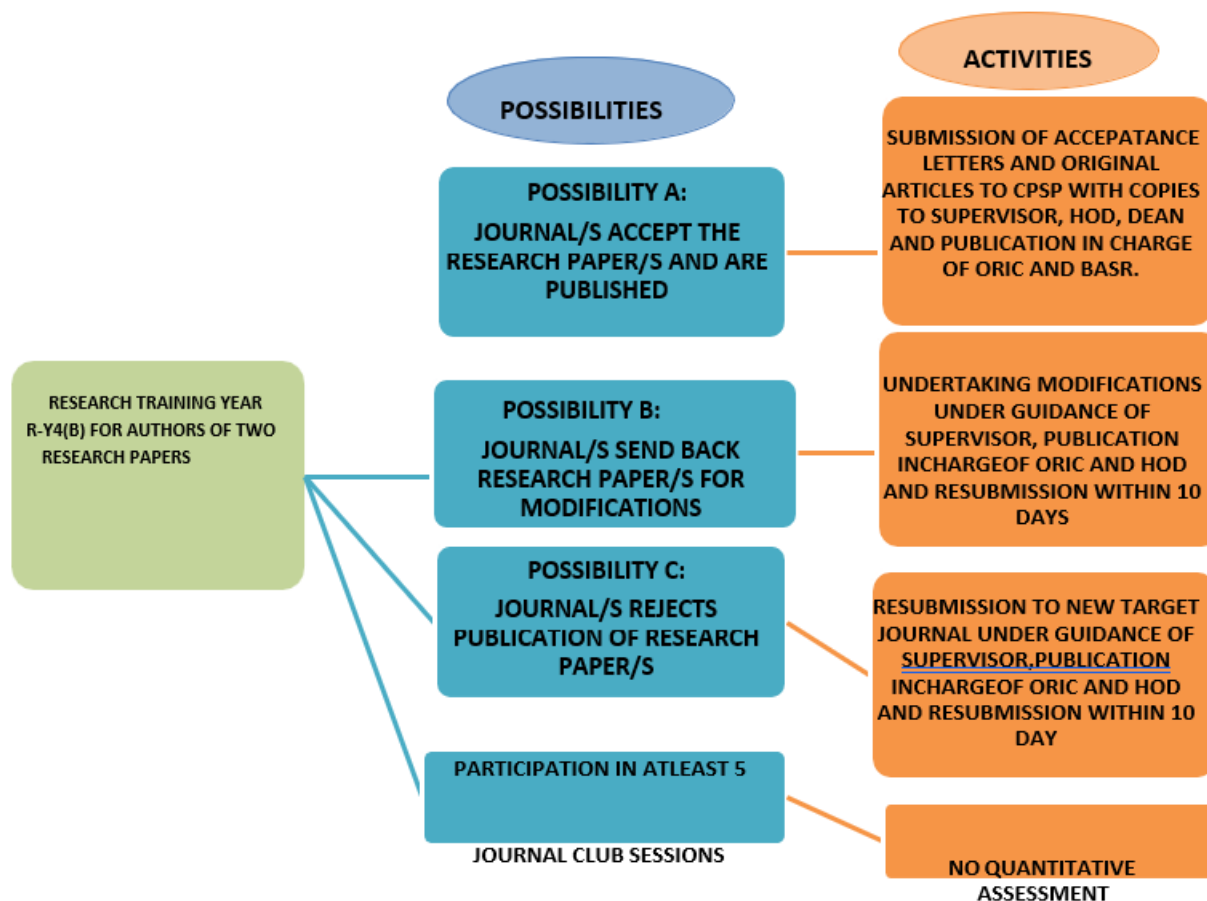
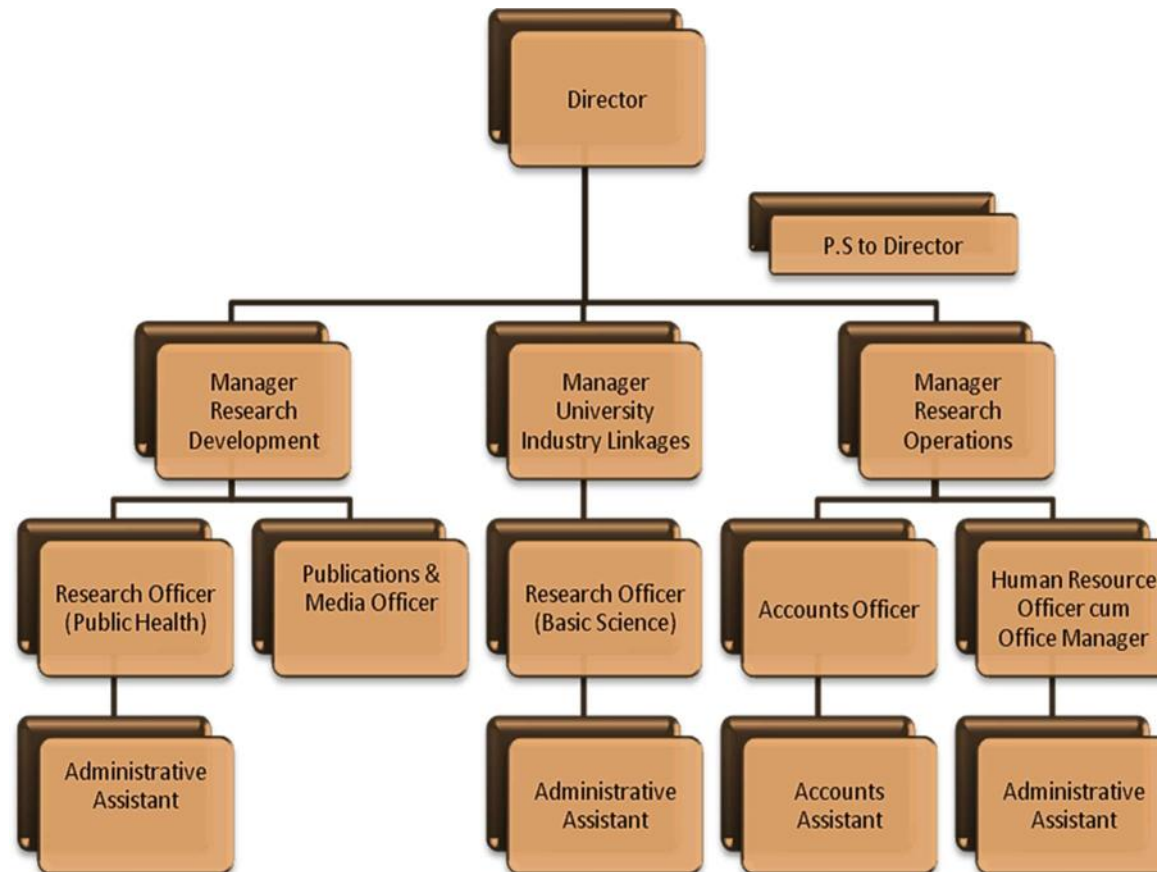


Figure 6 (B). A FLOW CHART OF RESEARCH ACTIVITIES AND ASSESSMENTS OF R-Y4 POSTGRADUATE OF RMU WHO WILL OPT FOR 2 RESEARCH PAPERS AS REQUISITE TO CPSP FELLOWSHIP DEGREE



ANNEXURE 1

THE ORGANIZAITONAL CHART OF ORIC OF RMU



Note: Managers of ORIC are also referred to as Deputy Directors in RMU

ANNEXURE 2

TERMS OF REFERENCES OF STAFF MEMBERS OF RMU WITH REFERENCE TO THE RESEARCH TRAINING PROGRAM OF POST GRADUATE TRAINEES OF RMU

A. Role of the Vice Chancellor

1. Approval of External Supervisors:

- The Vice Chancellor of RMU is the final authority for approving external supervisors for MD scholars in consultation with the Dean.

2. Nomination of Internal Supervisors:

- No changes in internal supervisor nominations for MD and CPSP trainees after R-Y1, except in cases of serious incompatibility, which will be decided solely by the Vice Chancellor.

3. Quality Evaluation Oversight:

- Heads the quality evaluation team, including HODs, Deans, BASR representatives, IREF, ORIC, and QEC directors, selecting team members at discretion.

4. Surprise Evaluations:

- Holds the authority to conduct surprise inspections, evaluations, and rounds to ensure research training quality without prior notice.

5. Annual Trainer's Meeting:

- Chairs an annual meeting organized by the QEC, attended by supervisors, HODs, Deans, and representatives from BASR, ORIC, QEC, and IREF.

6. Research Course Modifications:

- Based on year-long evaluations and annual assessments, the Vice Chancellor, alongside BASR, determines modifications for the next research training course.

7. Endorsement of Research Proposals:

- Research proposals submitted to BASR by MD scholars will receive an acceptance letter, officially endorsed by the Vice Chancellor.

B. Board of Advanced Studies and Research (BASR) – Responsibilities

1. Supervisor Approval & Proposal Appraisal:

- BASR finalizes and approves the list of supervisors and appraises MD scholars' research proposals, issuing acceptance letters endorsed by the Vice Chancellor. Required modifications must be addressed within a week before final approval.

2. Quality Monitoring & Evaluation:

- BASR representatives, selected with the Vice Chancellor, conduct random visits to assess research training quality, ensuring compliance with academic standards.

3. Confidential Review of Research Publications:

- BASR evaluates research papers submitted for CPSP-accredited journals as confidential quality evidence.

4. Annual Quality Assurance & Policy Updates:

- Representatives attend the annual quality assurance meeting, share evaluation insights, and recommend policy improvements for research training.

C. Institutional Research and Ethics Forum (IREF) – Responsibilities

1. Proposal Approval & Defense:

- IREF conducts monthly meetings where trainees present and defend their research proposals alongside their supervisors.

2. Review & Approval Process:

- Members review proposals beforehand, assess presentations, and provide verbal approval followed by a written approval letter within two weeks. Required modifications must be addressed within a week before final approval.

3. Quality Monitoring & Ethical Oversight:

- Representatives conduct random visits to assess research activities and ensure adherence to ethical and quality standards.

4. Annual Evaluation & Policy Recommendations:

- IREF members participate in the annual quality assurance meeting, share insights from evaluations, and propose research training enhancements to BASR.

D. Role of the Dean of Specialty

Journal Club & Supervisor Selection:

Chairs journal club meetings, selects research papers, and notifies departments in advance.

Oversees supervisor selection for MD and postgraduate trainees, ensuring mutual agreement between trainee and supervisor.

Finalization & Approval of Research Topics:

Approves research topics after verifying no duplication within departments.

Submits the finalized research proposal list to BASR in the fourth month of R-Y2.

Clinical Audits & Presentations:

Assigns clinical audit topics, ensures their publication in annual reports, and facilitates their presentation in CPC meetings.

Monitoring Research Feasibility & Confidentiality:

Ensures research feasibility and resource availability for MD scholars.

Receives and confidentially assesses final manuscripts and published research articles to prevent plagiarism risks.

Research Evaluation & Quality Assurance:

Participates in quality evaluations, conducts surprise visits, and attends the annual Quality Enhancement Cell meeting to validate research training standards.

E. Role of the Head of Department (HOD)

1. Supervision & Nomination of Supervisors:

- Oversees all research activities in coordination with the Dean and supervisors.
- Recommends suitable supervisors for trainees based on observation, ensuring compatibility.
- Participates in supervisor nomination meetings, finalizing assignments in collaboration with the Dean.

2. Monitoring Research Activities:

- Ensures weekly supervisor-trainee meetings are documented and reviewed monthly.
- Evaluates feasibility and resources for research projects before initiation in Year 2.
- Reviews and provides feedback on dissertation drafts and maintains confidentiality of final manuscripts.

3. Clinical Audits & Journal Club:

- Assigns and supervises clinical audits, ensuring publication in Annual Audit Reports.
- Oversees CPC presentations and journal club participation, documenting trainee contributions.

4. Evaluation & Quality Assurance:

- Monitors logbooks, assessing research progress, facilitator evaluations, and home assignments.
- Addresses deficiencies by providing guidance to trainees and supervisors.
- Conducts end-of-course evaluations, makes surprise visits, and participates in the annual quality assessment meeting to enhance research training.

F. Role of the Director of ORIC

1. Orientation & Training Sessions:

- Conducts an introductory session for new postgraduate trainees, explaining the four-year research training structure, assessment methods, and ORIC's role.
- Delivers select research training sessions in R-Y1 & R-Y2 and refresher workshops in R-Y3, including lectures, exercises, and assignments.

2. Monitoring & Evaluation:

- Continuously monitors trainees' academic activities, evaluates research portfolios, and provides guidance for improvement.
- Supervises the formulation of the research training evaluation report, submitting findings to relevant departments and QEC for assessment.

3. Quality Assurance & Course Oversight:

- Serves as a member of the research quality evaluation team, reviewing records, making surprise visits, and assessing various training components like lectures, journal clubs, and IREF meetings.
- Participates in the annual quality assessment meeting to discuss evaluation findings and propose course enhancements.

4. Confidentiality & Documentation:

- Secures copies of submitted research papers and dissertations to prevent plagiarism risks.
- Ensures compliance with research standards and maintains records of trainees' scholarly work.

G. Role of the Deputy Directors of ORIC

1. Orientation & Training Sessions:

- Conducts an introductory session for new postgraduate trainees, outlining the four-year research course, assessment procedures, and ORIC structure.
- Delivers research training sessions in R-Y1 & R-Y2, including lectures, exercises, and assignment evaluations.

2. Academic Oversight & Evaluation:

- Reviews and endorses records and scores for individual/group assignments and annual research exams in R-Y1 & R-Y2.
- Conducts refresher workshops in R-Y3, facilitates trainee exercises, and evaluates assignments.
-

3. Research Consultation & Monitoring:

- Assists trainees in refining research questions during R-Y2 and advises on feasibility and modifications.
- Continuously monitors trainees' research activities, logbooks, and portfolios, ensuring completeness and quality.

4. Quality Assurance & Reporting:

- Evaluates the research course through session and course-end feedback forms.
- Monitors submission of evaluation reports, ensuring copies are sent to the Quality Enhancement Cell (QEC) for internal assessment.

H. Role of Research Associates at ORIC

1. Training Facilitation & Record Keeping:

- Assist in orientation sessions and facilitate research training in R-Y1 & R-Y2, supporting individual and group exercises.
- Maintain digital and hard copy records of trainees' assignments, scores, and logbook entries throughout all training years.

2. Research Guidance & Methodology Support:

- Provide consultation on research question feasibility in R-Y2 and guide trainees in research methodology, data collection tool formulation, and pre-testing.
- Ensure research projects have a realistic timeline for timely completion and proper execution.

3. Proposal Submission & IREF Presentation Preparation:

- Assist trainees in submitting research proposals to IREF, ensuring correct formatting and electronic submission.
- Guide trainees in preparing research proposal presentations for IREF meetings.

4. Dissertation Support & Defense Preparation:

- Support trainees in writing the introduction and literature review sections in early R-Y4.
- Provide step-by-step guidance for dissertation defense, including presentation skills and examiner response strategies.

5. Correction & Resubmission:

- Assist trainees in promptly addressing and resubmitting dissertation modifications within 10 days if required by the reviewing authority.

I. Role of the Publication In-Charge at ORIC

1. Training & Literature Review Support:

- Conducts sessions on literature search, review, and academic writing, facilitating exercises and assessing assignments.
- Guides trainees in writing literature review and discussion sections by comparing study findings with national and international research.

2. Plagiarism Screening & Approval:

- Reviews research proposals and final manuscripts using Turnitin, ensuring an originality score of $\geq 90\%$ and similarity index $\leq 10\%$ before approval and further processing.

3. Research Paper Submission & Resubmission:

- Assists trainees in formatting and submitting research papers for publication, ensuring compliance with journal standards.
- Supports trainees in revising and resubmitting rejected or corrected papers within 10 days to avoid delays in publication.

J. Role of Statisticians at ORIC Data Analysis Unit

1. Training & Biostatistics Support:

- Conducts sessions on basic and advanced biostatistics, epidemiology, and research methodology, facilitating exercises and evaluating assignments.

2. Data Analysis & Sample Size Calculation:

- Assists trainees in sample size determination and planning data analysis based on study design.
- Guides data coding, cleaning, and sorting for accurate research outcomes.

3. SPSS & Statistical Interpretation:

- Supports trainees in creating data entry sheets in SPSS and oversees the entire data entry process.
- Provides guidance on data analysis, interpretation, and presentation in tables, graphs, and textual formats.

4. Corrections & Resubmissions:

- Assist trainees in revising and resubmitting corrected research papers or dissertations within 10 days if modifications are required in the results section.

K. Role of the Department of Medical Education (DME)

1. Quality Assurance & Evaluation:

- The Director of DME is part of the research training quality evaluation team, conducting random visits for assessment.
- Attends the annual quality assurance meeting to review observations and validate training materials.

2. Attendance & Academic Record Maintenance:

- Demonstrators track attendance, assessments, and scores of postgraduate trainees and MD scholars.
- Maintains logbooks and research portfolios, ensuring completeness and regularity, with records stored both digitally and in hard copies, shared with ORIC and QEC.

J. Role of the Supervisor in Dissertation Projects

1. Nomination & Agreement:

- Supervisors are nominated within the first six months, finalized by the Dean and HODs based on trainee compatibility.
- A supervision agreement is submitted to the Dean, with copies sent to HOD, ORIC, and BASR.

2. Trainee Mentorship & Research Oversight:

- Conducts weekly research meetings, documents progress in logbooks, and monitors all research-related activities.
- Guides trainees in literature review, research question finalization, and research proposal development by the eighth month of R-Y2.
- Ensures feasibility, adequate resources, and realistic timelines for research projects.

3. Journal Club & Ethical Approval:

- Assists trainees in preparing for journal club presentations and proposal defense at IREF.
- Supports trainees in developing and pre-testing data collection tools for research execution.

4. Data Collection & Analysis:

- Supervises data collection initiation in Year 3, ensuring quality control and proper data storage.
- Guides trainees in data analysis and results interpretation for dissertations or research papers.

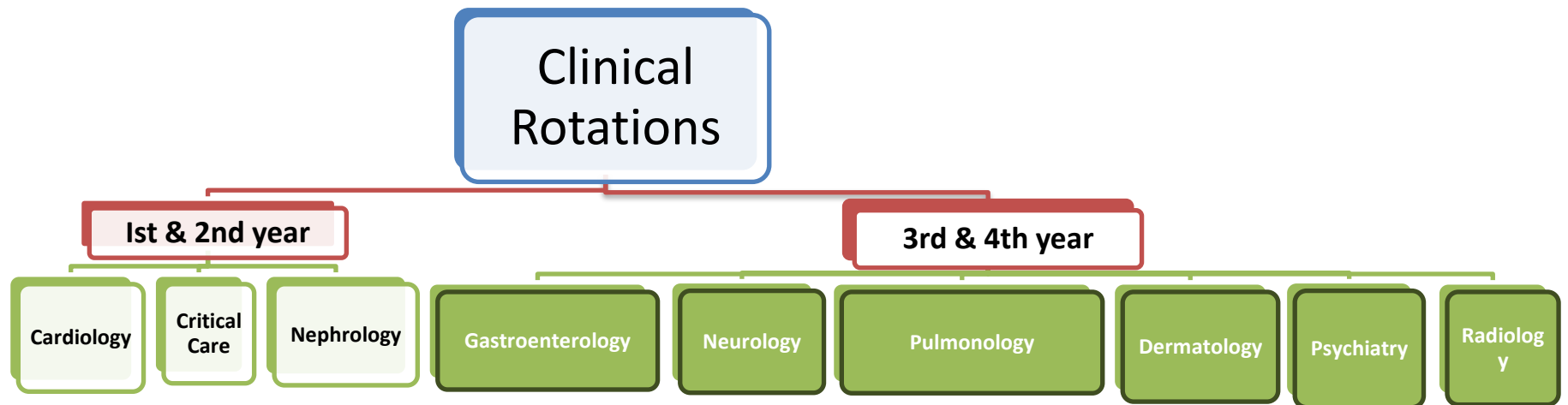
5. Dissertation & Publication Support:

- Reviews dissertation drafts, providing structured feedback within 10 days.
- Assists in correcting and resubmitting research papers or dissertations if modifications or journal rejections occur, ensuring timely resubmission.
- Prepares trainees for dissertation defense, refining presentation skills and response strategies for examiner queries.

SECTION NO. 5

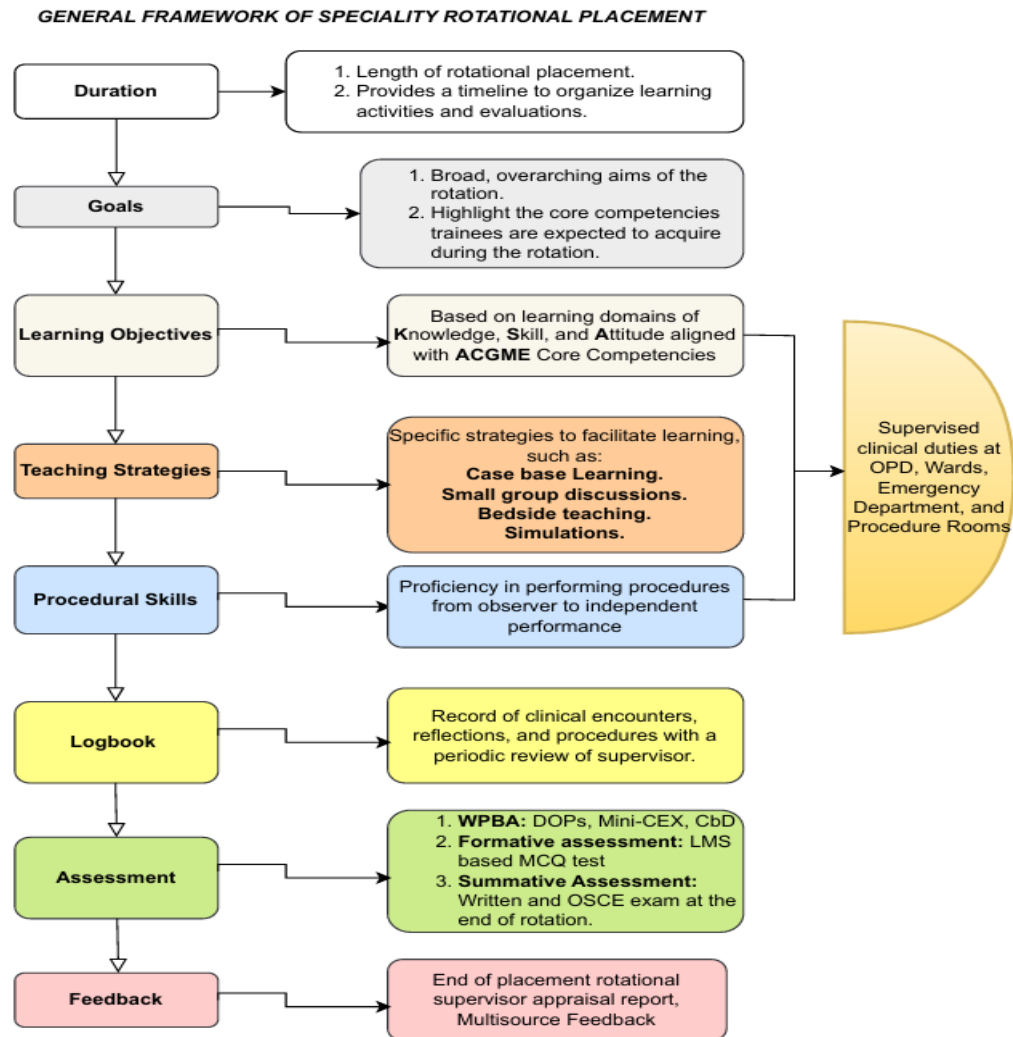
**MANDATORY ELECTIVES (CLINICAL
ROTATIONS)**

MANDATORY ELECTIVES/CLINICAL ROTATIONS FOR FOUR YEAR TRAINING PERIOD OF MD MEDICINE



GENERAL FRAMEWORK OF ELECTIVE/ CLINICAL ROTATION

The framework of a Clinical rotational placement is a structured plan designed to guide the learning, assessment, and professional development of medical trainees during a specific clinical posting. It outlines the educational objectives, competencies to be achieved, and the activities and assessments planned to facilitate and evaluate learning. A general outline of specialty rotational framework for MD Medicine curriculum of RMU is given below:



SECTION 5.1

ELECTIVES/CLINICAL ROTATIONS CURRICULUM

CARDIOLOGY CLINICAL ROTATION CURRICULUM FOR MD MEDICINE

Duration: 2 months Year of Training: 1 st /2 nd year Program: MD Medicine (Rawalpindi Medical University) Competency Framework: Based on ACGME Core Competencies	Goals 1: Develop a detailed understanding of cardiovascular physiology and pathology. 2: Attain proficiency in diagnosing and managing common cardiovascular conditions. 3: Acquire skills in performing and interpreting cardiovascular diagnostic procedures. 4: Understand principles of cardiovascular disease prevention, management, and rehabilitation.
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Competency	Learning Objectives	Teaching Strategies
Patient Care	1: Perform detailed cardiovascular history-taking and physical examinations. 2: Identify, diagnose, and manage prevalent cardiovascular conditions, including hypertension, coronary artery disease, heart failure, arrhythmia, and valvular heart diseases. 3: Manage acute cardiovascular emergencies (e.g., acute coronary syndrome, arrhythmias, pulmonary embolism). 4: Deliver culturally sensitive, compassionate, and patient-centered care.	Bedside teaching, Small group discussions, Seminars, Conference, Journal club, OPD, Ward, and emergency duties under supervision,
Medical Knowledge	1: Understand the pathophysiology, clinical presentations, and evidence-based management of cardiovascular diseases. 2: Recognize indications, contraindications, and complications of diagnostic and interventional cardiovascular procedures (e.g., echocardiography, stress testing, cardiac catheterization, angioplasty). 3: Stay updated with current international guidelines, including ESC, AHA/ACC, and other evidence-based practices in cardiology.	
Procedural Skills	1: Perform and interpret ECGs independently. 2: Observe and assist in cardiovascular procedures	Simulation based teaching, Procedure room duties, Workshops

	such as: Echocardiography Stress Testing Cardiac Catheterization Angioplasty 3: Gain supervised hands-on exposure to basic cardiovascular procedures (e.g., pericardiocentesis, defibrillation).	
Interpersonal and Communication Skills	1: Effectively communicate with patients, their families, and the multidisciplinary healthcare team. 2: Present cases logically and succinctly during cardiology rounds, and discussions. 3: Counsel patients about cardiovascular risk factors, lifestyle modifications, and preventive strategies in culturally appropriate ways.	Small group discussion, & Bedside teaching,
Professionalism	1: Exhibit professionalism by maintaining ethical standards, patient confidentiality, and respectful behavior. 2: Demonstrate empathy and sensitivity toward the psychological and social impact of cardiovascular diseases on patients and families.	
System based practice	1: Understand the role of cardiology services in the broader healthcare system, including resource utilization and cost-effectiveness.	

LEARNING CONTENT:

Topics to be learned

Learning Domain	Learning Objectives
Knowledge	<p>1: Describe the physiology of the cardiovascular system.</p> <p>2: Explain the pathophysiology, clinical features, diagnostic protocol, and treatment of common cardiovascular diseases, including:</p> <ul style="list-style-type: none">- Hypertension- Ischemic heart disease (acute coronary syndrome, stable angina)- Heart failure (systolic and diastolic)- Arrhythmias- Valvular heart diseases- Congenital heart diseases- Pericarditis & Pericardial effusion <p>3: Understand the principles of cardiovascular pharmacology, including indications and side effects of medications.</p> <p>4: Interpret cardiovascular diagnostic tests such as ECG, echocardiography, and cardiac biomarkers.</p>
Skill	<p>1: Perform accurate cardiovascular history and physical examinations.</p> <p>2: Conduct and interpret ECG.</p> <p>3: Perform echocardiography under direct supervision.</p> <p>4: Provide thrombolysis for the patients with STEMI and Pulmonary embolism.</p> <p>5: Perform cardiac defibrillation for the treatment of patients with hemodynamically unstable arrhythmias.</p> <p>6: Perform pericardiocentesis under supervision for diagnostic and therapeutic purposes.</p>
Attitude	<p>1: Demonstrate empathy and effective communication during patient encounters.</p> <p>2: Display professionalism by adhering to ethical standards and respecting patient confidentiality.</p>

ROTATIONAL STRUCTURE

- **Duration:** 8 weeks (2 months)
- **Weekly Schedule:**

Cardiology ward (1 st 4 weeks)	Cardiac OPD (1 st 4 weeks)	Procedure Room (1 st 4 weeks)	Cardiology Emergency (5 th to 8 th week)
3 days/week cardiology ward call from 2 pm to 8 am.	2 days per week from 8 am to 2pm	2-D Echo Room, ETT room, Cath lab (2 days/week from 8 am to 2 pm.	2 days/week from 8 am to 8 am.
Didactic Sessions	Self -directed Learning:		
(5 hours/week) Journal club, Case presentation, Simulation based training & Case based discussion	6 hours/week		

CLINICAL ACTIVITIES:

Activities
1: Orientation to the cardiology department. -
2: Introduction to cardiovascular diagnostic tools (ECGs, echocardiography).
3: Initial patient assessments and history-taking under supervision.
1: Observation and participation in routine outpatient/inpatient cardiology services.
2: Discussion of cases in morning and evening rounds.
3: Management of routine and acute cases in the cardiology ward.
1: Focus on ECG interpretation and arrhythmia management.
2: Exposure to interventional cardiology procedures (stress testing, cardiac catheterization).
3: Managing acute cardiovascular emergencies independently under indirect supervision.
4: Hands-on procedural exposure: defibrillation, pacemaker programming, and thrombolysis.
1: Patient education and counseling on cardiovascular health.
2: Participation in multidisciplinary care planning for complex cases
1: Submission of logbook and reflective entries for the rotation.
2: End-of-rotation assessments (written and practical exams).

ASSESSMENT

Formative:

WPBA	DOPs, Mini-CEX, CbD, 360 Degree Feedback
Written test	LMS based MCQ test
Reflective Entries	Assessment of insights gained during rotation.

Summative:

End of clinical rotational Placement written exam	60 MCQs based exam
End of clinical rotational placement OSCE exam	OSCE stations to assess history taking, physical examination, ECG and echocardiography report interpretation, case discussions, and counselling.

ROTATIONAL LOGBOOK/ E- LOG BOOK REQUIREMENTS:

Clinical cases of Indoor, OPD, and emergency	Minimum 20/month of each indoor, OPD, and emergency cases
Journal Club	2 /month
Case presentations	2 /month
Procedures	Thrombolysis in MI 4 /month under indirect supervision or independently, ECG recording and reporting 6/month independently, Management of arrhythmias and defibrillation 4/month independently, 2-D Echo 4/month under direct supervision

FEEDBACK:

Mid Rotational feedback from the rotational supervisor.

Multisource feedback at the end of the rotation.

Procedural Skills	<p>1: Perform and interpret the following under supervision:</p> <p>Central venous catheterization</p> <p>Arterial line insertion</p> <p>Endotracheal intubation</p> <p>Lumbar puncture</p> <p>2: Gain proficiency in:</p> <p>Basic and advanced airway management</p> <p>Chest tube insertion and management</p> <p>Use of point-of-care ultrasound (POCUS) for critical care decision-making</p>	Workshops, Simulation based teaching.
Interpersonal and Communication Skills	<p>1: Communicate effectively with patients' families to provide updates and discuss care plans in a sensitive and empathetic manner.</p> <p>2: Collaborate with multidisciplinary teams, including anesthesiologists, surgeons, and nursing staff.</p> <p>3: Present cases clearly and participate in critical care rounds and mortality review meetings.</p>	Bedside teaching, ICU on floor duty with supervised morning and evening rounds.
Professionalism	<p>1: Demonstrate professionalism in high-pressure environments by maintaining composure, ethics, and respect for all team members.</p> <p>2: Show empathy and provide culturally sensitive care to patients and families during critical care crises.</p> <p>3: Adhere to confidentiality and ethical guidelines, especially in end-of-life decision-making.</p>	
System based practice	<p>1: Understand the functioning of the ICU within the healthcare system, including resource utilization and triage protocols.</p> <p>2: Collaborate with other healthcare providers to ensure continuity of care for patients transitioning out of the ICU.</p>	

LEARNING CONTENT:

Topics to learn:

Learning Domain	Learning Objectives
Knowledge	<ol style="list-style-type: none">1. Describe the pathophysiology and management of the following topics: Sepsis, Septic shock with Multiorgan failure ARDS Respiratory failure (COPD, Asthma, Pneumonia) Pulmonary embolism Neurological disorders (Acute Flaccid paralysis, Myasthenia gravis) Cardiogenic shock Toxins and Poisoning (Organophosphate poisoning, Opioid Poisoning, Paracetamol overdose, Wheat pill poisoning, Neurotoxic snake, Botulism, Diphtheria, Tetanus) Fulminant hepatic failure Acute severe pancreatitis2. Learn principles of hemodynamic monitoring and Non-invasive and invasive mechanical ventilation.3. Understand pharmacological management in critically ill patients, including sedation and vasoactive agents.4. Stay updated on evidence-based practices in critical care medicine.
Skill	<ol style="list-style-type: none">1. Perform and interpret arterial blood gas analysis.2. Manage mechanical ventilation, including initiation and weaning under direct supervision.3. Recognize indication for BIPAP and CPAP and3. Insert central venous and arterial catheters under indirect supervision.4. Conduct basic and advanced cardiopulmonary resuscitation (ACLS).
Attitude	<ol style="list-style-type: none">1. Demonstrate professionalism and ethical decision-making in end-of-life care.2. Exhibit empathy and communication skills during family counseling in critical care settings.

ROTATIONAL STRUCTURE

- **Duration:** 8 weeks (2 months)
- **Weekly Schedule:**

Critical Care ward (1 st 4 weeks)	
3 calls of 24 hours /week for 8 weeks	
Didactic Sessions	Self -directed Learning:
(10 hours/week) Journal club, Case presentation, Simulation based training & Case based discussion	24 hours/week

CLINICAL ACTIVITIES.

Activities
Orientation to the critical care unit (ICU/CCU) and patient management protocols. Initial patient evaluations and documentation under supervision. Management of critically ill patients, including ventilator management and resuscitation. Interpretation of advanced hemodynamic monitoring parameters. Develop and present care plans during critical care teaching rounds. Focus on weaning strategies for ventilated patients and discharge planning.
Hands-on training in basic critical care procedures (e.g., arterial line insertion, POCUS). Focused training on management of acute critical care conditions (e.g., sepsis, ARDS, shock). Observation and supervised performance of endotracheal intubation and central line insertion. Participation in rapid response and code blue simulations.
Final evaluations, including written and practical assessment of critical care competencies. Submission of logbook and reflective entries on rotation experiences.

ASSESSMENT:

Formative:

WPBA	DOPs, Mini-CEX, CbD, 360 Degree Feedback
Written test	LMS based MCQ test
Reflective Entries	Assessment of insights gained during rotation.

Summative:

End of clinical rotational Placement written exam	60 MCQs based exam
End of clinical rotational placement OSCE exam	OSCE stations of ABGs report interpretation, Mechanical ventilator settings, NIV settings, case discussions, and counselling.

ROTATIONAL LOGBOOK/ E- LOG BOOK REQUIREMENTS:

Clinical cases documentation	Minimum 20/month
Journal Club	2 /month
Case presentations	2 /month
Procedures	CVP insertion 6 /month under indirect supervision or independently, Endotracheal intubation 6/month under indirect supervision or independently, Arterial tap for ABGs 7/month independently, Mechanical Ventilation 7/month under direct supervision, NIV 4/month under indirect supervision or independently.

Feedback:

Mid Rotational feedback from the rotational supervisor.
Multisource feedback at the end of the rotation.

NEPHROLOGY CLINICAL ROTATION CURRICULUM FOR MD MEDICINE

Duration: 2 Months Program: MD Medicine (Rawalpindi Medical University) Competency Framework: Based on ACGME Core Competencies	Goals
	Develop a thorough understanding of renal physiology, pathology, and principles of fluid, electrolyte, and acid-based balance. Gain proficiency in diagnosing and managing acute and chronic kidney diseases. Acquire skills in performing and interpreting nephrology-specific diagnostic procedures. Enhance understanding of dialysis modalities and renal replacement therapy.

Competency	Learning Objectives	Teaching Strategies
Patient Care	1: Perform comprehensive evaluations of patients with renal disorders, including history, physical examination, and laboratory data analysis. 2: Recognize and manage common renal conditions such as acute kidney injury (AKI), chronic kidney disease (CKD), nephrotic syndrome, and glomerulonephritis. 3: Manage patients undergoing renal replacement therapy, including hemodialysis and peritoneal dialysis. 4: Provide empathetic, culturally sensitive care to patients with end-stage renal disease (ESRD).	Bedside teaching, Small group discussions, Seminars, Conference, Journal club, OPD, Ward, and emergency duties under supervision.
Medical Knowledge	1: Understand the pathophysiology, clinical features, and management of kidney-related disorders. 2: Learn the principles of fluid and electrolyte management, acid-base disturbances, and their correction. 3: Stay updated with evidence-based guidelines for managing kidney diseases, dialysis, and	

	transplant care.	
Procedural Skills	1: Perform and interpret urinalysis. 2; Gain hands-on experience with kidney-related procedures, including: Placement of temporary vascular access for hemodialysis under supervision. Interpreting renal ultrasonography under supervision. Observe and assist in renal biopsy procedures.	Bedside teaching, Simulation based training, Workshops
Interpersonal and Communication Skills	1: Communicate effectively with patients and families about renal disease prognosis, management options, and dialysis education. 2: Collaborate with multidisciplinary teams, including dietitians, dialysis technicians, and social workers, for holistic patient care. 3: Present cases and actively participate in nephrology rounds and case discussions.	Bedside teaching, Small group discussions
Professionalism	1: Demonstrate ethical and professional behavior in managing patients with chronic and life-threatening renal diseases. 2: Show empathy, compassion, and respect in all interactions with patients, families, and colleagues.	
Systems-Based Practice	1: Understand the role of nephrology in the healthcare system, including access to dialysis and transplant services.	

LEARNING CONTENT:

Topic to be learned

Learning Domian	Content
Knowledge	<ol style="list-style-type: none">1. Describe the pathophysiology and management of the following topics: Acute kidney injury (AKI): etiology, diagnosis, and management Chronic kidney disease (CKD): staging, complications, and management Glomerular diseases (nephrotic and nephritic syndromes) Tubulointerstitial diseases Electrolyte and acid-base disorders Hypertension and kidney disease Diabetic nephropathy Urinary tract infections and obstructive uropathy Kidney stones End-stage renal disease (ESRD) and dialysis Kidney transplantation basics2. Learn indications and contraindications of hemodialysis and peritoneal dialysis.3. Interpret laboratory and imaging findings related to renal diseases.4. Stay updated with evidence-based guidelines in nephrology.
Skill	<ol style="list-style-type: none">1: Perform accurately history and physical examination of patients with renal disorders.2: Perform and interpret urinalysis.3: Gain hands-on experience with kidney-related procedures, including: Placement of temporary vascular access for hemodialysis under supervision. Interpreting renal ultrasonography under supervision. Observe and assist in renal biopsy procedure.
Attitude	<ol style="list-style-type: none">1. Develop empathy and cultural competence in the care of patients with chronic kidney disease.2. Exhibit professionalism in multidisciplinary team collaboration.3. Maintain patient confidentiality and ethical considerations in renal transplantation.

ROTATIONAL STRUCTURE:

- **Duration:** 8 weeks (2 months)
- **Weekly Schedule:**

Nephrology ward (1 st 4 weeks)	Nephrology OPD (1 st 4 weeks)	Dialysis Room (1 st 4 weeks)	Nephrology Emergency (5 th to 8 th week)
3 days/week Nephrology ward call from 2 pm to 8 am.	2 days per week from 8 am to 2pm	2 days/week from 8 am to 2 pm.	2 days/week from 8 am to 8 am.
Didactic Sessions	Self -directed Learning:		
(5 hours/week) Journal club, Case presentation, Simulation based training & Case based discussion	6 hours/week		

CLINICAL ACTIVITIES

Activities
1: Orientation to nephrology services and protocols. 2: Management of patients with acute kidney injury and chronic kidney disease. 3: Active involvement in the management of dialysis patients, including troubleshooting complications. 4: Presentation of cases during nephrology teaching rounds. 5: Participate in renal transplant evaluations and discussions. -
1: Observation of dialysis sessions and peritoneal dialysis catheter care. 2: Observation and assistance in renal biopsy procedures. 3: Hands-on practice of temporary vascular access placement under supervision
1: Participate in mortality and morbidity meetings for nephrology patients. 2: Final assessments and feedback from faculty on knowledge, skills, and professionalism.

ASSESSMENT:

Formative

WPBA	DOPs, Mini-CEX, CbD, 360 Degree Feedback
Written test	LMS based MCQ test
Reflective Entries	Assessment of insights gained during rotation.

Summative

End of clinical rotational placement written exam	60 MCQs based exam
End of clinical rotational placement OSCE exam	OSCE stations of history taking, physical examination, ABGs interpretation, DLC insertion, case discussion, and counselling

ROTATIONAL LOGBOOK/ E- LOG BOOK REQUIREMENTS:

Clinical cases documentation (OPD, Ward, & emergency)	Minimum 20/month each for OPD, Ward, and emergency
Journal Club	2 /month
Case presentations	2 /month
Procedures	Hemodialysis (8/month under indirect supervision), Double lumen catheter insertion (8/month under indirect supervision and independently), Renal biopsy (4/month under direct supervision).

Feedback:

Mid Rotational feedback from the rotational supervisor.
Multisource feedback at the end of the rotation.

GASTROENTEROLOGY CLINICAL ROTATION CURRICULUM FOR MD MEDICINE

Duration: 2 Months Program: MD Medicine (Rawalpindi Medical University) Competency Framework: ACGME Core Competencies	Goals
	1: Develop comprehensive knowledge of gastrointestinal (GI) and hepatobiliary anatomy, physiology, and pathophysiology. 2: Gain proficiency in diagnosing and managing common and complex GI disorders, including inflammatory, neoplastic, and functional conditions. 3: Acquire skills in basic endoscopic and GI-specific diagnostic procedures. 4: Enhance competence in managing acute GI emergencies, including GI hemorrhage and acute liver failure.

Competency	Learning Objectives	Teaching Strategies
Patient Care	1: Perform comprehensive evaluations, including detailed history, physical examination, and relevant investigations for patients presenting with GI symptoms. 2: Diagnose and manage conditions such as peptic ulcer disease, GERD, acute and chronic liver disease, IBD, and GI bleeding. 3: Recognize and treat acute abdominal emergencies	Bedside teaching, Small group teaching, Grand rounds, Seminar, Conference, Supervised OPD, Ward, and emergency duties.
Medical Knowledge	1: Describe the pathophysiology, clinical presentations, and management strategies for common and complex GI disorders. 2: Interpret laboratory tests (LFTs, stool studies) and imaging (ultrasound, CT, MRI) to guide clinical decision-making.	

	3: Stay updated on evidence-based guidelines for endoscopic procedures, GI bleeding management, and liver disease treatments.	
Procedural Skills	<p>1: Gain hands-on experience in GI-related procedures (e.g., diagnostic paracentesis, basic endoscopy observations, assisting in endoscopic hemostasis, NG tube insertion).</p> <p>2: Safely perform and interpret ascitic fluid analysis.</p> <p>3: Observe and assist in advanced procedures, including esophagoscopy and colonoscopy, under supervision.</p>	Bedside teaching, Simulation based training, Workshops
Interpersonal and Communication Skills	<p>1: Communicate clearly and empathetically with patients and families regarding diagnoses, treatment plans, and prognoses.</p> <p>2: Collaborate effectively with a multidisciplinary team, including dietitians, endoscopy nurses, surgeons, and oncologists.</p> <p>3: Present cases in departmental meetings and contribute to discussions on evidence-based practice.</p>	Bedside teaching, Case based discussions, Supervised OPD, Ward, and ER duties
Professionalism	<p>1: Adhere to ethical principles, patient confidentiality, and informed consent.</p> <p>2: Display compassion and respect, especially when managing chronic or end-stage GI and liver diseases.</p>	
Systems-Based Practice	<p>1: Understand referral pathways for advanced GI care, including liver transplantation and specialized endoscopic interventions.</p> <p>2: Collaborate with other healthcare professionals for coordinated GI care, from acute management to long-term follow-up.</p>	

LEARNING CONTENT:

Topics to be learned

Learning Domain	Content
Knowledge	<ol style="list-style-type: none">Describe the pathophysiology and management of the following GI and hepatobiliary conditions: Gastroesophageal reflux (GERD), peptic ulcer disease (PUD) Upper and lower GI bleeding etiologies Acute and chronic liver diseases (hepatitis, cirrhosis, portal hypertension) Pancreatic disorders (acute pancreatitis, chronic pancreatitis) Biliary tract diseases (cholelithiasis, cholangitis) Inflammatory bowel diseases (ulcerative colitis, Crohn's disease) GI malignancies (hepatocellular carcinoma, colorectal cancer)Identify indications and contraindications for endoscopic procedures (diagnostic and therapeutic).Interpret laboratory and imaging findings (liver function tests, stool studies, ultrasound, CT, MRI) relevant to GI diseases.Stay updated on evidence-based guidelines regarding GI bleeding management, chronic liver disease care, and IBD therapy.
Skill	<ol style="list-style-type: none">Perform a comprehensive history and physical examination focused on GI symptoms and signs.Perform and interpret essential GI investigations, including paracentesis for ascitic fluid analysis and nasogastric tube aspiration for GI bleed assessment.Gain hands-on experience (under supervision) in relevant procedures:<ul style="list-style-type: none">• Basic endoscopic evaluations (gastroscopy and colonoscopy) observation or assistance.• Abdominal ultrasound (focused assessment of the liver, biliary tract)
Attitude	<ol style="list-style-type: none">Demonstrate empathy and respect when dealing with patients suffering from chronic or end-stage liver diseases, IBD, and malignancies.Exhibit professionalism through punctuality, accountability, and ethical behavior, especially when discussing sensitive issues such as palliative care or transplant eligibility.Maintain patient confidentiality and ethical considerations in endoscopic and transplant-related procedures.

ROTATIONAL STRUCTURE:

- **Duration:** 8 weeks (2 months)
- **Weekly Schedule**

Gastroenterology ward (1 st 4 weeks)	Gastroenterology OPD including HCC clinic (1 st 4 weeks)	Procedure Room (1 st 4 weeks)	Gastroenterology Emergency (5 th to 8 th week)
3 days/week Gastroenterology ward call from 2 pm to 8 am.	2 days per week from 8 am to 2pm	2 days/week from 8 am to 2 pm (Upper and lower GI endoscopy, ERCP)	2 days/week from 8 am to 8 am.
Didactic Sessions	Self -directed Learning:		
(5 hours/week) Journal club, Case presentation, Simulation based training & Case based discussion	6 hours/week		

CLINICAL ACTIVITIES

Activities
1: Orientation to GI services and ward protocols. 2: Management of acute and chronic liver diseases (hepatitis, cirrhosis). 3: Exposure and management of the patients with inflammatory bowel disease, biliary and pancreatic disorders. 4: Management of patients with hepatocellular carcinoma at the HCC clinic. 5: Presentation of cases in gastroenterology teaching rounds.
1: Active participation in GI bleeding management (variceal and non-variceal). 2: Observation of basic endoscopic procedures (gastroscopy). 3: Observation/assistance in advanced endoscopic procedures (ERCP)
1: Final assessments and feedback session 2: Review of logbook and reflective practice entries

ASSESSMENT

Formative

WPBA	DOPs, Mini-CEX, CbD, 360 Degree Feedback
Written test	LMS based MCQ test
Reflective Entries	Assessment of insights gained during rotation.

Summative

End of clinical rotational placement written exam	60 MCQs based exam
End of clinical rotational placement OSCE exam	OSCE stations of history taking, physical examination, Lab results (LFTs, ascitic fluid analysis) interpretation, case discussion, and counselling

ROTATIONAL LOGBOOK/ E- LOG BOOK REQUIREMENTS:

Clinical cases documentation (OPD, Ward, & emergency)	Minimum 20/month each for OPD, Ward, and emergency
Journal Club	2 /month
Case presentations	2 /month
Procedures	Liver biopsy (4/month under direct supervision), Upper and lower GI endoscopy (8/month observation), Diagnostic and therapeutic paracentesis (8/month independently).

FEEDBACK:

Mid Rotational feedback from the rotational supervisor.

Multisource feedback at the end of the rotation.

NEUROLOGY CLINICAL ROTATION CURRICULUM FOR MD MEDICINE

Duration: 4 Weeks Program: MD Medicine (Rawalpindi Medical University) Competency Framework: ACGME Core Competencies	Goals
	1: Develop a solid foundation in neurological history-taking, physical examination, and localization of lesions. 2: Acquire knowledge of common and acute neurological conditions, including stroke, epilepsy, movement disorders, and central nervous system (CNS) infections. 3: Enhance proficiency in neurological diagnostic procedures (e.g., lumbar puncture, electroencephalography [EEG] interpretation) and imaging (CT/MRI brain). 4: Foster an attitude of professionalism, empathy, and collaborative care for patients with neurological disorders.

Competency	Learning Objectives	Teaching strategy
Patient care	1: Perform comprehensive evaluations (history, exam, diagnostic workup) of patients presenting with neurological complaints. 2: Manage common and urgent neurological conditions, adhering to evidence-based protocols (e.g., stroke pathway, status epilepticus management). 3: Provide compassionate, patient-centered care, involving families and caregivers in management plans.	Bedside teaching, grand ward rounds, Small group teaching, case-based discussions, Seminars, Conferences, Supervised OPD, Ward, and emergency duties.
Medical Knowledge	1: Understand the neuroanatomical basis of clinical findings and correlate these with imaging and electrophysiological studies. 2: Learn the pharmacological and non-pharmacological treatments for prevalent neurological diseases. 3: Keep abreast of evolving guidelines, particularly in acute stroke care and seizure	

	management.	
Procedural Skills	1: Safely perform lumbar punctures, interpret CSF findings, and recognize complications. 2: Demonstrate basic EEG reading skills (identifying epileptiform discharges) and proficiency in bedside fundoscopic exam. 3: Work with imaging departments to review CT/MRI scans systematically.	Bedside teaching, Simulation based training, Workshop
Interpersonal and Communication Skills	1: Communicate effectively with patients and families about diagnoses, prognosis, and available treatment options. 2: Present cases logically in ward rounds and academic forums.	Bedside teaching, Case based discussions, Supervised OPD, Ward, and emergency duties.
Professionalism	1: Uphold ethical standards, confidentiality, and empathy in patient interactions. 2: Demonstrate responsibility, punctuality, and accountability in clinical duties. 3: Maintain professional boundaries and respect patient autonomy.	
Systems-Based Practice	1: Understand referral pathways for advanced neurological interventions. 2: Acknowledge the importance of cost-effectiveness and resource allocation when ordering investigations or planning treatments.	

LEARNING CONTENT

Topics to be learned

Learning Domain	Content
Knowledge	<ol style="list-style-type: none">Describe pathophysiology, clinical features, and management of:<ul style="list-style-type: none">• Stroke (ischemic, hemorrhagic) and transient ischemic attack (TIA)• Epilepsy and status epilepticus• Parkinson's disease and movement disorders• Headaches (migraine, cluster, tension-type)• Demyelinating diseases (multiple sclerosis)• Neuromuscular disorders (myasthenia gravis, Guillain-Barré syndrome)• Infections of the central nervous system (meningitis, encephalitis)Interpret relevant investigations (neuroimaging, EEG, nerve conduction studies, cerebrospinal fluid [CSF] analysis).Stay updated on guidelines for acute stroke management (thrombolysis, thrombectomy) and seizure control.
Skill	<ol style="list-style-type: none">Conduct a thorough neurological examination, localizing lesions and identifying upper vs. lower motor neuron signs.Perform and interpret lumbar puncture under supervision (CSF analysis).Collaborate with radiology for CT/MRI brain interpretation; understand indications/contraindications for advanced imaging.Recognize and manage acute neurological emergencies (status epilepticus, acute ischemic stroke) with appropriate escalation and referral.
Attitude	<ol style="list-style-type: none">Demonstrate empathy and cultural sensitivity when communicating life-altering diagnoses (stroke, chronic neurological illnesses).Foster teamwork by liaising effectively with allied professionals (physiotherapists, occupational therapists, speech therapists, etc.).Maintain ethical standards in managing patients with significant neurological deficits (e.g., advanced directives, withdrawal of care).

ROTATIONAL STRUCTURE

- **Duration:** 4 weeks (1 month)
- **Weekly Schedule**

Neurology ward (2 weeks)	Neurology OPD (4 weeks)	Neurology Emergency STROKE UNIT (2 weeks)
3 days/week Gastroenterology ward call from 2 pm to 8 am.	2 days per week from 8 am to 2pm	2 days/week from 8 am to 8 am.
Didactic Sessions	Self -directed Learning:	
(5 hours/week) Journal club, Case presentation, Simulation based training & Case based discussion	6 hours/week	

CLINICAL ACTIVITIES

Activities
1: Orientation to neurology ward, stroke unit protocols, and neuro ICU (if available). 2: Systematic neurological assessment of new admissions. 3 Introduction to common stroke syndromes, TIA management, and brain imaging. 4: Acute neurological emergencies: stroke pathways, status epilepticus management. 5: Exposure and management of movement disorders, CNS infections, and neuromuscular disorders. 5: Case presentation during ward rounds.
1: Lumbar puncture sessions and CSF interpretation. 2: Observation/interpretation of EEG and neuroimaging cases.
1: Final assessments and feedback on diagnostic acumen, procedural proficiency, and professionalism.

ASSESSMENT

Formative

WPBA	DOPs, Mini-CEX, CbD, 360 Degree Feedback
Written test	LMS based MCQ test
Reflective Entries	Assessment of insights gained during rotation.

Summative

End of clinical rotational placement written exam	60 MCQs based exam
End of clinical rotational placement OSCE exam	OSCE stations of history taking, physical examination, CSF RE and EEG report interpretation, case discussion, and counselling

ROTATIONAL LOGBOOK/ E- LOG BOOK REQUIREMENTS

Clinical cases documentation (OPD, Ward, & emergency)	Minimum 15/month each for OPD, Ward, and emergency
Journal Club	2 /month
Case presentations	2 /month
Procedures	Lumber puncture (4/month under indirect supervision/ independently), Thrombolysis of acute CVA (2/month under indirect supervision), CT-scan/MRI Brain & Spine interpretation (6/month under indirect supervision/ independently), NCS/EMG interpretation (2/month under direct supervision).

FEEDBACK:

Mid Rotational feedback from the rotational supervisor.
Multisource feedback at the end of the rotation.

PULMONOLGY CLINICAL ROTATION CURRICULUM FOR MD MEDICINE

Duration: 4 Weeks Program: MD Medicine (Rawalpindi Medical University) Competency Framework: ACGME Core Competencies	Goals
	1: Acquire in-depth knowledge of respiratory physiology and common pulmonary pathologies. 2: Develop proficiency in evaluating and managing acute and chronic respiratory conditions. 3: Enhance competence in respiratory procedures. 4: Foster an empathetic, collaborative, and professional approach to patients with pulmonary diseases.

Competency	Learning Objectives	Teaching Strategy
Patient Care	1: Perform comprehensive history and physical examination for patients with respiratory complaints 2: Develop and implement appropriate management plans for common pulmonary conditions. 3: Recognize and promptly address respiratory emergencies	Bedside teaching, grand ward rounds, Small group teaching, case-based discussions, Seminars, Conferences, Supervised OPD, Ward, and emergency duties.
Medical Knowledge	1: Apply pathophysiological principles to interpret clinical presentations and diagnostic findings. 2: Understand the pharmacological and non-pharmacological treatments for pulmonary diseases. 3: Remain abreast of evidence-based guidelines for pneumonia	
Procedural Skills	1: Demonstrate proficiency in performing pleural taps, chest tube placements (when indicated), and spirometry interpretation. 2: Safely obtain and interpret arterial blood gases. 3: Utilize appropriate aseptic techniques and adhere to procedural checklists.	Bedside teaching, Simulation based training, Workshop
Interpersonal and Communication Skills	1: Clearly explain diagnoses, management plans, and potential complications to patients and families. 2: Work effectively with multidisciplinary teams	Bedside teaching, Case based discussions, Supervised OPD, Ward, and emergency duties.

	<p>(respiratory therapy, physiotherapy) to provide holistic care.</p> <p>3: Present cases succinctly during rounds and educational sessions.</p>	
Professionalism	<p>1: Maintain ethical conduct, particularly concerning infection control.</p> <p>2: Respect patient autonomy and confidentiality in all clinical and research settings.</p> <p>3: Exhibit accountability, punctuality, and a commitment to patient welfare.</p>	
Systems-Based Practice	<p>1: Understand referral pathways for advanced pulmonology interventions (e.g., bronchoscopy, lung biopsy).</p> <p>2: Contribute to quality improvement measures (e.g., ventilator-associated pneumonia prevention).</p> <p>3: Balance the cost and benefits of diagnostic workups and treatments, promoting resource stewardship.</p>	

LEARNING CONTENT

Topics to be learned

Learning Domains	Content
Knowledge	<ol style="list-style-type: none">Describe pathophysiology, clinical features, and management of:<ul style="list-style-type: none">Obstructive lung diseases (asthma, COPD)Infectious conditions (community-acquired pneumonia, tuberculosis)Interstitial lung diseases (ILDs)Pleural diseases (effusions, pneumothorax)Pulmonary vascular diseases (pulmonary embolism, pulmonary hypertension)Interpret investigations: chest imaging, spirometry, arterial blood gases (ABGs).Stay updated on guidelines for critical care management of acute respiratory failure.
Skill	<ol style="list-style-type: none">Conduct a thorough respiratory examination.Perform and interpret basic pulmonary function tests (spirometry) under supervision.Assist with pleural procedures (thoracentesis, chest tube insertion) and learn indications/contraindications.Manage acute respiratory emergencies, such as status asthmaticus or acute exacerbation of COPD, in collaboration with the critical care team.
Attitude	<ol style="list-style-type: none">Demonstrate empathy when counseling patients about chronic respiratory conditions and lifestyle modifications (e.g., smoking cessation).Exhibit professionalism by maintaining patient confidentiality and adhering to infection-control measures for communicable diseases (e.g., tuberculosis).Foster teamwork by collaborating with respiratory therapists, nursing staff, and other allied health professionals.Encourage patient-centered care, respecting cultural values and patient autonomy in decision-making.

ROTATIONAL STRUCTURE

- **Duration:** 4 weeks (1 month)
- **Weekly Schedule**

Pulmonology ward (2 weeks)	Pulmonology OPD (4 weeks)	Procedure Room (Bronchoscopy)	Pulmonology Emergency (2 weeks)
3 days/week pulmonology ward call from 2 pm to 8 am.	2 days per week from 8 am to 2pm	1 day per week from 8 am to 2 pm for 4 weeks.	2 days/week from 8 am to 8 am.
Didactic Sessions	Self -directed Learning:		
(5 hours/week) Journal club, Case presentation, Simulation based training & Case based discussion	6 hours/week		

CLINICAL ACTIVITIES

ACTIVITIES
1: Orientation to the pulmonology ward, clinics, and protocols. 2: Evaluate and manage new admissions with common respiratory illnesses. 3: Management of complex cases (tuberculosis, ILDs, pulmonary hypertension) and respiratory emergencies (status asthmaticus, acute respiratory failure) with possible ICU exposure. 4: Participation in teaching rounds and multidisciplinary discussions.
1: Introduction to chest imaging interpretation. 2: Spirometry training and initial interpretation, pleural procedures (thoracentesis) under supervision and familiarization with ABG interpretation in acute respiratory conditions.
1: Final assessments with feedback on procedural skills, diagnostic reasoning, and professionalism. 2: Completion of logbook entries and reflective practice.

ASSESSMENT

Formative

WPBA	DOPs, Mini-CEX, CbD, 360 Degree Feedback
Written test	LMS based MCQ test
Reflective Entries	Assessment of insights gained during rotation.

Summative

End of clinical rotational placement written exam	60 MCQs based exam
End of clinical rotational placement OSCE exam	OSCE stations of history taking, physical examination, ABGs, CXR, CT-scan Chest interpretation, case discussion, and counselling

ROTATIONAL LOGBOOK/ E- LOG BOOK REQUIREMENTS

Clinical cases documentation (OPD, Ward, & emergency)	Minimum 15/month each for OPD, Ward, and emergency
Journal Club	2 /month
Case presentations	2 /month
Procedures	Pleural tap diagnostic and therapeutic (8/month under indirect supervision/ independently), (2/month under indirect supervision), CT-scan Chest and CXR interpretation (6/month under indirect supervision/ independently), Pleural Biopsy, Chest intubation, & Bronchoscopy (2/month under direct supervision or observation).

FEEDBACK:

Mid Rotational feedback from the rotational supervisor.

Multisource feedback at the end of the rotation.

DERMATOLOGY CLINICAL ROTATION CURRICULUM FOR MD MEDICINE

Duration: 4 Weeks Program: MD Medicine (Internal Medicine) at RMU Competency Framework: ACGME Core Competencies	Goals
	1: Develop a structured approach to dermatologic history-taking and skin examination, including lesion morphology and pattern recognition. 2: Gain knowledge of common and severe skin conditions relevant to internal medicine. 3: Acquire basic procedural skills for dermatologic diagnosis (e.g., skin scraping, KOH prep, skin biopsy observation) and initial management. 4: Foster a professional, patient-centered attitude and a collaborative approach with dermatology for integrated patient care.

Competency	Learning Objectives	Teaching Strategies
Patient Care	1: Perform comprehensive dermatological assessments, recognizing when lesions may indicate systemic pathology. 2: Formulate and initiate treatment plans for common dermatoses (e.g., eczema, psoriasis), seeking dermatology input for complex cases. 3: Recognize and promptly manage dermatologic emergencies (e.g., SJS/TEN, severe drug eruptions).	Bedside teaching, grand ward rounds, Small group teaching, case-based discussions, Seminars, Conferences, Supervised OPD, Ward, and emergency duties.
Medical Knowledge	1: Integrate dermatological findings with systemic disease presentations (e.g., lupus, vasculitis, diabetic complications). 2: Understand the mechanisms, clinical features, and evidence-based treatments for key autoimmune, infectious, and inflammatory skin disorders. 3: Learn the classification and approach to topical and systemic dermatologic medications (corticosteroids, immunosuppressants, biologics).	

Procedural Skills	<p>1: Practice safe collection of skin scrapings, KOH preps, and Tzanck smears, and interpret basic findings.</p> <p>2: Observe or assist in skin biopsy procedures, familiarizing them with indications, contraindications, and post-procedure care.</p>	Bedside teaching, Simulation based training, Workshop
Interpersonal and Communication Skills	<p>1: Communicate effectively with patients about disease pathology, treatment plans, and possible systemic implications.</p> <p>2: Work collaboratively with multidisciplinary teams for optimal patient care.</p> <p>3: Present patient cases succinctly in ward rounds and academic discussions.</p>	Bedside teaching, Case based discussions, Supervised OPD, Ward, and emergency duties.
Professionalism	<p>1: Demonstrate respect, compassion, and cultural awareness when managing dermatological conditions that may affect the patient's self-esteem or social well-being.</p> <p>2: Uphold confidentiality for patients, especially those with lesions in sensitive areas.</p> <p>3: Show accountability, punctuality, and honesty in clinical documentation and discussions.</p>	
Systems-Based Practice	<p>1: Understand referrals and pathways for specialized dermatological procedures (e.g., phototherapy, biologic therapy).</p> <p>2: Advocate cost-effective management by balancing diagnostic thoroughness with rational use of resources.</p>	

LEARNING CONTENT

Topics to be learned

Learning Domain	Content
Knowledge	<ol style="list-style-type: none">1. Identify and classify common dermatologic conditions:<ul style="list-style-type: none">• Infectious dermatoses (fungal, bacterial, viral, parasitic infections like scabies)• Autoimmune bullous disorders (pemphigus vulgaris, bullous pemphigoid)• Drug eruptions (Stevens-Johnson Syndrome [SJS]/Toxic Epidermal Necrolysis [TEN], exanthematous reactions)• Inflammatory conditions (psoriasis, eczemas, atopic dermatitis)• Cutaneous manifestations of systemic diseases (lupus, vasculitis, diabetic dermopathy)2. Discuss pathophysiology, clinical features, and management of these dermatoses, focusing on systemic associations and implications for internal medicine.3. Stay updated on guidelines for severe adverse cutaneous reactions and management of immunobullous diseases.
Skill	<ol style="list-style-type: none">1. Perform a meticulous skin exam, including examination of hair, nails, and mucous membranes.2. Obtain necessary specimens (skin scraping, KOH prep, bacterial swab) for microbiological diagnosis.3. Interpret relevant investigations (punch biopsy findings, serological markers for autoimmune diseases).4. Collaborate with dermatology colleagues for advanced procedures (e.g., skin biopsy, patch testing).
Attitude	<ol style="list-style-type: none">1. Demonstrate empathy and sensitivity when dealing with patients who may have visible and distressing skin lesions.2. Exhibit professionalism, ensuring patient privacy and confidentiality, especially for skin lesions in sensitive areas.3. Promote patient education on lifestyle modifications, adherence to topical/systemic therapies, and the need for follow-up.

ROTATIONAL STRUCTURE

- **Duration:** 4 weeks (1 month)
- **Weekly Schedule**

Dermatology ward (2 weeks)	Dermatology OPD (4 weeks)	Procedure Room
2 days/week Dermatology ward call from 2 pm to 8 am.	5 days per week from 8 am to 2pm	1 day per week from 8 am to 2 pm for 4 weeks.
Didactic Sessions	Self -directed Learning:	
(5 hours/week) Journal club, Case presentation, Simulation based training & Case based discussion	6 hours/week	

CLINICAL ACTIVITIES

CLINICAL ACTIVITIES
1: Orientation to dermatology clinics and ward consult workflow. 2: Basic dermatological examination and morphological lesion descriptors. 3: Spot diagnosis of different skin during dermatology OPD. 4: Diagnosis and management of skin lesions associated with systemic illnesses. 5: Management of chronic skin diseases under supervision.
1: Skin scraping/KOH prep under supervision. 2: Observation of skin biopsy procedures.
1: Final assessments and feedback on clinical competencies and professional conduct. 2: Completion of logbook and reflective practice entries.

ASSESSMENT

Formative

WPBA	DOPs, Mini-CEX, CbD, 360 Degree Feedback
Written test	LMS based MCQ test
Reflective Entries	Assessment of insights gained during rotation.

Summative

End of clinical rotational placement written exam	60 MCQs based exam
End of clinical rotational placement OSCE exam	OSCE stations of history taking, physical examination, spot diagnosis of skin lesions, case discussion, and counselling

ROTATIONAL LOGBOOK/ E- LOG BOOK REQUIREMENTS

Clinical cases documentation (OPD, Ward, & emergency)	Minimum 15/month each for OPD, Ward, and emergency
Journal Club	2 /month
Case presentations	2 /month
Procedures	Skin biopsy (2/ month), Electrocautery (2/ month), CO2 laser (2/month), Intralesional injection (2/month), Phototherapy (1/month), and Cryotherapy (1/month) of observation level.

FEEDBACK:

Mid Rotational feedback from the rotational supervisor.

Multisource feedback at the end of the rotation.

PSYCHIATRY CLINICAL ROTATION CURRICULUM FOR MD MEDICINE

Duration: 2 Weeks Program: MD Medicine (Internal Medicine) at RMU Competency Framework: ACGME Core Competencies	Goals
	1: Develop a practical approach to identifying and managing common psychiatric issues in medical settings (e.g., delirium, depression, substance withdrawal). 2: Master the mental status examination (MSE) and apply brief screening tools for psychiatric disorders in hospitalized patients. 3: Acquire competence in handling psychiatric emergencies (acute agitation, suicidal ideation) and appropriately liaising with psychiatric services. 4: Exhibit professionalism and empathy toward patients with mental health challenges, reducing stigma and improving collaborative care.

Competency	Learning Objectives	Teaching Strategy
Patient Care	1: Perform focused psychiatric evaluations on medical inpatients (e.g., confusion, agitation, mood symptoms). 2: Integrate psychiatric considerations into the overall treatment plan (pharmacological and non-pharmacological). 3: Promptly address and de-escalate psychiatric emergencies in conjunction with the liaison psychiatry team.	Bedside teaching, grand ward rounds, Small group teaching, case-based discussions, Seminars, Conferences, Supervised OPD, Ward, and emergency duties.
Medical knowledge	1: Recognize how medical conditions and treatments (e.g., steroids, metabolic derangements) can precipitate or worsen psychiatric symptoms. 2: Understand indications and contraindications for commonly used psychotropics (antidepressants, antipsychotics, benzodiazepines). 3: Familiarize diagnostic criteria for delirium, depression, substance withdrawal, and anxiety disorders in a medical setting.	
Procedural Skills	1: Accurately perform a mental status examination, describing	Bedside teaching, Simulation based

	<p>appearance, behavior, thought processes, mood, and cognition.</p> <p>2: Screen patients using validated tools (PHQ-9, GAD-7, CAGE) and interpret results in context.</p> <p>3: Assist in managing pharmacotherapy (e.g., adjusting antidepressant dosages, initiating benzodiazepine tapers) under supervision.</p>	training, Workshop
Interpersonal and Communication Skills	<p>1: Communicate clearly with patients about mental health diagnoses, treatment options, and follow-up.</p> <p>2: Collaborate effectively with psychiatrists, nursing staff, and other allied professionals to ensure comprehensive care.</p>	Bedside teaching, Case based discussions, Supervised OPD, Ward, and emergency duties.
Professionalism	<p>1: Maintain patient confidentiality, especially regarding sensitive psychiatric information.</p> <p>2: Respect patient autonomy, including informed consent and capacity evaluation.</p> <p>3: Demonstrate punctuality, accountability, and integrity in patient care and documentation.</p>	
Systems-Based Practice	<p>1: Identify when urgent psychiatric intervention is required and navigate the referral process efficiently.</p>	

LEARNING CONTENT

Topics to be learned

Learning Domain	Content
Knowledge	<ol style="list-style-type: none">1. Identify core psychiatric conditions encountered in internal medicine:<ul style="list-style-type: none">• Delirium in hospitalized patients (risk factors, evaluation, prevention)• Depression, anxiety in the medically ill• Substance use disorders, withdrawal syndromes (alcohol, benzodiazepines, opioids)• Common psychotropic medications (indications, side effects, interactions)
Skill	<ol style="list-style-type: none">1. Conduct an efficient psychiatric assessment, including mental status examination.2. Use brief screening tools (PHQ-9 for depression, GAD-7 for anxiety, CAGE for alcohol misuse) in clinical practice.3. Manage acute situations: de-escalation of agitation, initial treatment of withdrawal symptoms, and recognizing suicidality.4. Coordinate care: timely psychiatric consultation, shared management of patients with comorbid mental and physical illnesses.
Attitude	<ol style="list-style-type: none">1. Demonstrate empathy for patients facing mental health challenges, acknowledging the impact on their physical illness.2. Maintain professionalism: safeguard patient privacy and autonomy in all interactions.3. Foster a collaborative mindset, appreciating the role of psychiatrists, psychologists, and social workers.

ROTATIONAL STRUCTURE

- **Duration:** 2 weeks
- **Weekly Schedule**

Psychiatry ward (2 weeks)	Psychiatry OPD (2 weeks)	Procedure Room (ECT room)
2 days/week Psychiatry ward call from 2 pm to 8 am.	5 days per week from 8 am to 2pm	1 day per week from 8 am to 2 pm for 4 weeks.
Didactic Sessions	Self -directed Learning:	
(5 hours/week) Journal club, Case presentation, Simulation based training & Case based discussion	6 hours/week	

CLINICAL ACTIVITIES

Clinical Activities
1: Orientation: Scope of psychiatry consults, screening tools. 2: Clinical Exposure: Attend consultation rounds, evaluate inpatients with confusion or agitation. 3: Substance Withdrawal: Recognizing withdrawal syndromes, safe management in a medical ward 4: Psychiatric Emergencies: Handling suicidal ideation, acute agitation, coordinating urgent psychiatry referral
1: Wrap-Up: Final feedback, short assessment, reflection on key cases.

ASSESSMENT

Formative assessment

WPBA	DOPs, Mini-CEX, CbD, 360 Degree Feedback
Written test	LMS based MCQ test
Reflective Entries	Assessment of insights gained during rotation.

Summative assessment

End of clinical rotational placement written exam	60 MCQs based exam
End of clinical rotational placement OSCE exam	OSCE stations of history taking, physical examination, spot diagnosis of skin lesions, case discussion, and counselling

ROTATIONAL LOGBOOK/ E- LOG BOOK REQUIREMENTS

Clinical cases documentation (OPD, Ward, & emergency)	Minimum 7/week each for OPD, Ward, and emergency
Journal Club	1
Case presentations	2 /week
Procedures	Psychotherapy Sessions , and Electro convulsive therapy (ECT) observation level.

FEEDBACK:

Mid Rotational feedback from the rotational supervisor.

Multisource feedback at the end of the rotation.

RADIOLOGY CLINICAL ROTATION CURRICULUM FOR MD MEDICINE

Duration: 2 Weeks Program: MD Medicine (Internal Medicine) at RMU Competency Framework: ACGME Core Competencies	Goals
	1: Enhance fundamental skills in interpreting common imaging studies (chest X-ray, abdominal ultrasound, CT scans) frequently used in internal medicine. 2: Understand indications, contraindications, and limitations of various imaging modalities for common medical conditions. 3: Develop competence in recognizing critical imaging findings that require urgent intervention. 4: Foster an interdisciplinary, cost-conscious approach to radiology by collaborating with radiologists and understanding appropriate utilization of imaging resources.

Competencies	Learning Objectives	Teaching strategies
Patient Care	1: Appropriately select imaging studies based on clinical presentation and interpret results to guide management. 2: Identify urgent or life-threatening radiological findings	Small group discussions, Seminars, Workshops, LGIS, Clerkship with the radiologist
Medical Knowledge	1: Understand the physics and principles underlying each imaging modality (plain radiographs, ultrasound, CT, MRI). 2: Recognize common radiologic signs (e.g., Kerley B lines in pulmonary edema, Rigler's sign in perforation) and correlate with clinical conditions.	
Procedural Skills	1: Interpret accurately abnormal findings of chest x-rays, abdominal x-rays, CT-Scan brain, chest and abdomen. 2: Observe or assist in image-guided procedures (biopsies, fluid drainage) relevant to internal medicine practice.	Workshops, Simulation based training
Interpersonal and Communication Skills	1: Communicate clearly with radiology staff, providing pertinent clinical details to optimize study protocols. 2: Explain imaging findings and recommendations to patients in an understandable manner, respecting their concerns and questions.	Supervised training with the senior radiologist, Workshop, Role play exercises

Professionalism	1: Uphold ethical principles, ensuring patient privacy and obtaining informed consent for procedures involving sedation/contrast.	
Systems-Based Practice	1: Appreciate the role of radiology in the broader healthcare system, coordinating appropriately for follow-up scans and advanced imaging.	

LEARNING CONTENT

Topics to be learned

Learning Domain	Content
Knowledge	<ol style="list-style-type: none"> Identify key imaging modalities relevant to internal medicine: <ul style="list-style-type: none"> • Chest radiography (pneumonia, pleural effusion, pneumothorax) • Abdominal imaging (ultrasound for hepatobiliary disease, CT abdomen for acute abdomen) • Vascular imaging (CT angiography, Doppler ultrasound for DVT) • Musculoskeletal X-rays (fractures, osteolytic/osteoblastic lesions) <ul style="list-style-type: none"> • Brain imaging (CT-Scan brain to diagnose CVS, SAH, SOL Brain, Meningitis) Recognize radiation safety principles (ALARA, contrast use, pregnancy precautions). Discuss the role of contrast agents and strategies to mitigate contrast-induced nephropathy in high-risk patients.
Skill	<ol style="list-style-type: none"> Interpret basic chest and abdominal radiographs systematically (e.g., approach to chest X-ray, silhouette sign, air under diaphragm). Correlate clinical scenarios with appropriate imaging tests (choosing ultrasound vs. CT vs. MRI). Assist with bedside ultrasound for targeted needs (e.g., FAST exam in unstable patients, pleural effusion assessment) if feasible. Engage in image-guided procedures observation (e.g., ultrasound-guided paracentesis) and understand the principles behind them.
Attitude	<ol style="list-style-type: none"> Demonstrate professionalism and respect when discussing diagnostic plans with patients and families. Maintain patient confidentiality and ensure informed consent for procedures requiring sedation or contrast.

ROTATIONAL STRUCTURE

- **Duration:** 2 weeks
- **Weekly Schedule**

Radiology Emergency duty (2 weeks)	X-ray reporting room (2 weeks)	Ultrasound room (2 weeks)	CT-Scan reporting room
2 days/week Radiology ER call from 2 pm to 8 am.	3 days per week from 8 am to 2pm	2 day per week from 8 am to 2 pm for 2 weeks.	1 day per week from 8 am to 2 pm
Didactic Sessions	Self -directed Learning:		
(5 hours/week) Journal club, Case presentation, Simulation based training & Case based discussion	6 hours/week		

ASSESSMENT

Formative assessment

WPBA	DOPs, Mini-CEX, CbD, 360 Degree Feedback
Written test	LMS based MCQ test
Reflective Entries	Assessment of insights gained during rotation.

Summative assessment

End of clinical rotational placement written exam	60 MCQs based exam
End of clinical rotational placement OSCE exam	OSCE stations for interpretation of chest X-ray, Abdominal X- ray, CT- Scan brain, chest and abdomen, and MRI brain interpretation.

ROTATIONAL LOGBOOK/ E- LOG BOOK REQUIREMENTS

Clinical cases documentation (Reporting rooms, & emergency)	Minimum 7/week each for Reporting rooms & Emergency
Journal Club	1
Case presentations	2 /week
Procedures	Usg guided Pleural and ascitic tap, Liver abscess drainage

SECTION NO. 6

TRAINING MILESTONES

Introduction

The 4-year MD Internal Medicine Program at Rawalpindi Medical University, aligned with ACGME milestones, offers a structured framework for comprehensive training. This ensures the progressive development of clinical skills, medical knowledge, professionalism, practice-based learning, systems-based practice, and research capabilities.

Remember to celebrate the milestones as you prepare for the road ahead --- Nelson Mandela.

High-quality assessment of resident performance is needed to guide individual residents' development and ensure their preparedness to provide patient care. To facilitate this aim, reporting milestones are now required across all internal medicine (IM) residency programs. Milestones promote competency-based training in internal medicine. Residency program directors may use them to track the progress of trainees in the 6 general competencies including patient care, Medical Knowledge, Practice-Based Learning and Improvement, Interpersonal and Communication Skills, Professionalism and Systems-Based Practice. Milestones inform decisions regarding promotion and readiness for independent practice. In addition, the milestones may guide curriculum development, suggest specific assessment strategies, provide benchmarks for resident self-directed assessment-seeking, assist remediation by facilitating identification of specific deficits and provide a degree of national standardization in evaluation. Finally, by explicitly enumerating the profession's expectations for graduates, they may improve public accountability for residency training.

DEVELOPMENTAL MILESTONES FOR INTERNAL MEDICINE RESIDENCY TRAINING

1. Patient Care

Competency	Developmental Milestones	Approximate Time Frame Trainee Should Achieve Stage	Assessment Methods/Tools
Clinical skills and reasoning <ul style="list-style-type: none"> Manages patients using clinical skills of interviewing and physical examination Demonstrates competence in the performance of procedures mandated by the ABIM Appropriately uses laboratory and imaging techniques 	Historical Data Gathering <ol style="list-style-type: none"> Acquire accurate and relevant history from the patient in an efficiently customized, prioritized, and hypothesis driven fashion Seek and obtain appropriate, verified, and prioritized data from secondary sources (e.g. family, records, pharmacy) Obtain relevant historical subtleties that inform and prioritize both differential diagnoses and diagnostic plans, including sensitive, complicated, and detailed information that may not often be volunteered by the patient Role model gathering subtle and reliable information from the patient for junior members of the healthcare team 	6 months 9 months 18 months 30 months	Standardized patient Direct Observation Simulation
	Performing a physical exam <ol style="list-style-type: none"> Perform an accurate physical examination that is appropriately targeted to the patient's complaints and medical conditions. Identify pertinent abnormalities using common maneuvers. Accurately track important changes in the physical examination over time in the outpatient and inpatient settings Demonstrate and teach how to elicit important physical findings for junior members of the healthcare team Routinely identify subtle or unusual physical findings that may influence clinical decision making, using advanced maneuvers where applicable 	6 months 12 months 24 months 30 months	Standardized patient Direct Observation Simulation
	Clinical Reasoning <ol style="list-style-type: none"> Synthesize all available data, including interview, 	12 months	Simulation

	<p>physical examination, and preliminary laboratory data, to define each patient's central clinical problem.</p> <ol style="list-style-type: none"> 2. Develop prioritized differential diagnoses, evidence-based diagnostic and therapeutic plan for common inpatient and ambulatory conditions. 3. Modify differential diagnosis and care plan based upon clinical course and data as appropriate 4. Recognize disease presentations that deviate from common patterns and that require complex decision Making. 	<p>24 months</p> <p>36 months</p>	<p>Chart stimulated recall</p> <p>Multisource feedback Direct</p> <p>Observation</p>
	<p>Invasive procedures</p> <ol style="list-style-type: none"> 1. Appropriately perform invasive procedures and provide post-procedure management for common procedures 	<p>18 months</p>	<p>Simulation</p> <p>Direct observation</p>
<p>Delivery of patient-centered clinical care</p> <ul style="list-style-type: none"> ▪ Manage patients with progressive responsibility. ▪ Manage patients across the spectrum of clinical diseases seen in the practice of general internal medicine. ▪ Manage patients in a variety of health care settings to include the inpatient ward, critical care units, the ambulatory setting and the emergency setting. ▪ Manage undifferentiated acutely and severely ill patients. Manage patients in the prevention, counseling, 	<p>Diagnostic tests</p> <ol style="list-style-type: none"> 1. Make appropriate clinical decisions based upon the results of common diagnostic testing, including but not limited to routine blood chemistries, hematologic studies, coagulation tests, arterial blood gases, ECG, chest radiographs, pulmonary function tests, urinalysis and other body fluids. 2. Make appropriate clinical decision based upon the results of more advanced diagnostic tests. 	<p>12 months</p> <p>18 months</p>	<p>Chart stimulated recall</p> <p>Standardized tests</p>
	<p>Patient Management</p> <ol style="list-style-type: none"> 1. Recognize situations with a need for urgent or emergent medical care including life threatening conditions. 2. Recognize when to seek additional guidance 3. Provide appropriate preventive care and teach patient regarding self-care. 4. With supervision, manage patients with common clinical disorders seen in the practice of inpatient and ambulatory general internal medicine. 5. With minimal supervision, manage patients with common and complex clinical disorders seen in the practice of inpatient and ambulatory general internal medicine. 6. Initiate management and stabilize patients with emergent medical conditions. 	<p>6 months</p> <p>12 months</p>	<p>Simulation</p> <p>Chart stimulated recall</p> <p>Multisource feedback Direct</p> <p>Observation Chart Audit</p>

<p>detection, diagnosis and treatment of gender-specific diseases.</p> <ul style="list-style-type: none"> Manage patients as a consultant to other physicians 	<p>Patient Management</p> <ol style="list-style-type: none"> 1. Recognize situations with a need for urgent or emergent medical care including life threatening conditions. 2. Recognize when to seek additional guidance 3. Provide appropriate preventive care and teach patient regarding self-care. 4. With supervision, manage patients with common clinical disorders seen in the practice of inpatient and ambulatory general internal medicine. 5. With minimal supervision, manage patients with common and complex clinical disorders seen in the practice of inpatient and ambulatory general internal medicine. 6. Initiate management and stabilize patients with emergent medical conditions. 7. Manage patients with conditions that require intensive care. 8. Independently manage patients with a broad spectrum of clinical disorders seen in the practice of general internal medicine. 9. Manage complex or rare medical conditions. Customize care in the context of the patient's preferences and overall health. 	36 months	<p>Simulation</p> <p>Chart stimulated recall</p> <p>Multisource feedback Direct Observation Chart Audit</p>
	<p>Consultative care</p> <ol style="list-style-type: none"> 1. Provide specific, responsive consultation to other services. 2. Provide internal medicine consultation for patients with more complex clinical problems requiring detailed risk assessment. 	<p>24 months</p> <p>36 months</p>	<p>Simulation</p> <p>Chart stimulated recall</p> <p>Multisource feedback Direct Observation Chart Audit</p>

2. Medical Knowledge

Competency	Developmental Milestones	Approximate Time Frame Trainee Should Achieve Stage	Assessment Methods/Tools
Core Knowledge of General Internal Medicine and its Subspecialties <ul style="list-style-type: none"> ▪ Demonstrates a level of expertise in the knowledge of those areas appropriate for an internal medicine specialist. ▪ Demonstrates sufficient knowledge to treat medical conditions commonly managed by internists, provide basic preventive care and recognize and provide initial management of emergency medical problems. 	Knowledge of core content <ol style="list-style-type: none"> 1. Understand the relevant pathophysiology and basic science for common medical conditions. 2. Demonstrate sufficient knowledge to diagnose and treat common conditions that require hospitalization. 3. Demonstrate sufficient knowledge to evaluate common ambulatory conditions. 4. Demonstrate sufficient knowledge to diagnose and treat undifferentiated and emergent conditions. 5. Demonstrate sufficient knowledge to provide preventive care. 6. Demonstrate sufficient knowledge to identify and treat medical conditions that require intensive care. 7. Demonstrate sufficient knowledge to evaluate complex or rare medical conditions and multiple coexistent conditions. 8. Understand the relevant pathophysiology and basic science for uncommon or complex medical conditions. 9. Demonstrate sufficient knowledge of socio-behavioral sciences including but not limited to health care economics, medical ethics, and medical education. 	6 months 12 months 18 months 24 months 36 months	Direct Observation Chart audit Chart stimulated recall Standardized tests
Common modalities utilized in the practice of Internal Medicine <ul style="list-style-type: none"> ▪ Demonstrates sufficient knowledge to interpret basic clinical tests and images, use common pharmacotherapy and appropriately use and perform diagnostic and therapeutic procedures. 	Diagnostic tests <ol style="list-style-type: none"> 1. Understand indications for and basic interpretation of common diagnostic testing, including but not limited to routine blood chemistries, hematologic studies, coagulation tests, arterial blood gases, ECG, chest radiographs, pulmonary function tests, urinalysis and other body fluids. 2. Understand indications and has basic skills in interpreting more advanced diagnostic tests. 3. Understand prior probability and test performance characteristics. 	12 months 18 months	Chart stimulated recall Standardized tests

3: Practice-based Learning and Improvement

Competency	Developmental Milestones	Approximate Time Frame Trainee Should Achieve Stage	Assessment Methods/Tools
Learning and Improving via Audit of Performance <ul style="list-style-type: none"> Systematically analyze practice using quality improvement methods and implement changes with the goal of practice improvement. 	Improve the quality of care for a panel of patients <ol style="list-style-type: none"> Appreciate the responsibility to assess and improve care collectively for a panel of patients. Perform or review audit of a panel of patients using standardized, disease-specific, and evidence-based criteria. Reflect on audit compared with local or national benchmarks and explore possible explanations for deficiencies, including doctor-related, system-related, and patient related factors. Identify areas in resident's own practice and local system that can be changed to improve affect of the processes and outcomes of care. Engage in a quality improvement intervention. 	12 months	Several elements of quality improvement project Standardized tests
		36 months	
Learning and improvement via answering clinical questions from patient scenarios <ul style="list-style-type: none"> Locate, appraise, and assimilate evidence from scientific studies related to their patients health problems. Use information technology to optimize learning 	Ask answerable questions for emerging information needs <ol style="list-style-type: none"> Identify learning needs (clinical questions) as they emerge in patient care activities. Classify and precisely articulate clinical questions. Develop a system to track, pursue, and reflect on clinical questions. 	12 months	Evidence-based medicine evaluation instruments
		24 months	EBM Mini-CEX Chart stimulated recall
	Acquires the best evidence <ol style="list-style-type: none"> Access medical information resources to answer clinical questions and library resources to support decision making. Effectively and efficiently search NLM database for original clinical research articles. Effectively and efficiently search evidence-based summary medical information resources. Appraise the quality of medical information resources and select among them based on the characteristics of the clinical question. 	12 months	Evidence-based medicine evaluation instruments
		24 months	EBM Mini-CEX Chart stimulated recall
		36 months	

	Appraises the evidence for validity and usefulness 1. With assistance, appraise study design, conduct, and statistical analysis in clinical research papers. 2. With assistance, appraise clinical guideline recommendations for bias. 3. With assistance, appraise study design, conduct, and statistical analysis in clinical research papers. 4. Independently, appraise clinical guideline recommendations for bias and cost-benefit considerations.	12 months 36 months	Evidence-based medicine evaluation instruments Mini-CEX Chart stimulated recall
	Applies the evidence to decision-making for individual patients 1. Determine if clinical evidence can be generalized to an individual patient. 2. Customize clinical evidence for an individual patient. 3. Communicate risks and benefits of alternatives to patients. 4. Integrate clinical evidence, clinical context, and patient preferences into decision-making.	12 months 36 months	Evidence-based medicine evaluation instruments EBM Mini-CEX Chart stimulated recall
Learning and improving via feedback and self-assessment* Identify strengths, deficiencies, and limits in one’s knowledge and expertise. Set learning and improvement goals. Identify and perform appropriate learning activities. Incorporate formative evaluation feedback into daily practice. Participate in the education of patients, families,	Improves via feedback 1. Respond welcomingly and productively to feedback from all members of the health care team including faculty, peer residents, students, nurses, allied healthworkers, patients and their advocates. 2. Actively seek feedback from all members of the health care team. 3. Calibrate self-assessment with feedback and other external data. 4. Reflect on feedback in developing plans for improvement.	12 months 24 months	Multisource feedback Self-evaluation forms with action plans
	Improves via self-assessment 1. Maintain awareness of the situation in the moment, and respond to meet situational needs. 2. Reflect (in action) when surprised, applies new insights to future clinical scenarios, and reflects (on action) back on the process.	24 months 36 months	Multisource feedback Reflective practice surveys
	Participates in the education of all members of the health care team 1. Actively participate in teaching conferences	12 months	OSCE with standardized learners Direct observation

4: Interpersonal and Communication Skills

Competency	Developmental Milestones	Approximate Time Frame Trainee Should Achieve Stage	Assessment Methods/Tools
Patients and Family <ul style="list-style-type: none"> Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds. 	Communicate effectively <ol style="list-style-type: none"> Provide timely and comprehensive verbal and written communication to patients/advocates. Effectively use verbal and non-verbal skills to create rapport with patients/families. Use communication skills to build a therapeutic relationship. Engage patients/advocates in shared decision- making for uncomplicated diagnostic and therapeuticscenarios. Utilize patient-centered education strategies. Engage patients/advocates in shared decision- making for difficult, ambiguous or controversial scenarios. Appropriately counsel patients about the risks and benefits of tests and procedures highlighting cost awareness and resource allocation. Role model effective communication skills in challenging situations. 	12 months 24 months 36 months	Multisource feedback Direct observation Mentored self-reflection
	Intercultural sensitivity <ol style="list-style-type: none"> Effectively use an interpreter to engage patients inthe clinical setting including patient education. Demonstrate sensitivity to differences in patients including but not limited to race, culture, gender, sexual orientation, socioeconomic status, literacy,and religious beliefs. Actively seek to understand patient differences and views and reflects this in respectful communication and shared decision-making with the patient and the healthcare team. 	6 months 12 months 30 months	Multisource feedback Direct Observation Mentored self-reflection

Physicians and other healthcare professionals <ul style="list-style-type: none"> Communicate effectively with physicians, other health professionals, and health related agencies. Work effectively as a member or leader of a health care team or other professional group. Act in a consultative role to other physicians and health professionals. 	Transitions of care <ol style="list-style-type: none"> Effectively communicate with other caregivers to maintain appropriate continuity during transitions of care. Role model and teach effective communication with next caregivers during transitions of care. 	12 months 24 months	Multisource feedback Direct Observation
	Interprofessional team <ol style="list-style-type: none"> Deliver appropriate, succinct, hypothesis-driven oral presentations. Effectively communicate plan of care to all members of the health care team. Engage in collaborative communication with all members of the health care team. 	6 months 12 months 30 months	Multisource feedback
	Consultation <ol style="list-style-type: none"> Request consultative services in an effective manner. Clearly communicate the role of consultant to the patient, in support of the primary care relationship. Communicate consultative recommendations to the referring team in an effective manner. 	6 months 12 months 36 months	Multisource feedback Chart audit
	Medical Records <ul style="list-style-type: none"> Maintain comprehensive, timely, and legible medical records students, residents and other health professionals. 	Health records <ol style="list-style-type: none"> Provide legible, accurate, complete, and timely written communication that is congruent with medical standards. Ensure succinct, relevant, and patient-specific written communication. Integrate teaching, feedback, and evaluation with supervision of interns' and students' patient care Take a leadership role in the education of all members of the health care team. 	6 months 24 months 24 months 36 months Peer evaluations

5: Professionalism

Competency	Developmental Milestones	Approximate Time Frame Trainee Should Achieve Stage	Assessment Methods/Tools
Physician ship <ul style="list-style-type: none"> ▪ Demonstrate compassion, integrity, and respect for others. ▪ Responsiveness to patient needs that supersedes self-interest. ▪ Accountability to patients, society and the profession 	Adhere to basic ethical principles <ol style="list-style-type: none"> 1. Document and report clinical information truthfully. 2. Follow formal policies. 3. Accept personal errors and honestly acknowledge them. 4. Uphold ethical expectations of research and scholarly activity. 	1 month 6 months 36 months	Multisource feedback
	Demonstrate compassion and respect to patients <ol style="list-style-type: none"> 1. Demonstrate empathy and compassion to all patients. 2. Demonstrate a commitment to relieve pain and suffering. 3. Provide support (physical, psychological, social and spiritual) for dying patients and their families. 4. Provide leadership for a team that respects patient dignity and autonomy. 	3 months 24 months	Multisource feedback
	Provide timely, constructive feedback to colleagues <ol style="list-style-type: none"> 1. Communicate constructive feedback to other members of the health care team. 2. Recognize, respond to and report impairment in colleagues or substandard care via peer review process. 	12 months 18 months	Multisource feedback Mentored self-reflection Direct observation
	Maintain accessibility <ol style="list-style-type: none"> 1. Respond promptly and appropriately to clinical responsibilities including but not limited to calls and pages. 2. Carry out timely interactions with colleagues, patients and their designated caregivers. 	1 month 6 months	Multisource feedback

	Recognize conflicts of interest 1. Recognize and manage obvious conflicts of interest, such as caring for family members and professional associates as patients.	6 months	Multisource feedback Mentored self-reflection
	Demonstrate personal accountability 1. Dress and behave appropriately. 2. Maintain appropriate professional relationships with patients, families and staff. 3. Ensure prompt completion of clinical, administrative, and curricular tasks. 4. Recognize and address personal, psychological, and physical limitations that may affect professional performance. 5. Recognize the scope of his/her abilities and ask for supervision and assistance appropriately. 6. Serve as a professional role model for more junior colleagues (e.g., medical students, interns). 7. Recognize the need to assist colleagues in the provision of duties.	1 month 6 months 12 months 30 months	
	Practice individual patient advocacy 1. Recognize when it is necessary to advocate for individual patient needs. 2. Effectively advocate for individual patient needs.	6 months 30 months	Multisource Feedback Direct Observation
	Comply with public health policies 1. Recognize and take responsibility for situations where public health supersedes individual health (e.g. reportable infectious diseases).	24 months	
	Patient-Centeredness <ul style="list-style-type: none"> Respect for patient privacy and autonomy Sensitivity and responsiveness to adverse patient 		
	Respect the dignity, culture, beliefs, values and opinions of the patient 1. Treat patients with dignity, civility and respect, regardless of race, culture, gender, ethnicity, age or socioeconomic status. 2. Recognize and manage conflict when patient values differ from their own.	1 month 30 months	Multisource feedback
	Confidentiality		Multisource feedback

population, including but not limited to diversity in gender, age, culture, race, religion, disabilities, and sexual orientation.	<ol style="list-style-type: none"> 1. Maintain patient confidentiality. 2. Educate and hold others accountable for patient confidentiality. 	1 month 18 months	Chart audits
	Recognize and address disparities in health care <ol style="list-style-type: none"> 1. Recognize that disparities exist in health care among populations and that they may impact care of the patient. 2. Embrace physicians' role in assisting the public and policy makers in understanding and addressing causes of disparity in disease and suffering. 3. Advocates for appropriate allocation of limited healthcare resources. 	12 months 36 months	

6: System-based Practice:

Competency	Developmental Milestones	Approximate Time Frame Trainee Should Achieve Stage	Assessment Methods/Tools
Works effectively with other care providers and settings <ul style="list-style-type: none"> ▪ Work effectively in various health care delivery settings and systems relevant to their clinical practice. ▪ Coordinate patient care within the health care system relevant to their clinical specialty. Work in inter-professional teams to enhance patient safety and improve patient care quality. ▪ Work in teams and effectively transmit necessary clinical information to ensure safe and proper care of 	Works effectively within multiple health delivery systems <ol style="list-style-type: none"> 1. Understand unique roles and services provided by local health care delivery systems. 2. Manage and coordinate care and care transitions across multiple delivery systems, including ambulatory, subacute, acute, rehabilitation, and skilled nursing. 3. Negotiate patient-centered care among multiple care providers. 	12 months 24 months 36 months	Faculty Evaluation Multi-source feedback Chart stimulated recall Standardized patient Direct Observation Portfolio
	Works effectively within an interprofessional team <ol style="list-style-type: none"> 1. Appreciate roles of a variety of health care providers, including, but 	6 months	Faculty Evaluation Multi-source feedback Chart Stimulated Recall

<p>patients including the transition of care between settings.</p>	<p>not limited to, consultants, therapists, nurses, home care workers, pharmacists, and social workers.</p> <ol style="list-style-type: none"> 2. Work effectively as a member within the interprofessional team to ensure safe patient care. 3. Consider alternative solutions provided by other team mates. 4. Demonstrate how to manage the team by utilizing the skills and coordinating the activities of interprofessional team members. 	<p>12 months</p> <p>36 months</p>	<p>Portfolio</p> <p>Direct observation</p>
<p>Improving health care delivery</p> <ul style="list-style-type: none"> Advocate for quality patient care and optimal patient care systems. Participate in identifying system errors and implementing potential systems solutions/ Recognize and function effectively in high quality care system 	<p>Recognizes system error and advocates for system improvement</p> <ol style="list-style-type: none"> 1. Recognize health system forces that increase the risk for error including barriers to optimal patient care. 2. Identify, reflect upon, and learn from critical incidents such as near misses and preventable medical errors. 3. Dialogue with care team members to identify risk for and prevention of medical error. 4. Understand mechanisms for analysis and correction of systems errors. 5. Demonstrate ability to understand and engage in a system level quality improvement intervention. 6. Partner with other healthcare 	<p>12 months</p> <p>24 months</p> <p>36 months</p>	<p>Portfolio</p> <p>Survey</p> <p>Faculty rating of residents' reflection on events</p>

	<p>and decision-making</p> <p>4. Demonstrate the incorporation of cost-awareness principles into complex clinical scenarios.</p>	36 months	
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These milestones provide a structured framework for assessing the development and progression of MD Internal Medicine postgraduate trainees, ensuring a comprehensive and rigorous educational experience.

Section no. 7

ASSESSMENT AND EVALUATION

THE PROGRAMME OF ASSESSMENT FOR MD INTERNAL MEDICINE (updated October 2024)

INTRODUCTION

1: Difference between Assessment and Evaluation:

Assessment is primarily concerned with tracking the progress and competencies of individual residents, providing structured feedback to facilitate continuous improvement. In contrast, **evaluation** focuses on judging the overall effectiveness of the training program, curriculum quality, and instructional methods to ensure they meet institutional and accreditation standards.

2: Types of Assessment:

Formative Assessment: Conducted throughout the residency to monitor progress, formative assessment provides residents with actionable feedback to help refine their clinical skills and knowledge.

Summative Assessment: Implemented at key milestones, summative assessment evaluates residents' cumulative knowledge, skills, and readiness to progress to the next training phase.

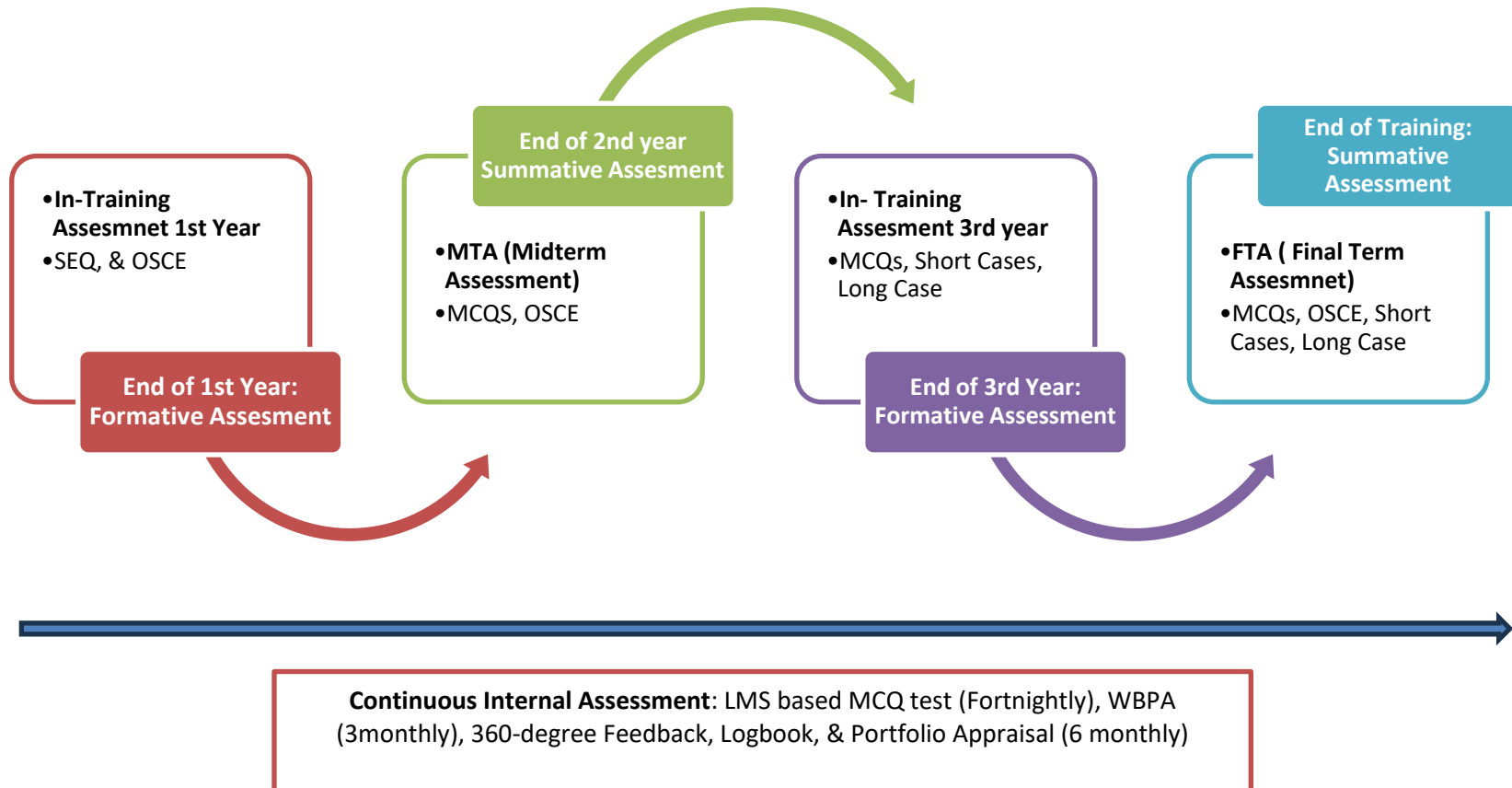
Workplace based Assessment (WPBA) refers to a group of assessment modalities which evaluates trainees' performance during the clinical settings. Hallmark of WPBA is the element of observation of the trainee's performance in real workplace environment along with relevant feedback, thus fostering reflective practice. WPBA consists of observation of clinical performance (mini- CEX, DOPS), discussion of clinical cases (CbD), and feedback from peers, coworkers, and patients (360- degree feedback).

Continuous Assessment: Continuous assessment is integrated throughout training to ensure consistent monitoring of residents' progress in core clinical competencies (Medical Knowledge, Patient Care, Professionalism, Interpersonal Communication Skills, System based Practice, & Practice based Learning).

3: Purpose of Assessment for MD Medicine Residents at RMU:

The purpose of assessment in the MD Medicine program at RMU is to foster the development of competencies aligned with the **ACGME core competencies (Medical Knowledge, Patient Care, Professionalism, Communication Skills, Practice-based Learning, and Systems-based Practice)**. Continuous assessment via WPBA, and 360-degree feedback ensures that residents receive regular, structured feedback on their performance, promoting lifelong learning and readiness for independent practice. This approach not only aids in identifying areas for improvement but also supports the holistic development of each resident, aligning with the program's mission to produce competent, compassionate, and reflective physicians.

ASSESSMENT FRAMEWORK FOR MD MEDICINE PROGRAM



CONTINUOUS INTERNAL ASSESSMENT (CIA) ELIGIBILITY CRITERIA TO APPEAR IN A SUMMATIVE ASSESSMENT

Competencies included CIA	Phases of CIA	Timeline for end of various phases of CIA	Eligibility Criteria of CIA	Tools for Assessment of CIA
1. Medical knowledge 2. Patient care (40% both) 3. Interpersonal & communication skills 4. Professionalism (40% both) 5. Practice based learning 6. System based learning (10% both) 7. Research 10%)	Phase -1 ➤ CIA Year 1 ➤ CIA Year 2	till end of Year 2	Equal to or more than 75% (a cumulative score of all formative & Workplace based assessments)	<ul style="list-style-type: none"> • 360-degree Feedback • WPBA (Mini-CEX, CbD, DOPs) • Case based discussion • Clinicopathological Conference • Logbook Appraisal • Charts stimulated recall • Teaching rounds • Research activities • MCQs (LMS based Assessment)
	Phase -2 ➤ CIA Year 3 ➤ CIA Year 4	till end of Year 4	Equal to or more than 75% (a cumulative score of all formative & Workplace based assessments)	

Details about various competencies required for MD Internal Medicine along with brief details of Teaching Strategies, Type of Assessment, weightage given to the competency & Tools of Assessment:

Sr. No	Competency to be assessed	Teaching & learning strategies	Type of Assessment for the competency to be assessed	% weightage of the competency	Tools of Assessment
1.	Medical knowledge	Case based discussion & problem-based learning, large group interactive session, self-directed learning, teaching rounds, and literature search.	Formative Assessment, Continuous Internal Assessment & Summative Assessment	40% for both Medical Knowledge and Patient Care both	MCQs, SEQs, Directly observe procedure, mini clinical examinations, charts, OSCE, teaching ward rounds, case discussion, seminars, topic presentation
2.	Patient care	Case based discussion, teaching rounds, morbidity & mortality meetings, 360 ^o feedback evaluation, DOPS, long case/ short case discussions OPDs, emergency indoor workshops, hands-on trainings.	Formative Assessment, Continuous Internal Assessment & Summative Assessment		Teaching rounds, case base discussion, presentations, CPC participation, clinical management, problem base learning, peer assisted learning, dealing with paramedics & patient attendants
3.	Professionalism	Teaching rounds, known conferences, workshops, hands-on training, CPC, morbidity & mortality meetings, journal Club	Formative assessment, Continue internal assessment	40% for both professionalism & interpersonal communication skills both	Working in OPDs, wards, emergency DOPs, clinical case discussion, dealing with paramedics, meeting with supervisor & mentors, mini clinical examination
4.	Interpersonal & communication skills	Teaching rounds, hands on training, workshops related to research methodology, SPSS, data entry, LGIS, session with supervisor & mentors, session with research units, SDL,	Formative assessment, Continuous internal assessment		360-degree evaluation.

5.	Practice based learning	Case based discussion, teaching rounds, known conferences, morbidity & mortality meetings, OPDs, emergency indoor workshops, hands on trainings.	Formative assessment, Continuous internal assessment (360-degree Feedback, Logbook & portfolio Appraisal)	10% both Practice Based Learning & System Based Learning both	Working in OPDs, wards, emergency DOPs, clinical case discussion, dealing with paramedics, meeting with supervisor & mentors, mini clinical examination
6.	System based learning	Working in wards, OPDs, Emergency	Formative assessment, Continuous internal assessment (360-degree Feedback, Logbook & portfolio Appraisal)		Working in OPDs, wards, emergency DOPs, clinical case discussion, dealing with paramedics, meeting with supervisor & mentors, mini clinical examination
7.	Research	Large group Interactive sessions on Research, hands on training & workshops, practical work of research including literature search, finding research question, synopsis writing, data collection, data analysis, thesis writing	Formative assessment, Continuous internal assessment (Research portfolio and Research log book appraisal)	10%	Approval of research topic and synopsis & thesis from URTMC, Board of Advanced studies and Research and ethical review board, Requirement of Completion certificate of research workshops as eligibility criteria for examinations, Defense of Thesis examination

DESCRIPTION OF FORMATIVE & SUMMATIVE ASSESSMENTS:

S.NO.	Year of Examination	Name of Examination & type of Assessment	Eligibility criteria	Pass Marks required
1	At the End of Year 1	In Training - Assessment year1 (Formative Assessment)	<ol style="list-style-type: none"> 75% or above of CIA the total marks will be considered as eligible Submission of certificates of completion of the Following Mandatory workshops: Communication skills 3 days Computer & IT skills - 3 days Synopsis writing -----3 days Basic Life Support ----2 days Submission of certificate of approval of Research Topic/Affidavit that if certificate of approval of Research Topic will not be provided within 30 days of submission of Application for in training examination no.1, the candidate will not be allowed to take examination. Publication of one article in Resident Research Journal (for five-year training program only) OR Statistical report of one disease (for four-year training program only) Completed and Duly signed Logbook for Year one Completed and duly signed Portfolio for Year one Submission of certificate of Continuous Internal Assessment for year one: Equal to or More than 75% (a cumulative score 	Not applicable as it is a Formative Assessment

			<p>of the year one)</p> <p>9. Certificate of completion of First year Training duly signed by the Supervisor</p> <p>10. Submission of evidence of payment of examination Fee for year-1 examination</p> <p>11. Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. for year one of training.</p>	
2	At the end of Year-2	Mid Training Assessment (Summative Assessment)	<p>1. 75% or above of CIA the total marks will be considered as eligible</p> <p>2. Submission of Pass Result of Examination of Year-1</p> <p>3. Submission of certificates of completion of the Following Mandatory workshops: Research methodology & Biostatistics-----3 days Professionalism-2 days SPSS (Statistical Package for Social Sciences) ----- 2 days</p> <p>4. Submission of certificate of approval of Research Protocol/Synopsis or undertaking /Affidavit that if approved synopsis will not be provided within 30 days of submission of Application for Intermediate Module Examination, the candidate will not be allowed to take examination.</p> <p>5. Synopsis approved from DRB, IRB, & BASAR,</p> <p>6. Completed and Duly signed Logbook for year one and two</p> <p>7. Completed and duly signed Portfolio for year one and two</p> <p>8. Submission of certificate of Continuous</p>	Details Described at the end 60% pass marks

			<p>Internal Assessment for year one: Equal to or More than 75% (a cumulative score of the year one and two both)</p> <p>9. Submission of required certifications, fee receipt, and no-dues clearance for Year 2 training</p>	
3	At the end of Year - 3	In Training - Assessment year 3 (Formative Assessment)	<ol style="list-style-type: none"> 1. Submission of Pass result Mid Training Examination 2. Submission of certificates of completion of the Following Mandatory workshops : Reference Manager (Endnote)--- 1 day Mandalay 1 day 3. Submission of certificate of verification of Data Collection or undertaking /Affidavit that if the certificate of verification of Data Collection will not be provided within 30 days of submission of Application for in training examination no.2, the candidate will not be allowed to take examination. 4. Completed and Duly signed Logbook & Portfolio for year three. 5. Submission of certificate of Continuous Internal Assessment for year three: Equal to or More than 75% (a cumulative score of the year three) 6. Certificate of completion of third year of Training duly signed by the Supervisor 7. Submission of required certifications, fee receipt, and no-dues clearance for Year 3 training 	Not applicable as it is a Formative Assessment

4	At the end of year-4	Final Assessment for four-year program (Summative Assessment)	<ol style="list-style-type: none"> 1. 75% or above of CIA the total marks will be considered as eligible 2. Submission of Pass result of In Examination year-3 3. Submission of certificates of completion of the workshops: 4. Can attend any required workshop optionally if He or She wants and can submit the certificate 5. Submission of certificate of approval of Thesis or undertaking /Affidavit that if approved synopsis within 30 days of submission of Application for Final Examination, the candidate will not be allowed to take examination. 6. Submission of Final thesis to BASAR. 7. Submission of required certifications, fee receipt, and no-dues clearance for Year 4 training. 	Details Described at the end 60% Pass marks
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Details about Content, number of questions (MCQs &SEQs) and Marks of various High Stake & Summative Examinations

Name of examination	Content	Eligibility criteria	Questions MCQs/SEQs/TOACS																																	
In-Training- Assessment Year-1 (at the end of year 1)	<ul style="list-style-type: none">Cardiology, Nephrology, Gastroenterology, Respiratory Medicine, Neurology, Emergency Medicine/Poisoning, Endocrinology, Dermatology, Critical Care, and Infectious diseases relatedBasic principles of medicineSymptoms analysisClinical methods/signs interpretationDifferential diagnosisBasic investigationsCounseling &ethicsBLS/ACLSManagement of common emergenciesPrinciples of Antibiotic Therapy	<p>i. Completion of 1 year training</p> <p>ii. Workshops completion</p> <ul style="list-style-type: none">Communication skills----- 3daysComputer &IT skills -----3daysSynopsis writing ----- 3daysBLS/ACLS -----1 days <p>iii. Research</p> <ul style="list-style-type: none">Allotment of Thesis topic by supervisorPublication of one article in Resident Research Journal OR Statistical report of one disease <p>iv. CIS- Minimum 75% marks- Certification by DME and Supervisor/s</p> <p>Special note:</p> <p>Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMIC</p>	<p>A. Written Assessment for year -1 total marks 100 (10 SAQs)</p> <p><i>(Pass percentage: 50%)</i></p> <p><i>Table of Specification for written Assessment</i></p> <table><tr><th>Sr.no</th><th>Discipline</th><th>SAQ</th></tr><tr><td>1.</td><td>Cardiology</td><td>1</td></tr><tr><td>2.</td><td>Nephrology</td><td>1</td></tr><tr><td>3.</td><td>Gastroenterology</td><td>1</td></tr><tr><td>4.</td><td>Respiratory Medicine</td><td>1</td></tr><tr><td>5.</td><td>Neurology</td><td>1</td></tr><tr><td>6.</td><td>Emergency Medicine and poisoning</td><td>1</td></tr><tr><td>7.</td><td>Endocrinology</td><td>1</td></tr><tr><td>8.</td><td>Dermatology</td><td>1</td></tr><tr><td>9.</td><td>Critical Care</td><td>1</td></tr><tr><td>10.</td><td>Infectious Diseases</td><td>1</td></tr></table> <p>Up to 10% Questions may be from any topic</p> <p>B- Clinical Assessment (100marks)</p> <p>On passing the theory, trainees will be eligible to appear in practical exam.</p> <p>Pass marks 50%.</p> <ul style="list-style-type: none">Five interactive OSCE stations (Respiratory, CVS, Neurology, Gastroenterology, and Clinical Medicine Scenario (each of 10 marks)	Sr.no	Discipline	SAQ	1.	Cardiology	1	2.	Nephrology	1	3.	Gastroenterology	1	4.	Respiratory Medicine	1	5.	Neurology	1	6.	Emergency Medicine and poisoning	1	7.	Endocrinology	1	8.	Dermatology	1	9.	Critical Care	1	10.	Infectious Diseases	1
			Sr.no	Discipline	SAQ																															
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2.	Nephrology	1																																		
3.	Gastroenterology	1																																		
4.	Respiratory Medicine	1																																		
5.	Neurology	1																																		
6.	Emergency Medicine and poisoning	1																																		
7.	Endocrinology	1																																		
8.	Dermatology	1																																		
9.	Critical Care	1																																		
10.	Infectious Diseases	1																																		

Mid Training Assessment (MTA) at the end of year 2	<ul style="list-style-type: none">• Cardiology• Gastroenterology• Respiratory medicine• Neurology• Infectious diseases• Nephrology• Emergency medicine• Hematology• Rheumatology• Psychiatry• Endocrinology• Critical care• Dermatology	<p>i- Completion of 2-year training ii- Passed Year One examination iii- Rotations completion</p> <p>Three rotations (each of 2 months- to be completed in first two years)</p> <ol style="list-style-type: none">1. Cardiology2. Nephrology3. ICU <p>iv- Research:</p> <ul style="list-style-type: none">• Formulation of research synopsis with approval of ERB & BASR by the end of 2nd year• Certificate will be issued by UTM <p>v- CIS- Minimum 75% marks minimum 75% marks- Certification by DME and Supervisor/s</p> <p>Special note:</p> <p>Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTM</p>	<p>A – Mid Training Assessment (total marks = 300) B - Written Assessment (150 marks)</p> <p>Two papers of case based 75 MCQs total marks 150</p> <p>(Pass percentage = 60%)</p> <p>C- Table of Specification for paper I & II PAPER-I</p> <table><tr><th>Sr.no</th><th>Discipline</th><th>MCQs</th></tr><tr><td>1.</td><td>Cardiology</td><td>15</td></tr><tr><td>2.</td><td>Nephrology</td><td>15</td></tr><tr><td>3.</td><td>Psychiatry</td><td>10</td></tr><tr><td>4.</td><td>Infectious diseases</td><td>10</td></tr><tr><td>5.</td><td>Respiratory medicine</td><td>10</td></tr><tr><td>6.</td><td>Emergency Medicine and poisoning</td><td>10</td></tr><tr><td>7.</td><td>Critical Care</td><td>5</td></tr></table> <p>PAPER-II</p> <table><tr><th>Sr.no</th><th>Discipline</th><th>MCQs</th></tr><tr><td>1.</td><td>Neurology</td><td>15</td></tr><tr><td>2.</td><td>Gastroenterology</td><td>15</td></tr><tr><td>3.</td><td>Dermatology</td><td>15</td></tr><tr><td>4.</td><td>Hematology</td><td>10</td></tr><tr><td>5.</td><td>Endocrinology</td><td>10</td></tr><tr><td>6.</td><td>Rheumatology</td><td>10</td></tr></table> <p>Up to 10% Questions may be from any topic</p> <p>D- Clinical Assessment (OSCE 150 marks)</p> <p>On passing the theory, trainee will be eligible to appear in OSCE comprising 15 Stations.</p> <p>(Pass percentage = 60%)</p>	Sr.no	Discipline	MCQs	1.	Cardiology	15	2.	Nephrology	15	3.	Psychiatry	10	4.	Infectious diseases	10	5.	Respiratory medicine	10	6.	Emergency Medicine and poisoning	10	7.	Critical Care	5	Sr.no	Discipline	MCQs	1.	Neurology	15	2.	Gastroenterology	15	3.	Dermatology	15	4.	Hematology	10	5.	Endocrinology	10	6.	Rheumatology	10
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In-Training Assessment Year-3 (at the end of year 3)	<ul style="list-style-type: none">• Cardiology• Gastroenterology• Respiratory medicine• Neurology• Infectious diseases• Nephrology• Dermatology• Critical care• Emergency medicine• Rheumatology• Endocrinology• Psychiatry• Hematology	<ul style="list-style-type: none">i. Completion of 3rd year trainingii. Passed Intermediate examinationiii. Workshops completion<ul style="list-style-type: none">• Reference Manager (Endnote)---1 dayiv. Research<ul style="list-style-type: none">• data collection• data analysis & interpretation• start writing thesisv. Publication of one article in resident research journal or statistical report of 11 disease(optional)vi. CIS MINIMUM 75% marks minimum 75% marks certification by DME and Supervisors/s <p>Special note:</p> <p>Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMIC</p>	<p>A- Written Assessment (100 marks)</p> <p>➤ 100 MCQs----- total marks 100 (100 clinical MCQs)</p> <p>(Pass percentage = 50%)</p> <p>B- Table of Specification</p> <table><tr><th>Sr.no</th><th>Discipline</th><th>MCQs</th></tr><tr><td>1.</td><td>Cardiology</td><td>10</td></tr><tr><td>2.</td><td>Gastroenterology</td><td>10</td></tr><tr><td>3.</td><td>Respiratory medicine</td><td>10</td></tr><tr><td>4.</td><td>Neurology</td><td>10</td></tr><tr><td>5.</td><td>Nephrology</td><td>10</td></tr><tr><td>6.</td><td>Infectious Diseases</td><td>10</td></tr><tr><td>7.</td><td>Dermatology</td><td>10</td></tr><tr><td>8.</td><td>Critical care</td><td>5</td></tr><tr><td>9.</td><td>Emergency medicine</td><td>5</td></tr><tr><td>10.</td><td>Psychiatry</td><td>5</td></tr><tr><td>11.</td><td>Rheumatology</td><td>5</td></tr><tr><td>12.</td><td>Endocrinology</td><td>5</td></tr><tr><td>13.</td><td>Hematology</td><td>5</td></tr></table> <p>Up to 10% Questions may be from any topic</p> <p>B- Clinical Assessment (120 marks)</p> <p>On passing the theory, trainee will be eligible to appear in practical assessment.</p> <p>Pass marks 50%.</p> <ul style="list-style-type: none">• Four short cases total 60 marks (each of 15 marks)• One long case 60 marks	Sr.no	Discipline	MCQs	1.	Cardiology	10	2.	Gastroenterology	10	3.	Respiratory medicine	10	4.	Neurology	10	5.	Nephrology	10	6.	Infectious Diseases	10	7.	Dermatology	10	8.	Critical care	5	9.	Emergency medicine	5	10.	Psychiatry	5	11.	Rheumatology	5	12.	Endocrinology	5	13.	Hematology	5
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13.	Hematology	5																																											

Final Assessment (FTA) at the end of year 4	<ul style="list-style-type: none">• Cardiology• Gastroenterology• Respiratory medicine• Neurology• Infectious diseases• Nephrology• Dermatology• Critical care• Emergency medicine• Rheumatology• Endocrinology• Hematology• Psychiatry	<p>i- Completion of 4th year training ii-Passed 3rd year examination iii- Research/Thesis</p> <ul style="list-style-type: none">• Completion & submission of Thesis 6 months before completion of training• Defense & Approval of Thesis in BASR• Certificate will be issued by <p>UTMC iv- Rotations Four rotations completion in last two year</p> <ul style="list-style-type: none">• Neurology (1 month)• Gastroenterology (2 month)• Dermatology (1 month)• Pulmonology (1 month)• Radiology (2 weeks)• Psychiatry (2 weeks) <p>V.CIS Minimum 75% marks- Certification by DME and Supervisor/s</p> <p>Special note:</p> <p>Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMC.</p>	<p>(Total Marks = 800)</p> <p>A. Written Assessment (200 marks)</p> <p>PAPER-I- Case Based 100 MCQs---(100 marks) PAPER-II Case Based 100 MCQs---(100 marks) Case Based Clinical MCQs of C3 level</p> <p>Pass percentage = 60%</p> <p>B- Table of Specification for paper I & II PAPER-I</p> <table><tr><th>Sr.no</th><th>Discipline</th><th>MCQs</th></tr><tr><td>1.</td><td>Cardiology</td><td>20</td></tr><tr><td>2.</td><td>Gastroenterology, including Hepatobiliary and Pancreatic Disease</td><td>20</td></tr><tr><td>3.</td><td>Respiratory Medicine</td><td>20</td></tr><tr><td>4.</td><td>Infectious diseases</td><td>20</td></tr><tr><td>5.</td><td>Critical Care</td><td>10</td></tr><tr><td>6.</td><td>Endocrinology</td><td>10</td></tr></table> <p>PAPER-II</p> <table><tr><th>Sr.no</th><th>Discipline</th><th>MCQs</th></tr><tr><td>1.</td><td>Nephrology, Fluid Electrolyte, and Acid Base Disorders</td><td>20</td></tr><tr><td>2.</td><td>Neurology</td><td>20</td></tr><tr><td>3.</td><td>Emergency Medicine including Poisoning</td><td>20</td></tr><tr><td>4.</td><td>Dermatology</td><td>10</td></tr><tr><td>5.</td><td>Hematology, Immunology, Medical Oncology</td><td>10</td></tr><tr><td>6.</td><td>Psychiatry</td><td>10</td></tr><tr><td>7.</td><td>Rheumatology</td><td>10</td></tr></table>	Sr.no	Discipline	MCQs	1.	Cardiology	20	2.	Gastroenterology, including Hepatobiliary and Pancreatic Disease	20	3.	Respiratory Medicine	20	4.	Infectious diseases	20	5.	Critical Care	10	6.	Endocrinology	10	Sr.no	Discipline	MCQs	1.	Nephrology, Fluid Electrolyte, and Acid Base Disorders	20	2.	Neurology	20	3.	Emergency Medicine including Poisoning	20	4.	Dermatology	10	5.	Hematology, Immunology, Medical Oncology	10	6.	Psychiatry	10	7.	Rheumatology	10
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			<p>Up to 10% Questions may be from any topic</p> <p>C- Clinical Assessment (500 marks)</p> <p>On passing the theory, trainee will be eligible to appear in practical exam. Pass marks 60%.</p> <ul style="list-style-type: none"> • Four short cases total 200 marks (each of 50 marks) • One long case 150 marks • OSCE (15 stations) ----- 150 marks <p>D- Defense of Thesis (100 marks)</p> <ul style="list-style-type: none"> • Presentation: 30 marks • Discussion : 70 marks <p>Pass percentage = 60%</p>
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TABLE OF SPECIFICATION BY CALGARY METHOD

The Calgary Method of Table of Specification (TOS) is an approach used to systematically design assessment tools, particularly for exams, ensuring they align with the curriculum's objectives and content weightage. Developed in Calgary, this method integrates specific steps to ensure that the assessment aligns with instructional goals, such as mapping questions to learning outcomes, emphasizing cognitive complexity, and determining the appropriate number of questions for each content area.

Key Elements:

Content Coverage: Ensures that each topic's weight in the assessment reflects its importance in the curriculum.

Cognitive/ Competencies Levels: Balances questions across different cognitive levels (C1 to C3)/Competencies (Clinical features, Diagnostics, Management).

Objective Alignment: Links each question to specific learning outcomes to maintain consistency with instructional objectives.

Question Distribution: Sets a clear distribution of questions per topic, helping educators to focus on areas that need emphasis.

Table 1: Weightage criteria for impact and frequency of the clinical content

Impact (I)		Frequency (F)	
Non-urgent, little prevention potential	1	Rarely seen	1
Serious, but not immediately life threatening	2	Relatively common	2
Life threatening emergency and/or high potential for prevention impact	3	Very common	3

Table 2: Classification of curricular content based on their weightage

I X F	Category	Percentage
6-9	Must Know	60%
3-4	Should Know	30%
1-2	Nice to Know	10%

MTA TABLE OF SPECIFICATION BASED ON CALGARY METHOD

PAPER I:

System	Impact (I)	Frequency (F)	I X F	Weightage	No. of MCQs	% Distribution
Cardiology	3	3	9	0.19148936	14	19%
Nephrology	2	3	6	0.12765957	10	13%
Emergency Medicine	3	3	9	0.19148936	14	19%
Respiration	3	3	9	0.19148936	15	20%
Infectious Disease	2	3	6	0.12765957	10	13%
Psychiatry	2	2	4	0.08510638	6	8%
Critical Care	2	2	4	0.08510638	6	8%
Total			47		75	100%

PAPER II

System	Impact (I)	Frequency (F)	I X F	Weightage	No. of MCQs	% Distribution
Neurology	3	3	9	0.19565217	15	20%
Gastroenterology	3	3	9	0.19565217	15	20%
Hematology	3	3	9	0.19565217	15	20%
Rheumatology	3	2	6	0.13043478	10	14%
Endocrinology	3	3	9	0.19565217	13	17%
Dermatology	2	2	4	0.08695652	7	9%
Total			46		75	100%

FTA TABLE OF SPECIFICATION BASED ON CALGARY METHOD

PAPER I:

System	Impact (I)	Frequency (F)	I X F	Weightage	No. of MCQs	% Distribution
Cardiology	3	3	9	0.19565217	20	20
Gastroenterology (Including Hepatobiliary & Pancreatic disorders)	3	3	9	0.19565217	20	20
Respiration	3	3	9	0.19565217	20	20
Infectious diseases	3	3	9	0.19565217	19	19
Critical Care	2	2	4	0.08695652	8	8
Endocrinology	2	3	6	0.13043478	13	13
Total			46		100	100

PAPER II

System	Impact (I)	Frequency (F)	I X F	Weightage	No. of MCQs	% Distribution
Nephrology, Acid base disorders, & Electrolyte Imbalance	3	3	9	0.19148936	19	19
Neurology	3	3	9	0.19148936	19	19
Emergency Medicine	3	3	9	0.19148936	19	19
Dermatology	2	2	4	0.08510638	9	9
Hematology	2	3	6	0.12765957	13	13
Psychiatry	2	2	4	0.08510638	9	9
Rheumatology	2	3	6	0.12765957	12	12
Total			47		100	100

OSCE IN-TRAINING ASSESMENT YEAR 1

1. Total number of stations – 5 (all Interactive)
2. Time allocation for each station – 10 minutes
3. Total marks 100
4. Marks allocation for each station – 20 marks

Details of OSCE Stations

Station No.	Station Description
1	Respiratory Station Short case version of clinical examination
2	Cardiovascular System Short case version of clinical examination
3	Gastrointestinal system Short case version of clinical examination
4	Neurology Station Short case version of clinical examination
5	Clinical Medicine Scenario Station Ability to analyze a clinical Medicine scenario and formulate initial management plan A patient, surrogate, video, equipment, and medicine can be there at this station

Year I Assessment- OSCE Short Cases Marking Details- Marks 20

Subject: Medicine	Candidates Name:			
Hospital/Unit:	Date:			
OSCE Station.	Diagnosis/System covered:			
	EXCELLENT (100%)	GOOD (80%)	ADEQUATE (60%)	INADEQUATE (<60%)
Clinical Examination Skills (6 Marks) <ul style="list-style-type: none"> • Observes professional manners. • Performs proper and relevant clinical examination according to instructions given. • Apply clinical methods systematically and appropriately 	6	4.8	3.6	
Discussion (14 Marks) <ul style="list-style-type: none"> • Gives correct findings with logical interpretation and conclusion. 	6	4.8	3.6	
Justifies diagnosis	4	3.3	2.4	
<ul style="list-style-type: none"> • Suggests appropriate & relevant investigations and management 	4	3.3	2.4	

*Write numbers in inadequate category. These should be less than adequate. The same will be clarified in pre-examination meetings and in relevant training sessions.

Additional Remarks (if any):

Name and Signature of Examiner:

OSCE- MID TERM ASSESSMENT

5. Total number of stations – 15 (all Interactive)
6. Time allocation for each station – 5 minutes
7. Marks allocation for each station – 10 marks

Details of OSCE Stations

Station No.	Station Description	Details	C	P	A
1	ECG (2 ECG) Dysrhythmias, Ischemic heart disease, Pericarditis, Electrolyte imbalance, Medication related effects etc.	<i>ECG will be shown to the Candidate.</i> <i>Questions will focus relevant findings, interpretation, and diagnosis/treatment where relevant.</i>	C3	P3	
2	X-ray Station (2 X Rays) Chest (Pulmonology/Cardiology) mandatory One of Rheumatology, Metabolic bone disease, and Abdomen etc.	<i>X-Rays will be shown.</i> <i>Questions will focus relevant interpretation of findings, diagnosis, etiology, treatment where relevant etc.</i>	C3	P3	
3	2 CT scan (preferably) or MRI- Station Brain mandatory One of Chest, Spine, and Abdomen etc.	<i>CT scan or MRI will be shown.</i> <i>Questions will focus relevant findings, diagnosis, etiology, treatment and complications etc.</i>	C3	P3	
4	Clinical Problem Solution Station One of Hematology, Oncology, Infectious disease, Emergency, Critical Care, and Nephrology etc clinical problem scenario.	<i>Clinical Problems will be presented to Candidate in form of video, picture, clinical details, and clinical data etc.</i> <i>Candidate will be evaluated with reference to diagnostic features and management.</i>	C3	P3	
5	Procedure on Simulator Lumbar puncture, Arterial sampling, CVP line insertion, Needle chest aspiration, Ascitic tap, and ETT intubation etc.	<i>Candidate will be asked to perform one of the procedures. Mannerism, technique/procedural skills will be evaluated by Examiner.</i>	C3	P3	A3

		<i>Questions will focus procedure, indication, contraindications, and complications etc.</i>			
6	Instrument & Medication Station Instruments; Oxygen delivery system, Pleural biopsy, Bone marrow aspiration, Liver biopsy, and Pleural biopsy etc. Medications; Digoxin, Amiodarone, Potassium, Insulin, and Thyroxin etc.	<i>Candidate will be provided one of medication or Instrument.</i> <i>Candidates will be assessed with reference to utilization/indication, practical use, contraindications, practical use/procedure (where relevant) and complications etc.</i>	C3	P3	A3
7	Life Support Station BLS component	<i>Scenario focusing BLS component will be given.</i> <i>Candidate will be observed by Examiner for managing the issue. Relevant questions will be asked.</i>	C3	P3	A3
8	Respiratory Station Focused short case version of clinical examination	<i>In 5 minutes candidate will be asked to perform focused clinical examination of chest for assessment of knowledge, skill and attitude.</i> <i>Examiners will observe and ask questions pertaining to correct findings, logical interpretation, and management etc.</i>	C3	P3	A3
9	Cardiovascular System Focused short case version of clinical examination	<i>In 5 minutes candidate will be asked to perform focused clinical examination of CVS for assessment of knowledge, skill and attitude.</i> <i>Examiners will observe and ask questions pertaining to correct findings, logical interpretation, and management etc.</i>	C3	P3	A3
10	Gastrointestinal system Focused short case version of clinical examination	<i>In 5 minutes candidate will be asked to perform focused clinical examination of GIT for assessment of knowledge, skill and attitude.</i> <i>Examiners will observe and ask questions pertaining to correct findings, logical</i>	C3	P3	A3

		<i>interpretation, and management etc.</i>			
11	Neurology Station Focused short case version of clinical examination	<i>In 5 minutes candidate will be asked to perform focused clinical examination of Nervous system for assessment of knowledge, skill and attitude.</i> <i>Examiners will observe and ask questions pertaining to correct findings, logical interpretation, and management etc.</i>	C3	P3	A3
12	Counseling Station- Focusing autonomy, confidentiality, beneficence, justice, no harm, empathy, breaking bad diseases, and safety net etc.	<i>In a given scenario Candidate ability to solve relevant issue will be evaluated with involvement of patient or surrogate.</i>	C3	P3	A3
13	Eye/Fundoscopy Station Clinical signs pertaining to pupillary abnormalities, extraocular muscle palsies, fundoscopic examination abnormalities etc.	<i>Candidate will be shown video/picture and or asked to perform examination on patient or surrogate. Examination competency, diagnostic features, management, and complications etc will be evaluated.</i>	C3	P3	A3
14	Emergency Management Station DKA, Status epileptics, poisoning, upper GI bleed, ACS, dysrhythmias, acute severe asthma, hypoglycemia, electrolyte imbalance, and metabolic acidosis etc.	<i>With reference to one of the scenario, Candidates ability to plan management avoiding complications will be evaluated</i>	C3	P3	
15	Dermatology Station 2 Picture/patients of common dermatological disorders i.e., Psoriasis, systemic diseases and CTD disorder related findings, rash, infection, Erythema Nodusum, Erythema multiforme, and drug rash etc	<i>With reference to two of the scenario, Candidates ability to diagnose and plan management will be evaluated</i>	C3	P3	

As a guideline 50% of the station will focus cognition, 40% psychomotor skills, and 10% on attitude. This can be varied however depending on scenario, station type, and examiners preference

OSCE Short Cases Stations MTA (8-11) Marking Details- 10 Marks

Subject: Medicine	Candidates Roll No:
Examiner Name:	Date:
OSCE Station.	Diagnosis/System covered:

	Maximum Marks	Obtained Marks
Observes professional manners	1	
Use correct clinical methods	3	
Gives correct clinical findings	3	
Gives logical interpretation and differential diagnosis	3	
Suggests appropriate & relevant investigations and management		
TOTAL MARKS	10	

Additional Remarks (if any):

Name and Signature of Examiner:

IN-TRAINING ASSESMENT YEAR-3 CLINICAL COMPONENT

1. Total marks 120

2. 4 Short Cases – 15 marks each

Respiratory, CVS, GIT, and Neurology

Time allocation for each short case – 10 minutes

3. 01 Long Case- 60 marks

Time allocation for each short case – 60 minutes

In training Assessment Year III- Short Cases Marking Details- 15 Marks

Subject: Medicine	Candidates Roll No:
Examiner Name:	Date:
OSCE Station.	Diagnosis/System covered:

	Maximum Marks	Obtained Marks
Observes professional manners	1	
Use correct clinical methods	5	
Gives correct clinical findings	4	
Gives logical interpretation and differential diagnosis	5	
Suggests appropriate & relevant investigations and management		
TOTAL MARKS	15	

Additional Remarks (if any):

Name and Signature of Examiner

In Training Assessment Year III- Long Case- Marking Details- 60 Marks

Subject: Medicine	Candidates Roll #:	Instructions to examiners: Please enter your award on the performance against each item according to the rating scale		
Station No;	Date:			
Examiners Name;	Diagnosis of the case:			
	Excellent (100%)	Good (80%)	Adequate (60%)	Inadequate * (<60%)
History Taking Skills Introduces self to patient, listens patiently and attentively, is polite, and obtains informed consent. Communicates efficiently. Asks necessary and relevant questions. Assess patient's symptoms, identify potential risk factors, and establish a comprehensive understanding of health status to guide further diagnosis and treatment. Focuses relevant components of history, including hospital course where relevant Presents logically		20	16	12
Clinical Examination Uses correct clinical methods, is systemic and examines the patient as a whole. (including appropriate exposure and re-draping) Performs examinations of relevant system in detail.		20	16	12
Case Presentation and Discussion Presentation skills Correctness of findings Interpretation of findings Diagnosis and differential diagnosis Management plan including multidisciplinary approach Counseling, recent advances,		20	16	12

*Write numbers in inadequate category. These should be less than adequate. The same will be clarified in pre-examination meeting and in relevant training sessions.

Additional Remarks (if any):

Name and Signature of Examiner:

FTA CLINICAL/OSCE COMPONENTS MARKING DETAILS

Components	Time allowed	Max. Marks	Min. Pass marks
CLINICAL	60 minutes		
Long case	30 minutes for history taking and clinical examination 30 minutes for discussion	150	90
Short cases (Four cases)	40 minutes (includes both examination and discussion)	200	120
OSCE (15 interactive Stations)	5 minutes per station	150	90
AGGREGATE		500	300 (60%)

OSCE- FINAL TERM ASSESSMENT

1. Total number of stations – 15 (all Interactive)
2. Time allocation for each station – 5 minutes
3. Marks allocation for each station – 10 marks

Details of OSCE Stations

Station No.	Station Description	Description	C	P	A
1	ECG- 2 ECG Dysrhythmia Ischemic heart disease, Pericarditis Electrolyte imbalance, Medication related effects etc.	<i>2 ECG focusing above mentioned diagnosis will be shown to the Candidate.</i> <i>Questions will focus on relevant findings, diagnosis, etiology, treatment planning, and complications etc.</i>	<i>C3</i>	<i>P3</i>	
2	X-ray Station- 2 X Rays Chest (Pulmonology/Cardiology) mandatory One of Rheumatology, Metabolic bone disease, and Abdomen etc.	<i>2 X-Rays focusing above mentioned diagnosis will be shown to the Candidate.</i> <i>Questions will focus on relevant findings, diagnosis, etiology, treatment planning, and complications etc.</i>	<i>C3</i>	<i>P3</i>	

3	CT scan or MRI scan-Station Brain mandatory (focusing stroke, neoplasm, and tuberculoma etc) One of Chest, Spine, and Abdomen etc.	2 CT scan or MRI will be shown to the Candidate. <i>Questions will focus relevant findings, diagnosis, etiology, treatment and complications etc.</i>	C3	P3	
4	Diagnostic investigations Station Barium Studies, Radio nucleotide scans, Endoscopic findings, Spirometry, Echocardiogram, and Ultrasound etc.	One of above mentioned investigation will be shown to the Candidate. <i>Questions will focus relevant findings, diagnosis, etiology, treatment and complications etc in given scenario.</i>	C3	P3	
5	Clinical Problem Solution Station One of Hematology, Oncology, Infectious disease, Emergency, Critical Care, and Nephrology etc scenario.	Clinical Problems will be provided to Candidate in form of video, picture, clinical details, and clinical data etc. <i>Questions will focus diagnostic features and management.</i>	C3	P3	
6	Procedure on Simulator: Lumbar puncture, Arterial sampling, CVP line insertion, Needle chest aspiration, Ascitic tap, and Chest intubation etc.	Candidate will be asked to perform one of the procedures. Mannerism, technique/procedural skills will be evaluated by Examiner. <i>Questions will focus procedure, indication, contraindications, and complications etc.</i>	C3	P3	A3

7	Instrument And Medication Station Oxygen delivery system, Pleural biopsy, Bone marrow aspiration, Liver biopsy, and Pleural biopsy etc. Digoxin, Amiodarone, Potassium, Insulin, and Thyroxin etc.	<i>Candidate will be provided one of medication or Instrument.</i> <i>Questions will focus utilization, practical use, indication, contraindications, procedure (where relevant) and complications etc.</i>	C3	P3	A3
8	Clinical Video/Audio Station Clinical sign interpretation (Heart sounds, Chest sounds, Gait abnormality, and Fits etc.)	<i>Candidate will be shown video or audio focusing one of above mentioned clinical feature.</i> <i>Questions will focus characteristic features leading to diagnosis, genesis/etio-pathogenesis, and management etc.</i>	C3	P3	
9	Life Support Station ACLS component	<i>Candidate will be provided scenario focusing ACLS component.</i> <i>He will be observed by Examiner for managing the issue. Relevant questions focusing management will be asked.</i>	C3	P3	A3
10	Rheumatology Station Clinical Features/signs pertaining Rheumatologic illnesses i.e., Rheumatoid Arthritis, SLE, and Sero-negative Arthritis etc.	<i>Candidate will be shown video/picture and or asked to perform examination on patient or surrogate.</i> <i>Procedural competency, diagnostic features, management, and complications etc will be evaluated.</i>	C3	P3	A3
11	Counseling Station Focusing autonomy, confidentiality, beneficence, justice, no harm, and safety net etc.	<i>In a given scenario Candidate ability to solve relevant issue will be evaluated.</i>	C3	P3	A3

12	Eye/Fundoscopy Station Clinical signs pertaining to pupillary abnormalities, extra ocular muscle palsies, fundoscopic examination abnormalities etc	<i>Candidate will be shown video/picture and or asked to perform examination on patient or surrogate. Procedural competency, diagnostic features, management, and complications etc will be evaluated.</i>	C3	P3	A3
13	Emergency Management Station DKA, Status epileptics, poisoning, upper GI bleed, ACS, dysrhythmias, acute severe asthma, hypoglycemia, electrolyte imbalance, and metabolic acidosis etc.	<i>With reference to one of the scenario, Candidates ability to plan management avoiding complications in given scenario will be evaluated</i>	C3	P3	A3
14	Videos/Images in Clinical Medicine: Typical clinical features of a disease; Facial features- nerve palsy, and Hypothyroid etc.	<i>With reference to one of the scenario/patient, Candidates ability to diagnose and plan management will be evaluated</i>	C3	P3	
15	Dermatology Station Rash, Infection, Psoriasis, Erythema Nodusum, and Erythema multiforme etc (common dermatological issues)	<i>With reference to one of the scenario or patient, Candidates ability to diagnose and plan management will be evaluated</i>	C3	P3	A3

As a guideline 50% of the station will focus cognition, 40% psychomotor skills, and 10% on attitude. This can be varied however depending on scenario, station type, and examiners preference.

Short Cases FTA Marking Details- 50 Marks

Subject: Medicine	Candidates Roll No:
Examiner Name:	Date:
Diagnosis/System covered:	

	Excellent (100%)	Good (80%)	Adequate (60%)	Inadequate (<60%)*
Clinical Examination Skills (6 Marks) <ul style="list-style-type: none"> Observes professional manners (consent, hand hygiene, appropriate exposure and re-draping) Performs proper and focused clinical examination according to instructions given. Applies clinical methods systematically and appropriately 	30	24	18	
Discussion (4 Marks) <ul style="list-style-type: none"> Gives correct findings with logical interpretation and conclusion. Justifies diagnosis Suggests appropriate & relevant investigations and management 	20	16	11	

*Write numbers in inadequate category. These should be less than adequate. The same will be clarified in pre-examination meeting and in relevant training sessions.

Additional Remarks (if any):

Name and Signature of Examiner:

Long Case- Marking Details- 150 Marks

Subject: Medicine	Candidates Roll #:	Instructions to examiners:			
Station No;	Date:	Please enter your award on the performance against each item according to the rating scale			
Examiners Name;	Diagnosis of the case:				
		Excellent (100%)	Good (80%)	Adequate (60%)	Inadequate * (<60%)
History Taking Skills <ul style="list-style-type: none"> Introduces self to patient, listens patiently and attentively, is polite, and obtains informed consent. Communicates efficiently. Asks necessary and relevant questions. Assess patient's symptoms, identify potential risk factors, and establish a comprehensive understanding of health status to guide further diagnosis and treatment. Focuses relevant components of history, including hospital course where relevant Presents logically 		30	24	18	
Clinical Examination <ul style="list-style-type: none"> Uses correct clinical methods, is systemic and examines the patient as a whole. (including appropriate exposure and re-draping) Performs examinations of relevant system in detail. 		60	48	36	
Case Presentation and Discussion <ul style="list-style-type: none"> Presentation skills Correctness of findings Interpretation of findings Diagnosis Management plan including multidisciplinary approach Counseling, recent advances, 		60	48	36	

*Write numbers in inadequate category. These should be less than adequate. The same will be clarified in pre-examination meeting and in relevant training sessions.

Additional Remarks (if any):

Name and Signature of Examiner:

SECTION NO.8

ENTRUSTABLE PROFESSIONAL ACTIVITIES

Entrustable Professional Activities (EPAs) for MD Medicine Program of Rawalpindi Medical University:

Competency-based medical education (CBME) requires measures that reliably assess residents' performance when doing professional work. EPAs describe the core work of a discipline that physicians are trusted by society to deliver safely and competently. EPAs are units of concrete daily clinical tasks that trainee physicians should be able to handle with increasing autonomy during their postgraduate training. EPAs serve as a useful complement to CBME. They facilitate assessment processes because they are observable.

End-of-Training EPAs:

End-of-Training EPAs for Residents of the MD Medicine Program are derived from **ABIM** and will constitute the following activities:

1. **EPA-1:** Manage the care of patients with acute common diseases across multiple care settings.
2. **EPA-2:** Manage the care of patients with acute complex diseases across multiple care settings.
3. **EPA-3:** Manage the care of patients with chronic diseases across multiple care settings.
4. **EPA-4:** Age-appropriate screening and preventative care.
5. **EPA-5:** Resuscitate, stabilize, and care for unstable or critically ill patients.
6. **EPA-6:** Provide perioperative assessment and care.
7. **EPA-7:** Provide general internal medicine consultation to non-medical specialties.
8. **EPA-8:** Manage transitions of care.
9. **EPA-9:** Facilitate family meetings.
10. **EPA-10:** Lead and work within interprofessional healthcare teams.
11. **EPA-11:** Facilitate the learning of patients, families, and members of the interdisciplinary team.
12. **EPA-12:** Enhance patient safety.
13. **EPA-13:** Improve the quality of health care at both the individual and system levels.
14. **EPA- 14:** Advocate for individual patients.
15. **EPA- 15:** Demonstrate personal habits of lifelong learning.
16. **EPA-16:** Demonstrate professional behavior.

Clinical Competency	PGY-1	PGY-2	PGY-3	PGY-4
	EPA No	EPA No	EPA No	EPA No
EPA-1: Manage care of patients with acute common diseases across multiple care settings.	2	3	4	4
EPA-2: Manage care of patients with acute complex diseases across multiple care settings.	1	2	3	4
EPA-3: Manage care of patients with chronic diseases across multiple care settings.	1	2	3	4
EPA-4: Age-appropriate screening and preventative care.	2	3	4	4
EPA-5: Resuscitate, stabilize, and care for unstable or critically ill patients.	3	4	4	4
EPA-6: Provide perioperative assessment and care.	1	2	3	4
EPA-7: Provide general internal medicine consultation to non-medical specialties.	2	3	4	4
EPA-8: Manage transitions of care.	2	3	4	4
EPA-9: Facilitate family meetings.	2	3	4	4
EPA-10: Lead and work within inter professional healthcare teams.	1	2	3	4
EPA-11: Facilitate the learning of patients, families, and members of the interdisciplinary team.	1	2	3	4
EPA-12: Enhance patient safety.	2	3	4	4
EPA-13: Improve the quality of health care at both the individual and system levels.	2	2	3	4
EPA- 14: Advocate for individual patients.	2	3	4	4
EPA- 15: Demonstrate personal habits of lifelong learning.	2	3	4	4
EPA-16: Demonstrate professional behavior.	3	4	4	4

The EPAs-competencies matrix:

The end of training EPAs can be mapped onto the six core competencies of the MD Medicine residency program as follows:

Competency	EPA-1	EPA-2	EPA-3	EPA-4	EPA-5	EPA-6	EPA-7	EPA-8	EPA-9	EPA-10	EPA-11	EPA-12	EPA-13	EPA-14	EPA-15	EPA-16
Patient Care	*	*	*	*	*	*	*	*				*		*		
Medical Knowledge	*	*	*	*	*	*	*									
Interpersonal and Communication Skills							*	*	*	*	*			*		
Practice- based Learning											*		*		*	
Systems- based Practice	*	*	*	*	*	*		*				*	*			
Professionalism							*	*	*	*		*		*	*	*

SECTION NO.9

LOGBOOKS

Introduction

Rawalpindi Medical University (RMU), situated in the heart of Pakistan, is a leading public-sector institution committed to excellence in medical education, research, and healthcare delivery. Recognizing the ever-evolving demands of modern medicine, RMU has adopted a competency-based training framework for its postgraduate programs, aligning with the **Accreditation Council for Graduate Medical Education (ACGME) core competencies**. This approach ensures that graduates are equipped with the knowledge, skills, and attitudes necessary to provide high-quality, patient-centered care in diverse clinical settings.

The MD Medicine program at RMU is designed to cultivate clinical excellence and foster lifelong learning among trainees. The program integrates advanced medical knowledge with practical training, emphasizing professionalism, communication, patient safety, and evidence-based practice. The logbook serves as a structured tool to guide trainees in documenting their progress and achieving the core competencies essential for internal medicine specialists.

Types of Logbooks:

The university provides MD Medicine trainees with four types of logbooks to facilitate structured documentation and comprehensive learning.

- 1: General Logbook:** Residents record cases encountered in routine settings, including emergencies, outpatient departments, and inpatient wards.
- 2: Rotational Logbook:** Designed for entries specific to departmental rotations, such as Cardiology, Nephrology, Neurology, Radiology, Psychiatry, and Dermatology. This ensures focused documentation of specialized clinical exposure.
- 3: Reflective Logbook:** Residents document their reflections on clinical experiences to foster critical thinking and self-assessment.
- 4: E-Logbook:** Serves as a digital platform for general case entries and research data entries enhancing accessibility and organization.

Aim and Objectives of the Logbook

Aim:

To provide a structured framework for MD Medicine trainees to document their clinical experiences, procedural skills, and academic activities, ensuring alignment with the mission and vision of Rawalpindi Medical University and the ACGME core competencies.

Objectives:

Facilitate Competency Development: To ensure trainees achieve proficiency in the six ACGME core competencies: Patient Care, Medical Knowledge, Interpersonal and Communication Skills, Professionalism, Practice-Based Learning and Improvement, and Systems-Based Practice.

Promote Reflective Practice: To encourage trainees to critically reflect on their clinical encounters, fostering continuous improvement and professional growth.

Enhance Accountability: To provide a comprehensive record of the trainee's learning experiences, ensuring accountability to training supervisors and the university.

Support Comprehensive Assessment: To aid in formative and summative evaluations by documenting skills acquisition, procedural competence, and academic participation.

Align with Institutional Mission: To contribute to RMU's mission of producing competent, compassionate, and ethical physicians who address healthcare challenges within Pakistan and beyond.

SCHEDULE OF ROTATIONS OF MEDICINE & ALLIED OVER THE PERIOD OF FOUR YEARS

To be completed in first two years of training	General Medicine 18 months 1: Medical Emergency 2: Medical OPD 3: Medical Wards	Three rotations (06 months) 1: Cardiology 2: Nephrology 3: Intensive care
To be completed in third and fourth year of training	General Medicine 18 months 1: Medical Emergency 2: Medical OPD 3: Medical Wards	Six rotations (06 months) 1: Gastroenterology (2 months): 2: Neurology (1months) 3: Pulmonology (1months) 4: Dermatology (1months) 5: Psychiatry (2 weeks) 6: Radiology (2 weeks)

STRUCTURED ROADMAP FOR MD MEDICINE LOGBOOK ENTRIES FOR 1ST TO 4TH-YEAR TRAINEES

Year of Training	Type of Logbook	Details/Rotations	Minimum Entries per Month
1st Year	General Logbook	Routine entries from Medical Emergency, OPD, and Wards. Focus on understanding basic case management and documentation.	10 indoor patient cases. 25 emergency cases. 25 OPD cases.
	Rotational Logbook	Not applicable for 1st-year trainees.	Not applicable
	Reflective Logbook	Reflections on basic cases observed, focusing on learning gaps and skills development.	1 reflective entry per month.
2 nd year	General logbook	Advanced case management in Medical Emergency, OPD, and Wards. Begin exploring critical cases under supervision.	15 indoor patient cases. 35 emergency cases. 35 OPD cases.
	Rotational Logbook	Cardiology (2 months). Nephrology (2 months). ICU (2 months).	25 cases per rotation.
	Reflective logbook	Reflections on critical cases encountered in rotations and improving diagnostic and management skills.	2 reflective entries per month.
3 rd year	General Logbook	Manage intermediate-to-complex cases independently. Active participation in case discussions and multidisciplinary rounds.	20 indoor patient cases. 50 emergency cases. 50 OPD cases.

	Rotational logbook	Gastroenterology (2 months). - Neurology (1 month). - Pulmonology (1 month). - Dermatology (1 month). - Psychiatry (2 weeks). - Radiology (2 weeks).	25 cases per 2-month rotations. - 12 cases per 1-month rotations. - 6 cases for 2-week rotations.
	Reflective logbook	Reflections on interdisciplinary case management and challenges in advanced patient care.	2 reflective entries per month.
4th year	General Logbook	Independent management of complex cases. - Supervision of junior trainees during emergency and OPD postings. - Preparation for independent clinical practice.	20 indoor patient cases. - 50 emergency cases. - 50 OPD cases.
	Rotational logbook	Continuation of 3rd-year rotations, with a focus on mastery and preparing for specialist roles.	Same as 3rd year.
	Reflective Logbook	Comprehensive reflections on transitioning to independent practice, ethical dilemmas, and leadership experiences in patient care.	3 reflective entries per month.

DETAILS OF MINIMUM LOGBOOK GENERAL ENTRY REQUIREMENT IN 01 MONTH FOR MD MEDICINE

Serial No	ENTRY	SUB-ENTRY*		MINIMUM CASES/TIME DURATION
1	Clinical Meetings/Teaching Sessions/Large Group Discussion	Case based discussion Presentations	2/month	5/month
		Journal Club	1/month	
		Mortality & Morbidity Discussions	2/month	
2	CPC	1/month		
3	Procedures Documentation	6-10/month		
4	Indoor patient Documentation	15/month		
5	Emergency documentation Cases	<ul style="list-style-type: none"> • 50/month during emergency placement of medical unit training either four- or five-year training program of internal medicine & allied Emergency placement • 25/rotation for 2 months rotation e.g. cardiology • 12/ rotation for 1 month rotation e.g. dermatology 		
6	OPD Cases documentation	<ul style="list-style-type: none"> • 50/month during emergency placement of medical unit training either four- or five-year training program of internal medicine & allied Emergency placement • 25/rotation for 2 months rotation e.g. cardiology • 12/ rotation for 1 month rotation e.g. dermatology 		

MEDICAL PROCEDURES ENTRIES IN THE LOGBOOK

Introduction:

The procedure logbook is an essential tool for MD Medicine trainees to document their progression in acquiring procedural skills, ensuring alignment with Entrustable Professional Activities (EPAs) and the Accreditation Council for Graduate Medical Education (ACGME) core competencies. This logbook emphasizes the trainee's journey toward achieving proficiency in performing medical procedures under supervision, with the goal of attaining independence and mastery.

In alignment with EPA 4, which focuses on "performing procedures appropriate to the discipline," the logbook serves to record the stepwise progression of competency through the following entrustment levels:

Level 1: Observation of the procedure, focusing on understanding indications, contraindications, and procedural steps.

Level 2: Performing the procedure under direct supervision, ensuring technical skill development and patient safety.

Level 3: Performing the procedure with indirect supervision, demonstrating increasing competence and autonomy.

Level 4: Independent performance of the procedure with a focus on precision, efficiency, and adherence to professional standards.

Each trainee is expected to achieve competency milestones in a structured, progressive manner, with supervision tailored to their level of expertise and the complexity of the procedure. Supervisors will document assessments of procedural competency, providing formative feedback to guide improvement.

Objective:

The procedure logbook is designed to:

- 1: Ensure trainees acquire proficiency in the ACGME core competencies of Patient Care, Medical Knowledge, and Practice-Based Learning and Improvement through hands-on procedural experience.
- 2: Promote adherence to ethical and professional standards during procedural performance, in alignment with Professionalism and Interpersonal and Communication Skills competencies.
- 3: Foster reflective practice, enabling trainees to identify learning gaps, improve performance, and ensure patient safety.

Trainees are encouraged to regularly review their logbook entries with supervisors to ensure they are meeting the expectations for procedural skill development and are on track to achieve independence by the conclusion of their training program.

EPA-BASED PROCEDURAL SKILL MASTERY: A STRUCTURED PATHWAY

Entrustable Professional Activities (EPAs) provide a structured framework for the progressive development of clinical procedural competencies. Through clearly defined milestones—from observer status to independent performance—trainees gain confidence and expertise under graduated supervision, ensuring both patient safety and high-quality care.

Observer Status: Not allowed to practice - Clinician in an observer role (EPA-1)

Assistant Status: Direct active - full supervision by senior clinician, with prompting or verbal and actual guidance and help throughout (EPA-2)

Performed under supervision: Indirect active - partial supervision by senior clinician, no prompting or help provided, direct line of vision or supervisor immediately available (EPA-3)

Performed independently: Passive - full entrustment to carry out completely, no direct support provided (EPA-4)

YEAR WISE MEDICAL PROCEDURS LOGBOOK ENTRIES ROAD MAP- MD MEDICINE RESIDENTS

Residency years 1 (PGY-1) & 2 (PGY-2):

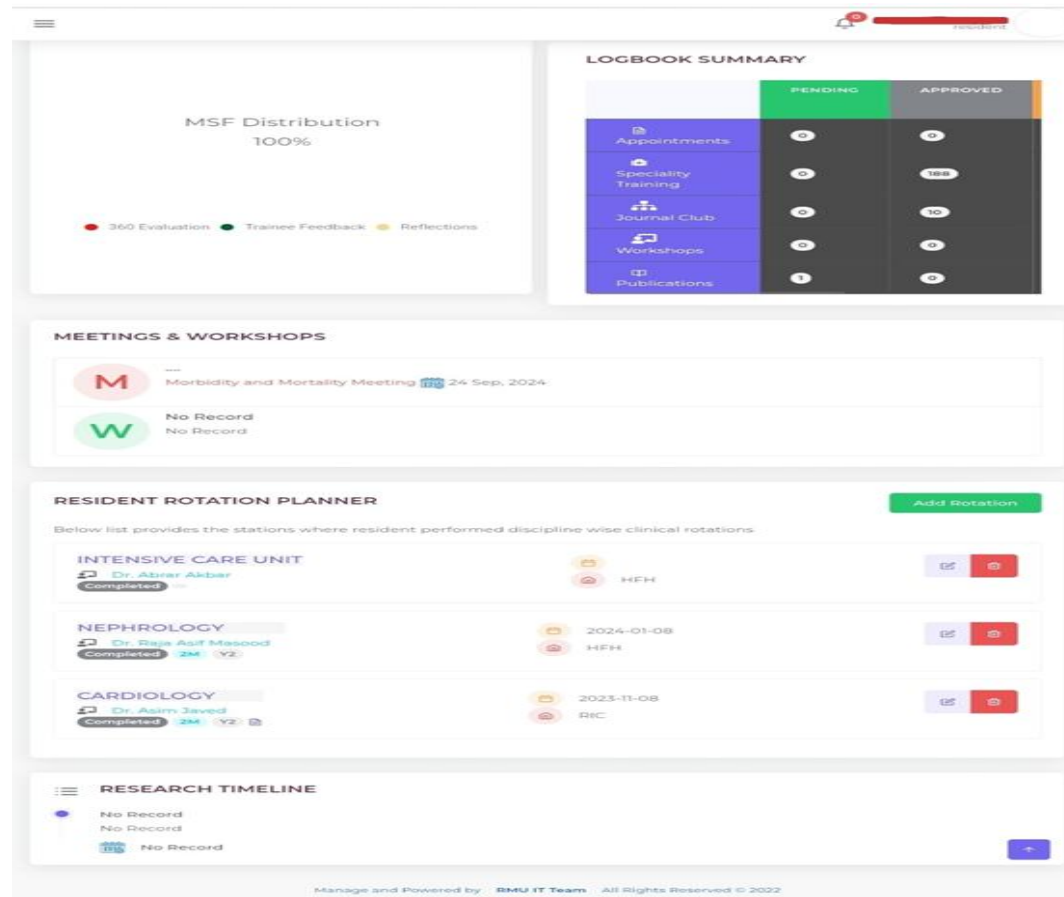
No. of Procedures	PGY-1	Level	PGY-2	Level
Pleural Aspiration	15	1,2	15	2,3
Peritoneal Aspiration	15	1,2	15	2,3
Lumbar Puncture	5	1,2	5	2,3
Nasogastric Intubation	15	1,2	14	3,4
Urethral Catheterization	15	1,2	14	3,4
Reading and Reporting ECG	15	1,2	15	3,4
Endotracheal Intubation	15	1,2	15	3,4
Cardiopulmonary Resuscitation (CPR)	15	1,2	15	3,4
Arterial Puncture	10	1,2	10	3,4
Joint Aspiration	-	-	1	1,2
Bone Marrow Aspiration	-	-	1	1
Abdominal Ultrasound	5	1	5	1,2
CT for Head/ Thorax/Abdomen	5	1,2	5	2,3
Total	130		130	

Residency Years 3 (PGY-3) and 4 (PGY-4):






Procedures	3RD YEAR	Level	4TH YEAR	Level
Pleural Aspiration	15	3,4	15	4
Peritoneal Aspiration	15	3,4	15	4
Lumbar Puncture	6	3,4	6	4
Nasogastric Intubation	12	4	12	4
Urethral Catheterization	12	4	12	4
Reading and Reporting ECG	15	3,4	15	4
Endotracheal Intubation	15	3,4	15	4
Cardiopulmonary Resuscitation (CPR)	15	3,4	15	4
Arterial Puncture	10	3,4	10	4
Joint Aspiration	2	1,2	2	2,3,4
Bone Marrow Aspiration	2	1,2	2	2,3,4
Abdominal Ultrasound	5	2,3	5	3,4
CT for Head/ Thorax/Abdomen	6	2,3	6	3,4
Total	130		130	

E-LOG BOOK: GATEWAY TO DIGITAL PROGRESS AND RESEARCH CREDIBILITY

The MD Medicine e-log book at Rawalpindi Medical University (RMU) marks a significant leap toward digital transformation in postgraduate medical training. By consolidating patient encounters, academic milestones, and workshop participation into one user-friendly platform, it streamlines documentation, enhances accountability, and ensures real-time data capture. Crucially, the integrated research data entry feature elevates the quality and transparency of scholarly work, reinforcing the credibility of evidence-based practice and fostering a culture of continuous improvement in clinical care.



LOGBOOK SUMMARY

	PENDING	APPROVED
 Appointments	0	0
 Speciality Training	0	188
 Journal Club	0	10
 Workshops	0	0
 Publications	1	0

DRAFT	DISCUSS & RESUBMIT	TOTAL
0	0	0
0	0	188
0	0	10
0	0	0
0	0	1

SECTION NO. 10

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Links for Electives/Rotations

- <https://gme.uchc.edu/programs/im/electiveselective.html>
- <http://medicine.buffalo.edu/departments/medicine/education/internal-medicine/program/electives.html>
- <http://www.umm.edu/professionals/gme/programs/im-residency/electives-and-research>
- <https://internalmedicine.osu.edu/education/welcome/educational-career-development-programs/electives/>

LINKS for curriculum

- https://el Paso.ttuhsc.edu/som/internal/IM_Curriculum_8-26-13.pdf
- <http://www.hkcp.org/docs/TrainingGuidelines/HKCP%20GuideBooklet%202011updated%2021.8.2013.pdf>
- <https://www.jrcptb.org.uk/sites/default/files/2009%20GIM%20%28amendment%202012%29.pdf>
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SECTION NO.11

LEARNING RESOURCES

READING RESOURCES

- 1: Davidson's Principles And Practice Of Medicine 24th Ed Full Version.
- 2: Current Medical Diagnosis & Treatment 2025
- 3: Harrison's Principles of Internal Medicine 21st edition
- 4: Marino's The ICU Book by Paul L. Marino MD PhD FCCM (Author) 4th edition
- 5: CURRENT Diagnosis & Treatment Neurology, Third Edition (Current Diagnosis and Treatment, 3) 3rd Edition
- 6: Introduction to Clinical Infectious Diseases: A Problem-Based Approach 2019
- 7: Willam Textbook of Endocrinology 24th Edition
- 8: CHEST SEEK Pulmonary Medicine: 33rd Edition Editorial Board
- 9: Macleod's Clinical Examination, Edition 15
- 10: Oxford Handbook of Emergency Medicine

SECTION NO. 12

APPENDICES (PROFORMAS/FORMS)

List of Appendices

- | | |
|--|---------------|
| 1. Workplace Based Assessments: 360- Degree Feedback | Appendix “A” |
| 2. Supervisor’s Annual Review Report | Appendix “B” |
| 3. Evaluation of program by the resident | Appendix “C” |
| 4. Guidelines for program evaluation & Template | Appendix “D” |
| 5. Annual Program Evaluation | Appendix “E” |
| 6. SWOT Analysis Form | Appendix “ F” |

Appendix “A”



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1

Interpersonal and Communication Skills		Scale				
1. Demonstrates appropriate patient/physician relationship	1	2	3	4	5	
2. Uses appropriate and understandable layman's terminology in discussions with patients	1	2	3	4	5	
3. Patient care documentation is complete, legible, and submitted in timely manner	1	2	3	4	5	
4. Recognizes need for behavioral health services and understands resources available	1	2	3	4	5	
Systems-based Practice		Scale				
1. Spends appropriate time with patient for the complexity of the problem	1	2	3	4	5	
2. Able to discuss the costs, risks and benefits of clinical data and therapy	1	2	3	4	5	
3. Recognizes the personal, financial, and health system resources required to carry out the prescribed care plan	1	2	3	4	5	
4. Demonstrates effective coordination of care with other health professionals	1	2	3	4	5	
5. Recognizes the patient's barriers to compliance with treatment plan such as age, gender, ethnicity, socioeconomic status, intelligence, dementia, etc.	1	2	3	4	5	
6. Demonstrates knowledge of risk management issues associated with patient's case	1	2	3	4	5	
7. Works effectively with other residents in clinic as if a member of a group practice	1	2	3	4	5	
Practice-Based Learning and Improvement		Scale				
1. Locates, appraises, and assimilates evidence from scientific studies	1	2	3	4	5	
2. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies to assess diagnostic and therapeutic effectiveness of treatment plan	1	2	3	4	5	
3. Uses information technology to access information to support diagnosis and treatment	1	2	3	4	5	
Comments						

Total Score _____/165

Resident's Signature

Date

Evaluator's Signature

Date

**Patient Medical Record / Chart Evaluation Proforma**

Name of Resident

Location of Care or Interaction
(OPD/Ward/Emergency/Endoscopy Department)

S#		Poor	Fair	Good	V. Good	Excellent
1.	Basic Data on Front Page Recorded	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	Presenting Complaints written in chronological order	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	Presenting Complaints Evaluation Done	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	Systemic review Documented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	All Components of History Documented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6.	Complete General Physical Examination done	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	Examination of all systems documented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	Differential Diagnosis framed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9.	Relevant and required investigations documented	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10.	Management Plan framed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.	Notes are properly written and eligible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.	Progress notes written in organized manner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13.	Daily progress is written	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.	Chart is organized no loose paper	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15.	Investigations properly pasted	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16.	Abnormal findings in investigations encircled.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17.	Procedures done on patient documented properly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18.	Medicine written in capital letter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19.	I/v fluids orders are proper with rate of infusion mentioned	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20.	All columns of chart complete	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Poor: 0, Fair: 1, Good: 2, V.Good: 3, Excellent: 4



Preview Form

RESIDENT EVALUATION BY NURSE / STAFF

Please take a few minutes to complete this evaluation form. All information is confidential and will be used constructively. You need not answer all the questions

Name of Resident*

Location of care or interaction: (OPD/Ward/Emergency/Endoscopy Department)

Your position (Nurse, Ward Servant, Endoscopy Attendant)

S#	PROFESSIONALISM	Poor	Fair	Good	V Good	Excellent	Insufficient Contact
1.	Resident is Honest and Trustworthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2.	Resident treats patients and families with courtesy, compassion and respect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3.	Resident treats me and other member of the team with courtesy and respect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4.	Resident shows regard for my opinions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5.	Resident maintains a professional manner and appearance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
INTERPERSONAL AND COMMUNICATIONS SKILLS							
6.	Resident communicates well with patients, families, and members of the healthcare team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7.	Resident provides legible and timely documentation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.	Resident respect differences in religion, culture age, gender sexual orientation and disability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SYSTEMS BASED PRACTICE							
9.	Resident works effectively with nurses and other professionals to improve patient care.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PATIENT CARE							
10.	Resident respects patient preferences	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11.	Resident is reasonable accessible to patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12.	Resident take care of patient comfort and dignity during procedures.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
PRACTICE BASED LEARNING AND IMPROVEMENT							
13.	Resident facilitates the learning of students and other professionals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
COMMENTS							
14.	Please describe any praises or concerns or information about specific incidents	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
THANK YOU for your time and thoughtful input. You play a vital role in the education and training of the internal medicine residents.							

Poor: 0, Fair: 1, Good: 2, V. Good: 3, Excellent: 4

Total Score _____/56



RAWALPINDI MEDICAL UNIVERSITY

4

Patient Evaluation of Trainee

Trainee Name: _____
Date of Evaluation: _____

1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

Please circle the appropriate number for each item using this scale. Please provide any relevant comments on the back of this form.

	This Trainee:	Scale				
		1	2	3	4	5
1.	Introduces him/herself and greets me in a way that makes me feel comfortable. ڈاکٹر صاحب نے خود کو متعارف کرایا اور خوش اسلوبی سے پیش آئے					
2.	Manages his/her time well and is respectful of my time. ڈاکٹر صاحب نے میرے اور اپنے وقت کا خیال رکھا۔					
3.	Is truthful, upfront, and does not keep things from me that I believe I should know. ڈاکٹر صاحب نے میرے مرض کی صورتحال پر ہری سچائی سے بیان کیا۔					
4.	Talks to me in a way that I can understand, while also being respectful. ڈاکٹر صاحب نے میرے احساسات کا خیال رکھا اور عزت سے میرا علاج کیا۔					
5.	Understands how my health affects me, based on his/her understanding of the details of my life. ڈاکٹر صاحب نے میرے علاج میں میری صحت پر ذہنی زندگی کو مد نظر رکھا۔					
6.	Takes time to explain my treatment options, including benefits and risks. ڈاکٹر صاحب نے میرے مرض کے علاج کے فوائد اور نقصانات کو تفصیلاً بیان کیا۔					

Total Score _____/30

**Resident/Fellow Evaluation of Faculty Teaching**

Evaluator: _____

Evaluation of: _____

Date: _____

Evaluation information entered here will be anonymous and made available only in aggregated form.

S#		Strongly Disagree	Disagree Moderately	Disagree Slightly	Agree Slightly	Agree Moderately	Strongly Agree
PATIENT CARE							
1.	Teaches current scientific evidence for daily patient management*						
2.	Explains rationale behind clinical judgements/decisions*						
3.	Teaches clear diagnostic algorithms*						
4.	Teaches clear treatment algorithms*						
PATIENT CARE - OPERATIVE AND PROCEDURAL SKILLS							
5.	Teaches operative/procedural skills during cases*						
6.	Allows learners to perform operative/procedural skills when appropriate*						
MEDICAL KNOWLEDGE							
7.	Teaches relevant pathophysiology needed to evaluate patient medical conditions*						
8.	Teaches how/when to use-order-perform procedures/tests*						
9.	Teaching content adds significantly to my medical knowledge						
10.	Teaches the use of literature / evidence based medicine to support clinical decisions/teaching points*						



PRACTICE-BASED LEARNING & IMPROVEMENT/TEACHING							
11.	Asks questions about differential diagnosis*						
12.	Teaches trainees when to consider referrals/consults with other specialists*						
13.	Actively teaches trainees in clinical settings/labs*						
INTERPERSONAL & COMMUNICATION SKILLS							
14.	Motivates learners to expand medical knowledge*						
15.	Stimulates critical thinking*						
16.	Encourages questions*						
17.	Teaches at the appropriate level for the trainee*						
18.	Provides feedback specific enough to be helpful*						
PROFESSIONALISM							
19.	Demonstrates respect for trainees of all levels*						
20.	Does not belittle/ publicly humiliate learners*						
21.	Teaches professional behavior with respect to patient care.*						
22.	Exhibits professional behavior with respect to patient care*						
23.	Role models professional behavior*						
SYSTEMS-BASED PRACTICE							
24.	Teaches cost/benefit decision making*						
25.	Teaches how to call on resources in the system to provide optimal health care*						
26.	Role models the necessity of working in inter-professional teams to enhance patient safety/outcomes.*						

Strongly Disagree: 0, Disagree Moderately: 1, Disagree Slightly: 2,
 Agree Slightly: 3, Agree Moderately: 4, Strongly Agree: 5

Total Score _____ / 130



FINAL Evaluation Scoring Sheet

Name of Resident	Name of Supervisor	Year of Training

Date _____	Faculty #1 (165)	Faculty #2 (165)	Faculty #3 (165)	Average Score	Duration of Assessment _____								
Medical Patient Care (30)				___/30	Specialty _____								
Medical Knowledge (30)				___/30	Hospital _____								
Professionalism (35)				___/35	Unit _____								
Interpersonal and Communication Skills (20)				___/20	Patient # 1 (30)	Patient # 2 (30)	Patient # 3 (30)	Medical Record Performa #1 (80)	Medical Record Performa #2 (80)	Medical Record Performa #3 (80)	Staff # 1 (56)	Staff # 2 (56)	Staff # 3 (56)
System Based Practice (35)				___/35									
Practice Based Learning and Improvement (15)				___/15									
Overall Rating													
Average:	___/165				___/30			___/80			___/56		
										Grand Total			
										___/331			

Logbook complete ☐ incomplete ☐Portfolio complete ☐ incomplete ☐

Leave /absentees: _____

Comments



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7

	in patient care activities.					
15.	I am responsive to feedback from all members of the healthcare team including faculty, residents, students, nurses, allied health professionals, patients and their advocates.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
16.	I am an active participant in teaching rounds and intern report.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
17.	I effectively use verbal and non verbal skills to create rapport with patients and their advocates.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
18.	I communicate effectively with other caregivers to ensure safe transitions in care.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
19.	My patient presentations on rounds are organized, complete and succinct.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
20.	I am able to communicate the plan of care to all the members of the healthcare team.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
21.	My documentation in the medical record is accurate, complete and timely.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
22.	I accept personal errors and honestly acknowledge them.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
23.	I demonstrate compassion and respect to all patients.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
24.	I complete my clinical, administrative and academic tasks promptly.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
25.	I maintain patient confidentiality	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
26.	I log my duty hours regularly and make every effort not to violate the rules	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
27.	When I feel I am too fatigued to work safely, I understand that I can call the chief medical residents for back-up.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
28.	I understand the unique roles and services provided by the workers in the local health delivery system (social workers, case managers, dept of public health etc...)	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
29.	I am able to identify, reflect on, and learn from critical incidents and preventable medical errors.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
30.	I do my best to minimize unnecessary care including tests, procedures, therapies and consultations.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4

Please identify three specific clinical skills that you have improved over the past six months:

Please set three specific goals for the next six months:

Signature _____

Date _____



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7

RESIDENT SELF-ASSESSMENT PROFORMA

Resident Name _____ Date _____

Year of Training _____ Hospital Name _____ Unit _____

<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
Not Applicable	I rarely demonstrates (<25% of the time)	I do this Sometimes (25-50% of the time)	I do this most of the time (50-75% of the time)	I do this all the time (>75% of the time)

1.	I am able to acquire accurate and relevant histories from my patients in an efficient, prioritized and hypothesis driven fashion.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
2.	I am able to seek and obtain appropriate, verified, and prioritized data from secondary sources (e.g. family, records and pharmacy)	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
3.	I am able to perform accurate physical examinations that are appropriately targeted to the patient's complaints.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
4.	I am able to synthesize all available data, including interview, physical exam, and preliminary lab data to define each patient's central clinical problem.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
5.	I am able to develop prioritized differential diagnoses, evidence based diagnostic and therapeutic plans for common conditions in Internal Medicine patients.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
6.	I am able to recognize situations with a need for urgent or emergent medical care, including life threatening conditions.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
7.	I am able to recognize when to seek additional guidance.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
8.	I am able to provide appropriate preventive care.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
9.	I am able to manage patients with common clinical disorders in the practice of outpatient internal medicine with minimal supervision.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
10.	I have performed several invasive procedures and documented them in my New Innovations log.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
11.	I demonstrate sufficient knowledge to diagnose and treat common conditions that require hospitalization.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
12.	I understand the indications for and the basic interpretation of common diagnostic tests.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
13.	I have reviewed my in service exam scores and believe my medical knowledge is where it should be for my level of training.	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4
14.	I am able to identify clinical questions as they emerge	<input type="checkbox"/> NA	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	<input type="checkbox"/> 4



DIRECT OBSERVATION OF PROCEDURAL SKILLS (DOPS)

Please complete the questions using a cross ☒ Please use black ink and CAPITAL LETTERS

Doctor's Name: _____

PMDC Number: _____

Clinical setting:		<input type="checkbox"/> A&E	<input type="checkbox"/> OPD	<input type="checkbox"/> In-patient	<input type="checkbox"/> Acute Admission	<input type="checkbox"/> Other	
Procedure number:		<input type="checkbox"/>					
Assessors position:		<input type="checkbox"/> Consultant	<input type="checkbox"/> SpSR	<input type="checkbox"/> SpR	<input type="checkbox"/> Specialty doctor	<input type="checkbox"/> Nurse	<input type="checkbox"/> Other
Number of previous DOPS observed by assessor with any trainee		<input type="checkbox"/> 0	<input type="checkbox"/> 1-4	<input type="checkbox"/> 5-9	<input type="checkbox"/> >10		
Number of times procedure performed by trainee:		<input type="checkbox"/> 0	<input type="checkbox"/> 1-4	<input type="checkbox"/> 5-9	<input type="checkbox"/> >10		
Difficulty of procedure:		<input type="checkbox"/> Low		<input type="checkbox"/> Average		<input type="checkbox"/> High	
Please grade the following areas		<input type="checkbox"/> Well below expectations	<input type="checkbox"/> Below Expectations	<input type="checkbox"/> Borderline	<input type="checkbox"/> Meets Expectations	<input type="checkbox"/> Above Expectations	<input type="checkbox"/> Well above expectations
		1	2	3	4	5	6
1 Demonstrate understanding of indications, relevant anatomy, technique of procedure		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Obtains informed consent		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Demonstrates appropriate preparation pre-procedure		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Appropriate analgesia or preparation pre-procedure		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Technical ability safe sedation		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6 Aseptic technique		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7 Seeks help where appropriate		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8 Post procedure management		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9 Communication skills		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10 Consideration of Patient/professionalism		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11 Overall ability to perform procedure		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
* U/C Please mark this if you have not observed the behaviour and therefore feel unable to comment.							
Please use this space to record areas of strength or any suggested development							
Anything especially good?				Suggestions for development:			
Have you had training in the use of this assessment tool? <input type="checkbox"/> Face to face <input type="checkbox"/> Have read guidelines <input type="checkbox"/> Web/ CD-Rom							
Assessors signature: _____				Date (mm/yy) _____			
Assessor's Name: _____				Time taken for observation: (in minutes) _____			
				Time taken for feedback _____			

*if appropriate

Please note failure of return of all completed forms to your administrator is a probity issue

Acknowledgement: Adapted with permission of the American Board of Internal Medicine

SpSR - Specialty Senior Registrar
SpR - Specialty Registrar



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9

CASE BASED CLINICAL EVALUATION OF TRAINEE

Resident's Name: _____

Evaluator's Name(s): _____

Hospital Name: _____

Date of Evaluation: _____

☐ Traditional Track (10% Clinic) ☐ Primary Care Track (20% Clinic)

1	Unsatisfactory
2	Below Average
3	Average
4	Good
5	Superior

Please circle the appropriate number for each item using the scale above.

History	Scale				
1. Introduces himself and greet the patient.	1	2	3	4	5
2. Listen to the patient problems.	1	2	3	4	5
3. Shows politeness and empathy	1	2	3	4	5
4. Gathers proper information of present and past history	1	2	3	4	5
Physical Examination	Scale				
1. Physical examination done correctly	1	2	3	4	5
2. Pick physical signs correctly	1	2	3	4	5
3. Relevant examination done in detail	1	2	3	4	5
4. Interpret physical signs correctly	1	2	3	4	5
Assessment Plans	Scale				
1. Can list a logical differential diagnosis	1	2	3	4	5
2. Defend the diagnosis logically	1	2	3	4	5
3. Identifies patient active problems	1	2	3	4	5
Interpretation and Correlation of Laboratory and Imaging Data	Scale				
1. Can order logical and relevant investigations	1	2	3	4	5
2. Correctly interpret investigations (Laboratory and Imaging)	1	2	3	4	5
3. Formulate a logical management plan	1	2	3	4	5
4. Treatment plan is logical and relevant	1	2	3	4	5
5. Able to write a proper prescription	1	2	3	4	5



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Counseling and Follow Up	Scale				
1. Counseling of relevant problems done	1	2	3	4	5
2. Counseling is done empathically and logically	1	2	3	4	5
3. Followup plan discussed with patient.	1	2	3	4	5
4. Followup appointment given	1	2	3	4	5

Total Score _____/100

Resident's Signature

Date

Evaluator's Signature

Date

Appendix “B”

Supervisor’s Annual Review Report.

This report will consist of the following components: -

- I. Verification and validation of Logbook of operations & procedures according to the expected number of operations and procedures performed (as per levels of competence) determined by relevant board of studies.
- II. A 90% attendance in academic activities is expected. The academic activities will include Lectures, Workshops other than mandatory workshops, journal Clubs Morbidity & Mortality Review Meetings and Other presentations.
- III. Assessment report of presentations and lectures
- IV. Compliance Report to meet timeline for completion of research project.
- V. Compliance report on personal Development Plan.
- VI. Multisource Feedback Report on relationships with colleagues, patients.
- VII. The supervisor will produce an annual report based on assessments as per proforma in appendix-G and submit it to the Examination Department.
- VIII.** A 75% score will be required to pass the Continuous Internal Assessment in the annual review.

RESIDENT EVALUATION OF RESIDENCY PROGRAM

Appendix “C”

A. Program Goals and Objectives (Question 1 of 35)

The goals and objectives for each rotation are clearly communicated to residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

B. Evaluation (Question 2 of 35)

The evaluation process of the residents is constructive (computerized faculty evaluations of residents, daily clinical feedback to residents, yearly PRITE, and Director’s semi-annual resident meeting with resident).

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

C. Research (Question 3 of 35)

Residents are provided ample opportunity to develop an interest an in research.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Research (Question 4 of 35)

Residents are encouraged to participate in research.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Research (Question 5 of 35)

Residents are provided the education to develop an understanding of research.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

D. Faculty (Question 6 of 35)

The size, diversification and availability of faculty is adequate for the training program.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1	2	3	4	5

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
-----------------	---	-----------------------------------	--------------	-----------	-----------

E. Faculty (Question 7 of 35)

The Knowledge of the faculty is current and appropriate.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

F. Facilities (Question 8 of 35)

The available resources necessary (library and computer) to obtain current medical information and scientific evidence are adequate and accessible.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

G. Facilities (Question 9 of 35)

On-call rooms, when needed, are adequate to ensure rest, safety, convenience and privacy.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

H. Facilities (Question 10 of 35)

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
-----------------	---	-----------------------------------	--------------	-----------	-----------

The facilities are adequate with regard to support services (nurses, clinic aides) and space for teaching and patient care

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

I. Leadership and Logistics (Question 11 of 35)

The Program Director communicates effectively with residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

J. Leadership and Logistics (Question 12 of 35)

The Associate Program Director communicates effectively with residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

K. Leadership and Logistics (Question 13 of 35)

The Chief Residents communicates effectively with residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

L. Leadership and Logistics (Question 14 of 35)

The Program Coordinator communicates effectively with residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

M. Leadership and Logistics (Question 15 of 35)

The Program Director provides effective leadership of the residency.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

N. Leadership and Logistics (Question 16 of 35)

There is adequate departmental support for residency education.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

O. Leadership and Logistics (Question 17 of 35)

There is adequate departmental support for residency education.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

P. Leadership and Logistics (Question 18 of 35)

The program is responsive regarding scheduling, course materials and other logistical concerns.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Q. Leadership and Logistics

(Question 19 of 35) The

evaluation system (E-Value)

is easy to use.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

R. Training (Question 20 of 35)

Faculty adequately supervises residents' care of patients.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

S. Training (Question 21 of 35)

Training sites present a wide range of psychiatric clinical problems.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

T. Training (Question 22 of 35)

Residents see an appropriate number of patients.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

U. Training (Question 23 of 35)

Residents are given sufficient responsibility for decision-making and direct patient care.

Cannot Evaluate <input type="checkbox"/>	Unsatisfactory <input type="checkbox"/> (Comment Required)	Marginal <input type="checkbox"/> (Comment Required)	Satisfactory <input type="checkbox"/>	Very Good <input type="checkbox"/>	Excellent <input type="checkbox"/>
0	1	2	3	4	5

V. Training (Question 24 of 35)

Rounds and staffing are conducted professionally.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

W. Training (Question 25 of 35)

Rounds and staffing are conducted efficiently.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

X. Training (Question 26 of 35)

Faculty teaches and supervises in ways that facilitate learning.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Y. Training (Question 27 of 35)

The program is responsive to safety concerns at training.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

Z. Training (Question 28 of 35)

The program is responsive to feedback from residents.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

AA. Training (Question 29 of 35)

Residents experience an appropriate balance of educational and clinical responsibilities.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

BB. Training (Question 30 of 35)

The didactic sessions provide core knowledge of the field.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

CC. Training (Question 31 of 35)

The morale of the residents is good.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

DD. Training (Question 32 of 35)

The morale of the faculty is good.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

EE. Training (Question 33 of 35)

Overall, I am very satisfied with the training our program provides.

Cannot Evaluate <input type="checkbox"/>	Unsatisfactory <input type="checkbox"/> (Comment Required)	Marginal <input type="checkbox"/> (Comment Required)	Satisfactory <input type="checkbox"/>	Very Good <input type="checkbox"/>	Excellent <input type="checkbox"/>
0	1	2	3	4	5

FF. Recommendations (Question 34 of 35)

What changes in the training program would you suggest to better prepare residents for their careers?

GG. Additional Comments (Question 35 of 35)

Guidelines for program Evaluation

Appendix “D”

Program Evaluation Committee (PEC)

Background:

The purpose of this committee is to conduct and document a formal, systematic evaluation of the program & curriculum on an annual basis.

Membership:

The chair and membership of the committee are appointed by the Program Director. The membership of the committee consists of at least two members of the program faculty, and at least one resident/subspecialty resident.

Meeting Frequency

The committee meets, at a minimum, annually.

Responsibilities of the PEC

The PEC actively participates in planning, developing, implementing and evaluating the educational activities of the program.

The PEC reviews and makes recommendations for revision of competency-based goals and objectives.

Addresses areas of non-compliance with the standards; and reviews the program annually using written evaluations of faculty, residents, and others.

Required Documentation of PEC Activities

The PEC provides the GMEC with a written Annual Program Evaluation (APE) in the format that is appended to this document. This document details a written plan of action to document initiatives to improve performance based on monitoring of activities described below.

The APE document provides evidence that the PEC is monitoring the following areas, at a minimum:

1. Resident performance
2. Faculty development
3. Graduate performance, including performance of program graduates on the certifying examination
4. Assessment of program quality through:

a. Annual confidential and formal feedback from residents and faculty about the program quality.

b. Assessment of improvements needed based on program evaluation feedback from faculty, residents, and others

5. Continuation of progress made on prior year's action plan

6. Prepare and submit a written plan of action to

- a. Document initiatives to improve performance in one or more of the areas identified,
- b. Delineate how they will be measured and monitored
- c. Document continuation of progress made on the prior year's action plan

Template for Documentation of Annual Program Evaluation and Improvement

Date of annual program evaluation meeting: _____

Attendees:

- i. Program Director: _____
- ii. Program Coordinator: _____
- iii. Associate/Assistant PD: _____
- iv. Faculty Members: _____
- v. Residents: _____

	Reviewed √	Discussion, Follow up, Action Plan
1. Current Program Requirements & Institutional Requirements		
2. Most recent Internal Review Summary to ensure all recommendations are addressed		
3. Review Curriculum <ul style="list-style-type: none">a. effective mechanism in place to distribute Goals & Objectives (G&O) to residents and facultyb. overall program educational goalsc. up-to-date competency-based G&O for each assignmentd. up-to-date competency-based G&O for each level of traininge. G&O contain delineation of resident responsibilities for patient care, progressive responsibility for patient management, and supervision of residents		
4. Evaluation System		

<ul style="list-style-type: none"> a. Resident formative evaluation meets or exceeds program requirement b. Resident summative evaluation meets or exceeds program requirement c. Faculty evaluation meets or exceeds program requirement d. program evaluation meets or exceeds program requirement. 		
<p>5. Didactic Curriculum</p> <ul style="list-style-type: none"> a. includes recognizing the signs of fatigue and sleep deprivation b. the didactic curriculum meets program requirements c. the didactic curriculum meets residents needs 		
6. Clinical Curriculum – the effectiveness of in-patient and ambulatory teaching experience (structure, case mix, meets resident’s needs)		
7. Volume and variety of patients and procedures (case log data) meets requirements and residents’ needs		
8. Summary of written program evaluations completed by both faculty and residents		
9. Resident supervision complies with Program Requirement		
10. Recruiting results		
11. Duty hour monitoring results		
12. Track all research and scholarly activities of faculty and residents/fellows		
13. Educational outcomes: is the program achieving its educational objectives? What aggregate data (residents as a group) can be used to show the program is achieving its objectives? Board scores, in-service training exam scores, graduate surveys, employer surveys, etc.		
15. Clinical outcomes – specialty-specific metrics aligned with dept./division QI initiatives, disease outcomes, patient safety initiatives (describe resident involvement), QI projects (describe resident involvement)		

Note:

If deficiencies are found during this process, the program should prepare a written plan of action to document initiatives to improve performance in the areas that have been identified. The action plan should be reviewed and approved by the teaching faculty and documented in meeting minutes.

Annual Program Evaluation (APE)

Appendix “E”

Minutes & Action Plan

Date of the APE meeting:

Date; Minutes & Action Plan were reviewed and Approved by teaching faculty:

Please attach the minutes of the meeting where the Minutes & Action Plan was reviewed and approved.

Academic Year reviewed:

Faculty Members of the PEC in attendance

Other Members of the PEC in attendance:

Areas reviewed:

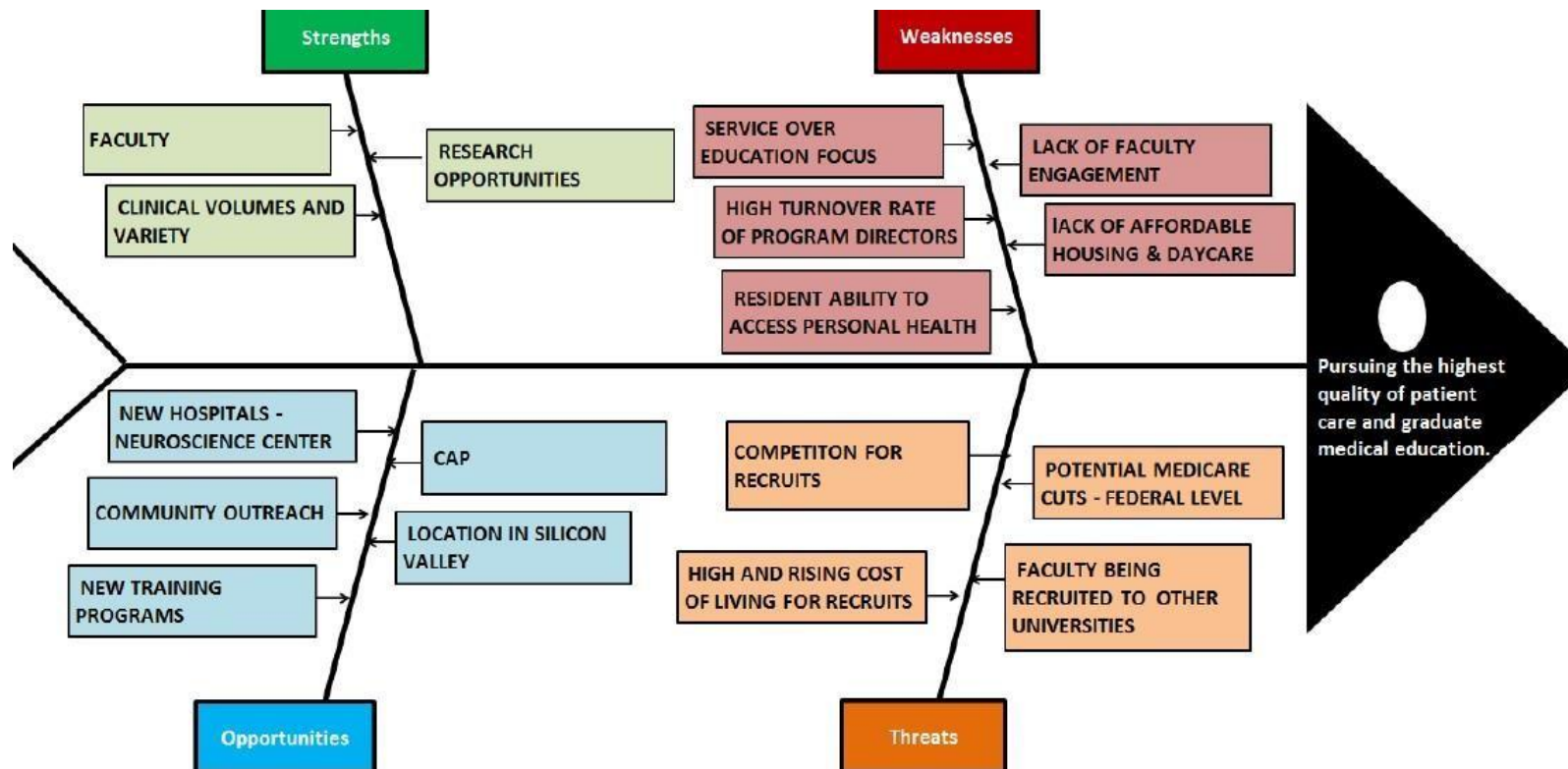
1. Resident performance
 - Supporting documents:
2. Faculty development
 - Supporting documents:
3. Graduate performance
 - Supporting documents:
4. Program quality
 - Supporting documents:
5. Policies, Protocols & Procedures
 - Supporting documents:

SWOT Analysis

Appendix “ F”

- S: Strengths
- W: Weaknesses
- O: Opportunities
- T: Threats

SOWT Analysis (Fishbone – Ishikawa Diagram)



Action Plan

Item	Strategy	Resources	Timeline	Evaluation
Preservation Goals (Strengths)				
Elimination Goals (Weaknesses)				
Achievement Goals (Opportunities)				
Avoidance Goals (Threats)				

FINAL APPROVAL AND SIGNATURES

This page serves as the official endorsement of the MD Medicine Curriculum, confirming its approval by the respective authorities of Rawalpindi Medical University (RMU). The undersigned affirm their review and acceptance of the document.

APPROVAL STATEMENT:

We, the undersigned, hereby confirm that the MD Medicine Curriculum has been reviewed and approved for implementation at Rawalpindi Medical University.

Name	Designation	Signatures
Prof Dr. Muhammad Umer	Vice Chancellor, RMU	
Prof Dr. Muhammad Khurram	Dean of Medicine, RMU& Head of Department, MU-2, HFH	
Prof. Dr. Ifra	Director DME	
Prof Dr. Shehzad Manzoor	Head of Department, MU-1, BBH	
Associate Professor Dr. Saima Ambreen	Head of Department, MU-1, HFH	
Assistant Professor Dr. Arshad Rabbani	Head of Department, MU-2, BBH	
Assistant Professor Dr. Faran Maqbool	Head of Department, Medical Unit, RTH	