



This document is created for comprehensive understanding of all aspects of 5 year Degree Program of MD in Gastroenterology at Rawalpindi Medical University Rawalpindi Pakistan

Program MD Gastroenterology

Rawalpindi Medical University

2019

Program of MD Gastroenterology

Rawalpindi Medical University Rawalpindi

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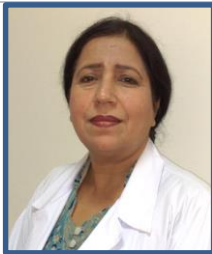

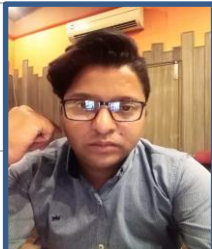
PREFACE

The horizons of *Medical Education* are widening & there has been a steady rise of global interest in *Post Graduate Medical Education*, an increased awareness of the necessity for experience in education skills for all healthcare professionals and the need for some formal recognition of postgraduate training in Gastroenterology.

We are seeing a rise in the uptake of places on postgraduate courses in medical education, more frequent issues of medical education journals and the further development of e-journals and other new online resources. There is therefore a need to provide active support in *Post Graduate Medical Education* for a larger, national group of colleagues in all specialties and at all stages of their personal professional development. If we were to formulate a statement of intent to explain the purpose of this log book, we might simply say that our aim is to help clinical colleagues to teach and to help students to learn in a better and advanced way. This book is a state of the art log book with representation of all activities of the MD Gastroenterology program at RMU. A summary of the curriculum is incorporated in the logbook for convenience of supervisors and residents. MD curriculum is based on six Core Competencies of ACGME (**Accreditation Council for Graduate Medical Education**) including **Patient Care, Medical Knowledge, System Based Practice, Practice Based Learning, Professionalism, Interpersonal and Communication Skills**. A perfect monitoring system of a training program including monitoring of teaching and learning strategies, assessment and Research Activities cannot be denied so we at RMU have incorporated evaluation by **Quality Assurance Cell** and its comments in the logbook in addition to evaluation by **University Training Monitoring Cell (URTMC)**. Reflection of the supervisor in each and every section of the logbook has been made sure to ensure transparency in the training program. The mission of Rawalpindi Medical University is to improve the health of the communities and we serve through education, biomedical research and health care. As an integral part of this mission, importance of research culture and establishment of a comprehensive research structure and research curriculum for the residents has been formulated and a separate journal for research publications of residents is available.

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4.	 <p>MR. JAHANZEB KHAN Computer Operator Holy Family Hospital, Rawalpindi</p>	Also Proof reading & synthesis of final print version of Log Books of MD Gastroenterology Rotation Log Book.

SECTION – I

MISSION STATEMENT

The mission of Gastroenterology Residency Program of Rawalpindi Medical University is:

1. To passionately teach our trainees as we have been taught by those who preceded us.
2. To impart knowledge and skills of gastroenterology in our trainees.
3. To support and contribute to the research mission of our gastroenterology department, nation, and the world by pursuing new knowledge, whether at the bench or bedside.
4. To promote the translation of the latest scientific knowledge to the bedside to improve our understanding of disease pathogenesis and ensure that all patients receive the most scientifically appropriate and up to date care.
5. To extend our talents outside the walls of our hospitals and clinics, to promote the health and well-being of communities, locally, nationally, and internationally.
6. To serve as proud ambassadors for the mission of the Rawalpindi Medical University MD gastroenterology Residency Program for the remainder of our professional lives.

STATUTES

1. **Nomenclature:**

Nomenclature of the Proposed Course The name of degree programme shall be MD Gastroenterology. This name is well recognized and established for the last many decades worldwide.

2. **Course Title:**

MD Gastroenterology

3. **Training Centres:**

Departments of Gastroenterology at Rawalpindi Medical University (RMU).

4. **Duration of Course:** The duration of MD Gastroenterology course shall be five 5 years with structured training in a recognized department under the guidance of an approved supervisor.

5. **Course structure :** The course is structured in two parts: After admission in M.D. Gastroenterology Programme the resident will spend first 6 Months in Gastroenterology Department as Induction period during which resident will get orientation about the chosen discipline and will also undertake the mandatory workshops. The research project will be designed and the synopsis is prepared during this period.

On completion of Induction period the resident will start formal training in the Basic Principals of Internal Medicine for 18 Months, during this period the resident must get the research synopsis approved by AS&RB of the university.

At the end of 2 years, the candidate will take up Intermediate Examination.

During the 3rd 4th and 5th years of the programme, there are two components of the training: -

1. Clinical Training in Gastroenterology.
2. Research and Thesis writing.

The candidate shall undergo clinical training to achieve educational objectives of M.D. Gastroenterology (knowledge and skills) along with rotations in the relevant fields. The clinical training shall be competency based. There shall be generic and specialty specific competencies and shall be assessed by continuous Internal Assessment.

Research Component and thesis writing shall be completed over the five years duration of the course. Candidates will spend total time equivalent to one calendar year for research during the training. Research can be done as one block or it can be done in the form of regular periodic rotation over four years as long as total research time is equivalent to one calendar year.

Admission Criteria

Applications for admission to MD Training Programs will be invited through advertisement in print and electronic media mentioning closing date of applications and date of Entry Examination.

Eligibility: The applicant on the last date of submission of applications for admission must possess the:

- i. Basic Medical Qualification of MBBS or equivalent medical qualification recognized by Pakistan Medical & Dental Council.

- ii. Certificate of one year's House Job experience in institutions recognized by Pakistan Medical & Dental Council Is essential at the time of interview. The applicant is required to submit Hope Certificate from the concerned Medical Superintendent that the House Job shall be completed before the Interview.
- iii. Valid certificate of permanent or provisional registration with Pakistan Medical & Dental Council.

Registration and Enrolment

- As per policy of Pakistan Medical & Dental Council the number of PG Trainees/ Students per supervisor shall be maximum 05 per annum for all PG programmes including minor programmes (if any).
- Beds to trainee ratio at the approved teaching site shall be at least 5 beds per trainee.
- The University will approve supervisors for MD courses.
- Candidates selected for the courses: after their enrollment at the relevant institutions shall be registered with RMU as per prescribed Registration Regulations.

AIMS AND OBJECTIVES OF THE COURSE

AIM

The aim of five years MD programme in gastroenterology is to train residents to acquire the competency of a specialist in the field of gastroenterology so that they can become good teachers, researchers and clinicians in their specialty after completion of their training.

GENERAL OBJECTIVES

1. To provide a broad experience in Gastroenterology, including its interrelationship with other disciplines.
2. To enhance medical knowledge, clinical skills, and competence in bedside diagnostic and therapeutic procedures.
3. To achieve the professional requirements to prepare for Higher Physician Training in one or more specialty in Gastroenterology.
4. To cultivate the correct professional attitude and enhance communication skill towards patients, their families and other healthcare professionals.
5. To enhance sensitivity and responsiveness to community needs and the economics of health care delivery.

6. To enhance critical thinking, self-learning, and interest in research and development of patient service.
7. To cultivate the practice of evidence-based medicine and critical appraisal skills.
8. To inculcate a commitment to continuous medical education and professional development.
9. To provide a broad training in medicine and in-depth training experience in Gastroenterology at a level for trainees to acquire competence and professionalism of a specialist in Gastroenterology especially in the diagnosis, investigation and treatment of medical problems towards the delivery of holistic patient care.
10. To acquire competence in managing acute medical emergencies and specifically GI emergency training and identifying medical problems in patients referred by primary care and other doctors, and in selecting patients for timely referral to appropriate tertiary care or the expertise of another specialty.
11. To develop competence in the inpatient and outpatient management of medical problems and in selecting patients for referral to other specialties and treatment modalities requiring high technology and/or the expertise of another specialty.
12. To manage patient's in general medical units in regional/District hospitals; to be a leader in the health care delivery team and to work closely with networking units which provide convalescence, rehabilitation and long term care.
13. To encourage the development of skills in communication and collaboration with the community towards health care delivery.
14. To foster the development of skills in the critical appraisal of new methods of investigation and/or treatment.

15. To reinforce self-learning and commitment to continued updating in all aspects of Gastroenterology.
16. To encourage contributions aiming at advancement of knowledge and innovation in medicine and Gastroenterology through basic and/or clinical research and teaching of junior trainees and other health related professionals.
17. To acquire professional competence in training future trainees in Gastroenterology at Rawalpindi Medical University.

SPECIFIC OBJECTIVES

(A) Medical Knowledge

1. The development of a basic understanding of core Gastroenterology concepts.
2. Etiology, pathophysiology, clinical manifestation, disease course and prognosis, investigation and management of common medical and GI diseases.
3. Scientific basis and recent advances in pathophysiology, diagnosis and management of medical diseases.
4. Spectrum of clinical manifestations and interaction of multiple medical diseases in the same patient.
5. Psychological and social aspects of medical illnesses.
6. Effective use and interpretation of investigation and special diagnostic procedures.

7. Critical analysis of the efficacy, cost-effectiveness and cost-utility of treatment modalities.
8. Patient safety and risk management
9. Medical audit and quality assurance
10. Ethical principles and medico legal issues related to medical illnesses.
11. Updated knowledge on evidenced-based medicine and its implications for diagnosis and treatment of medical patients.
12. Familiarity with different care approaches and types of health care facilities towards the patients care with medical illnesses, including convalescence, rehabilitation, palliation, long term care, and medical ethics.
13. Knowledge on patient safety and clinical risk management.
14. Awareness and concern for the cost-effectiveness and risk-benefits of various advanced treatment modalities.
15. Familiarity with the concepts of administration and management and overall forward planning for a general medical unit.

(B) Skills

1. Ability to take a detailed history, gathers relevant data from patients, and assimilates the information to develop diagnostic and management plan.

2. Trainees are expected to effectively record an initial history and physical examination and follow-up notes as well as deliver comprehensive oral presentations to their team members based on these written documents.
3. Competence in eliciting abnormal physical signs and interpreting their significance.
4. Ability to relate clinical abnormalities with pathophysiologic states and diagnosis of diseases.
5. Ability to select relevant investigation and diagnostic and therapeutic procedures.
6. Residents should be able to interpret basic as well as advanced laboratory data as related to the disorder/disease.
7. Basic understanding of routine laboratory and ancillary tests including complete blood count, chemistry panels, ECG, chest x-rays, pulmonary function tests, and body fluid analysis. In addition, students will properly understand the necessity of incorporating sensitivity, specificity, pre-test probability and Bayes laws/theorem in the ordering of individual tests in the context of evaluating patients' signs and symptoms.
8. The formulation of a differential diagnosis with up-to-date scientific evidence and clinical judgment using history and physical examination data and the development of a prioritized problem list to select tests and make effective therapeutic decisions.
9. Assessing the risks, benefits, and costs of varying, effective treatment options; involving the patient in decision-making via open discussion; selecting drugs from within classes; and the design of basic treatment programs and using critical pathways when appropriate.
10. Residents must be able to perform competently all medical and GI procedures essential for the practice of Gastroenterology. This includes technical proficiency in taking informed consent, performing by using appropriate

indications, contraindications, interpretations of findings and evaluating the results and handling the complications of the related procedures mentioned in the syllabus.

11. Residents should be instructed in additional procedural skills that will be determined by the training environment, residents practice expectations, the availability of skilled teaching faculty, and privilege delineation.

12. Resident should be able to perform basic, diagnostic and therapeutic endoscopic procedures

At least 5 times during the 1 ½ year training period:

- a. Cardiopulmonary resuscitation
- b. Central venous cannulation
- c. Marrow aspiration and trephine biopsy
- d. Abdominal paracentesis
- e. Pleural tapping and biopsy
- f. Endotracheal intubation
- g. Lumbar puncture
- h. Chest drain insertion
- i. Arterial Blood gases sampling

13. Ability to present clinical problems and literature review in grand rounds and seminars.

14. Good communication skills and interpersonal relationship with patients, families, medical colleagues, nursing and allied health professionals.

15. Ability to mobilize appropriate resources for management of patients at different stages of medical illnesses, including critical care, consultation of medical specialties and other disciplines, ambulatory and rehabilitative services, and community resources.

16. Competence in the diagnosis and management of emergency medical problems, in particular cardiorespiratory problems, stroke, organ failures, infection and shock, gastrointestinal bleeding, metabolic disorders and poisoning.
17. Competence in the diagnosis and management of acute and chronic medical problems as secondary care in a regional/district hospital.
18. Diagnostic skills to effectively manage complex cases with unusual presentations.
19. Ability to implement strategies for preventive care and early detection of diseases in collaboration with primary and community care doctors.
20. Ability to understand medical statistics and critically appraise published work and clinical research on disease presentations and treatment outcomes. Experience in basic and/or clinical research within the training programme should lead to publications and/or presentation in seminars or conferences.
21. Practice evidence—based learning with reference to research and scientific knowledge pertaining to their discipline through comprehensive training in Research Methodology
22. Ability to recognize and appreciate the importance of cost-effectiveness of treatment modalities.
23. The identification of key information resources and the utilization of the medical literature to expand one's knowledge base and to search for answer to medical problems. They will keep abreast of the current literature and be able to integrate it to clinical practice.

(C) Attitudes

1. The well-being and restoration of health of patients must be of paramount consideration.
2. Empathy and good rapport with patient and relatives are essential attributes.
3. An aspiration to be the team-leader in total patient care involving nursing and allied medical professionals should be developed.
4. The cost-effectiveness of various investigations and treatments in patient care should be recognized.
5. The privacy and confidentiality of patients and the sanctity of life must be respected.
6. The development of a functional understanding of informed consent, advanced directives, and the physician-patient relationship.
7. Ability to appreciate the importance of the effect of disease on the psychological and socio-economic aspects of individual patients and to understand patients' psycho-social needs and rights, as well as the medical ethics involved in patient management.
8. Willingness to keep up with advances in Internal Medicine and other Specialties.
9. Willingness to refer patients to the appropriate specialty in a timely manner.
10. Aspiration to be the team leader in total patient care involving nursing and allied medical professionals.

11. The promotion of health via adult immunizations, periodic health screening, and risk factor assessment and modification.

12. Recognition that teaching and research are important activities for the advancement of the profession.

(D) Other required core competencies:

• **KNOWLEDGE**

- Residents are expected to know the basic and advanced knowledge of gastroenterology.
- Residents should be able to demonstrate skills in basic procedures of gastroenterology as well as endoscopic procedures.
- They should learn recent advances in gastroenterology.

• **PATIENT CARE**

- Residents are expected to provide patient care that is compassionate, appropriate and effective for the promotion of health, prevention of illness, treatment of disease and at the end of life.
- Gather accurate, essential information from all sources, including medical interviews, physical examinations, medical records and diagnostic/therapeutic procedures.
- Make informed recommendations about preventive, diagnostic and therapeutic options and interventions based on clinical judgment, scientific evidence, and patient preference.

- Develop, negotiate and implement effective patient management plans and integration of patient care.
- Perform competently the diagnostic and therapeutic procedures considered essential to the practice of Gastroenterology.

- **INTERPERSONAL AND COMMUNICATION SKILLS**

- Residents are expected to demonstrate interpersonal and communication skills that enable them to establish and maintain professional relationships with patients, families, and other members of health care teams.
- Provide effective and professional consultation to other physicians and health care professionals and sustain therapeutic and ethically sound professional relationships with patients, their families, and colleagues.
- Use effective listening, nonverbal, questioning, and narrative skills to communicate with patients and families.
- Interact with consultants in a respectful, appropriate manner.
- Maintain comprehensive, timely, and legible medical records.

- **PROFESSIONALISM**

- 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.
- Demonstrate respect, compassion, integrity, and altruism in relationships with patients, families, and colleagues.
- Demonstrate sensitivity and responsiveness to the gender, age, culture, religion, sexual preference, socioeconomic status, beliefs, behavior and disabilities of patients and professional colleagues.

- Adhere to principles of confidentiality, scientific/academic integrity, and informed consent.
- Recognize and identify deficiencies in peer performance.
- Understand and demonstrate the skill and art of end of life care.
- **PRACTICE-BASED LEARNING AND IMPROVEMENT**
- Residents are expected to be able to use scientific evidence and methods to investigate, evaluate, and improve patient care practices.
- Identify areas for improvement and implement strategies to enhance knowledge, skills, attitudes and processes of care.
- Analyze and evaluate practice experiences and implement strategies to continually improve the quality of patient practice.
- Develop and maintain a willingness to learn from errors and use errors to improve the system or processes of care.
- Use information of technology or other available methodologies to access and manage information, support patient care decisions and enhance both patient and physician education.
- **SYSTEMS-BASED PRACTICE**
- 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.

- Understands accesses and utilizes the resources, providers and systems necessary to provide optimal care.
- Understand the limitations and opportunities inherent in various practice types and delivery systems, and develop strategies to optimize care for the individual patient.
- Apply evidence-based, cost-conscious strategies to prevention, diagnosis, and disease management.
- 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.

Compulsory rotations in the relevant fields for 3-6 months

Clinical training experiences are described below:

1. Intensive Care Units:

2. Radialogy

3. Histopathology

4. Organ Transplantation

CURRICULUM OF ELECTIVE ROTATIONS IN MD GASTROENTEROLOGY:
Curriculum of clinical rotations is available separately.

COMPETENCIES	1 MONTH	2 MONTHS	3 MONTHS	TOTAL	TEACHING METHOD	ASSESSMENT METHODS
	LEVEL					
Endotracheal intubation	1,2,3	4,5	5	50	Mannequin / Hands on	DOPS
Central line placement	1,2,3	4,5	5	30	Mannequin / Hands on	DOPS
Abdominal drain placement	1,2	3,4	4,5	20	Mannequin / Hands on	DOPS
Arterial blood gas analysis	1,2,3	4,5	5	30	Hands on	OSPE
Plamapheresis	1,2	1,2,3	3,4	5	Live Demonstration / Video	
MARS	1,2	1,2,3	2,3,4	2	Live Demonstration / Video	

COMPETENCIES	1 MONTH	2 MONTHS	TOTAL	TEACHING METHOD	ASSESSMENT METHOD
	LEVEL				
Plain abdominal films	1,2,3	4,5	40	X-Ray films / Pictures	OSPE
Barium studies	1,2,3	4,5	35	X-Ray films / Pictures	OSPE
Ultrasound abdomen	1,2,3	4,5	80	Live Demonstration	OSPE
CT scan abdomen and chest	1,2	3,4,5	40	CT films / CDs / Pictures	OSPE
MRI abdomen and chest	1,2	3,4	30	MRI films / CDs / Pictures	OSPE
MRCP	1,2	3,4	35	MRI films / CDs / Pictures	OSPE
Ultrasound guided liver biopsy, abscess, ascites drainage	1,2,3	3,4,5	20	Live Demonstration / Hands on	OSPE, DOPS
Mesenteric Angiography	1,2	2,3	5	Live Demonstration / Hands on	OSPE
TACE	1,2	2,3	20	Live Demonstration / Hands on	OSPE
PTBD	1,2	2,3	15	Live Demonstration / Hands on	OSPE
TIPSS	1,2	2,3	5	Live Demonstration / Hands on	OSPE
HVPG measurement	1,2	2,3	5	Live Demonstration / Hands on	OSPE

COMPETENCIES		1MONTH	2MONTHS	TOTAL no. (slides/pictiures)
		LEVEL		
Esophagus	GERD, Esophageal ADC, Esophageal SCC Barretts metaplasia, EOE	1,2,3	4,5	45
Stomach	Gastritis especially H.pylori associated gastritis, gastric ulcers, signet ring cell carcinoma Adenocarcinoma.	1,2,3	4,5	60
Small intestine	Celiac spure (identify villous abnormality/atrophy) giardiasis, tumors.	1,2,3	4,5	45
Pancreatobiliary	Choronic pancreatitis, Autoimmune pancreatitis Pancreatic cancer Cholangiocarcinoma	1,2,3	4,5	20
Colo Rectum	IBD, Adenomatous polyps, Dysplasia, Serated Polyposis, SRUS, Colorectal ADC, PJS.	1,2,3	4,5	38
Liver	liver fibrosis and cirrhosis. Chronic viral Hepatitis, Alcoholic, Steatohepatitis Hepatitis, Autoimmune	1,2,3	4,5	70

	Hepatitis, PBC, PSC, Liver storage Disease, Hepatocellular Carcinoma. Post liver transplant rejection and disease recurrence			
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Non Clinical Electives

Research

Residents are encouraged to engage in clinical or basic science research during their training through our comprehensive **mentoring program**. At the beginning of this rotation, resident will be asked to identify a research topic or project and be linked with a research mentor. Resident will gain broad understanding of the fundamental principles and methods of research: developing research questions, analyzing current literature, designing studies (including statistical analysis), presenting research projects and writing them up. Residents receive close supervision by their preceptor throughout all phases of the research project, learning the process from hypothesis development to IRB (Institutional Review Board) submission through experimentation, data collection and analysis, and formal writing for presentation and publication. At the **Resident Research Forum**, residents present their work-in-progress to peers and faculty.

Medical Education:

Designed for residents interested in exploring the option of a career as a clinician educator, the medical education elective exposes residents to the variety of educational activities common to medical educators in academic

centers. Residents choosing a medical education elective can learn curriculum development, participate in peer review of teaching for faculty and residents; develop skills in web based education and can initiate an educational scholarship project. Residents can also participate in small group teaching of students in physical diagnosis, clinical problem solving, procedural skills, and diagnostic test interpretation.

Scheme of the Course of MD Gastroenterology Program

A summary of five years course in MD Gastroenterology is presented as under:

Course Structure	Components	Examination
At the End of 2nd year of M.D. Gastroenterology	<ul style="list-style-type: none"> • Principles of Internal Medicine • Relevant Basic Science (Physiology, Pharmacology, Pathology) 	Intermediate Examination at the end of 2 nd Year of M.D. Gastroenterology Programme Written Examination = 300 Marks Clinical, TOACS/OSCE & ORAL = 200 Marks Total = 500 Marks

<p>At the end of 5 year of M.D. Gastroenterology</p>	<p>Clinical component Professional Education in M.D. Gastroenterology Training in Gastroenterology with compulsory/optional rotations in the relevant fields.</p> <p>Research component Research and Thesis Writing: Research work / Thesis writing must be completed and thesis be submitted at least 6 months before the end of final year of the programme.</p>	<p>Final Examination at the end of 5th year of M.D. Gastroenterology.</p> <p>Written = 500 Marks</p> <p>Clinical, TOACS/OSCE & O RAL= 500 Marks</p> <p>Contribution of CIS = 100 Marks</p> <p>Thesis Evaluation = 400 Marks</p> <p>Total = 1500 Marks</p> <p>Thesis evaluation and defense at the end of 5th year of the programme.</p>
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GENERAL OUTLINE OF MD GASTROENTEROLOGY PROGRAM

- Total duration of the course consists of five calendar years
- Components of the course are divided into A, B & C
- Component “A” consists of clinical training component in internal medicine. It also includes basic sciences with their clinical application and it is taught in first two years of the course
- There shall be Intermediate Examination at end of second calendar year

- Component “B” is taught in rest of the three years and is divided into C1, C2 & C3 for third year, fourth year & fifth year respectively
- Component “C” is the Research understanding & Thesis writing component which runs longitudinally throughout the whole course.
- There shall be Final Examination at the end of the fifth calendar year
- Program would be evaluated throughout the course as well as at the end of program

Methods of Teaching & Learning during first 2 years:

1.Inpatient Services: All residents will have rotations in intensive care, coronary care, emergency medicine, general medical wards, general medicine, ambulatory experiences etc. The required knowledge and skills pertaining to the ambulatory based training in following areas shall be demonstrated;

- General Internal Medicine
- Critical care & Emergency Medicine
- Coronary care unit
- Ambulatory Medicine
- General Medical consultation service
- Cardiology
- Pulmonary Medicine
- Endocrinology
- Rheumatology
- Gastroenterology & Hepatology
- Nephrology
- Haematological Disorders
- Psychiatry
- Inpatient Oncology & Palliative Care Services
- Neurology
- Dermatology
- Geriatric Medicine
- Infectious Diseases
- Radiology

2. Outpatient Experiences: Residents should demonstrate expertise in diagnosis and management of patients in acute care clinics and longitudinal clinic and gain experience in Dermatology, Geriatrics, Clinical immunology and allergy, Endocrinology, Gastroenterology, Hematology-Oncology, Neurology, Nephrology, Pulmonology, Rheumatology etc.

3. Emergency services: Our residents take an early and active role in patient care and obtain decision-making roles quickly. Within the Emergency Department, residents direct the initial stabilization of all critical patients, manage airway interventions, and oversee all critical care.

4. Electives/ Specialty Rotations: In addition, the resident will elect rotations in a variety of electives including nutrition, nuclear medicine or any of the medicine subspecialty consultative services or clinics. They may choose electives from each medicine subspecialty and from offerings of other departments. Residents may also select electives at other institutions if the parent department does not offer the experiences they want.

5. Interdisciplinary Medicine: Adolescent Medicine, Dermatology, Emergency Medicine, General Surgery, Gynecology, Neurology, Occupational Medicine, Ophthalmology, Orthopedics and Sports Medicine, Otolaryngology, Physical Medicine and Rehabilitation, Urology.

6. Community Practice: Residents experience the practice of medicine in a non-academic, non-teaching hospital setting. The rotation may be used to try out a practice that the resident later joins, to learn the needs of referring physicians or to decide on a future career path.

7. **Mandatory Workshops:** residents achieve hands on training while participating in mandatory workshops of Research Methodology, Advanced Life Support, Communication Skills, Computer & Internet and Clinical Audit. Specific objectives are given in detail in the relevant section of Mandatory Workshops.
8. **Core Faculty Lectures (CFL):** The core faculty lecture's focus on monthly themes of the various specialty medicine topics for eleven months of the year, i.e., Cardiology, Gastroenterology, Hematology, etc. Lectures are still an efficient way of delivering information. Good lectures can introduce new material or synthesize concepts students have through text-, web-, or field-based activities. **Buzz groups** can be incorporated into the lectures in order to promote more active learning.
9. **Introductory Lecture Series (ILS):** Various introductory topics are presented by subspecialty and general medicine faculty to introduce interns to basic and essential topics in internal medicine.
10. **Long and short case presentations:** – Giving an oral presentation on ward rounds is an important skill for medical student to learn. It is medical reporting which is terse and rapidly moving. After collecting the data, you must then be able both to document it in a written format and transmit it clearly to other health care providers. In order to do this successfully, you need to understand the patient's medical illnesses, the psychosocial contributions to their History of Presenting Illness and their physical diagnosis findings. You then need to compress them into a concise, organized recitation of the most essential facts. The listener

needs to be given all of the relevant information without the extraneous details and should be able to construct his/her own differential diagnosis as the story unfolds. Consider yourself an advocate who is attempting to persuade an informed, interested judge the merits of your argument, without distorting any of the facts. An oral case presentation is NOT a simple recitation of your write-up. It is a concise, edited presentation of the most essential information. Basic structure for oral case presentations includes Identifying information/chief complaint (ID/CC) , History of present illness (HPI) including relevant ROS (Review of systems) questions only , Other active medical problems , Medications/allergies/substance use (note: e. The complete ROS should not be presented in oral presentations , Brief social history (current situation and major issues only) . Physical examination (pertinent findings only) , One line summary & Assessment and plan

11. Seminar Presentation: Seminar is held in a noon conference format. Upper level residents present an in-depth review of a medical topic as well as their own research. Residents are formally critiqued by both the associate program director and their resident colleagues.

12. Journal Club Meeting (JC): A resident will be assigned to present, in depth, a research article or topic of his/her choice of actual or potential broad interest and/or application. Two hours per month should be allocated to discussion of any current articles or topics introduced by any participant. Faculty or outside researchers will be invited to present outlines or results of current research activities. The article should be critically evaluated and its applicable

results should be highlighted, which can be incorporated in clinical practice. Record of all such articles should be maintained in the relevant department

13. Small Group Discussions/ Problem based learning/ Case based learning: Traditionally small groups consist of 8-12 participants. Small groups can take on a variety of different tasks, including problem solving, role play, discussion, brainstorming, debate, workshops and presentations. Generally students prefer small group learning to other instructional methods. From the study of a problem students develop principles and rules and generalize their applicability to a variety of situations PBL is said to develop problem solving skills and an integrated body of knowledge. It is a student-centered approach to learning, in which students determine what and how they learn. Case studies help learners identify problems and solutions, compare options and decide how to handle a real situation.

14. Discussion/Debate: There are several types of discussion tasks which would be used as learning method for residents including: **guided discussion**, in which the facilitator poses a discussion question to the group and learners offer responses or questions to each other's contributions as a means of broadening the discussion's scope; **inquiry-based discussion**, in which learners are guided through a series of questions to discover some relationship or principle; **exploratory discussion**, in which learners examine their personal opinions, suppositions or assumptions and then visualize alternatives to these assumptions; and **debate** in which students argue opposing sides of a controversial topic. With thoughtful and well-designed discussion tasks, learners can practice critical inquiry and reflection,

developing their individual thinking, considering alternatives and negotiating meaning with other discussants to arrive at a shared understanding of the issues at hand.

15. Case Conference (CC): These sessions are held three days each week; the focus of the discussion is selected by the presenting resident. For example, some cases may be presented to discuss a differential diagnosis, while others are presented to discuss specific management issues.

16. Noon Conference (NC): The noon conferences focus on monthly themes of the various specialty medicine topics for eleven months of the year, i.e., Cardiology, Gastroenterology, Hematology, etc.

17. Grand Rounds (GR): The Department of Medicine hosts Grand Rounds on weekly basis. Speakers from local, regional and national medicine training programs are invited to present topics from the broad spectrum of internal medicine. All residents on inpatient floor teams, as well as those on ambulatory block rotations and electives are expected to attend.

18. Professionalism Curriculum (PC): This is an organized series of recurring large and small group discussions focusing upon current issues and dilemmas in medical professionalism and ethics presented primarily by an associate program director. Lectures are usually presented in a noon conference format.

19. Evening Teaching Rounds: During these sign-out rounds, the inpatient Chief Resident makes a brief educational presentation on a topic related to a patient currently on service, often

related to the discussion from morning report. Serious cases are mainly focused during evening rounds.

20. Clinico-pathological Conferences: The clinicopathological conference, popularly known as CPC primarily relies on case method of teaching medicine. It is a teaching tool that illustrates the logical, measured consideration of a differential diagnosis used to evaluate patients. The process involves case presentation, diagnostic data, discussion of differential diagnosis, logically narrowing the list to few selected probable diagnoses and eventually reaching a final diagnosis and its brief discussion. The idea was first practiced in Boston, back in 1900 by a Harvard internist, Dr. Richard C. Cabot who practiced this as an informal discussion session in his private office. Dr. Cabot incepted this from a resident, who in turn had received the idea from a roommate, primarily a law student.

21. Evidence Based Medicine (EBM): Residents are presented a series of noon monthly lectures presented to allow residents to learn how to critically appraise journal articles, stay current on statistics, etc. The lectures are presented by the program director.

22. Clinical Audit based learning: “Clinical audit is a quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria...Where indicated, changes are implemented...and further monitoring is used to confirm improvement in healthcare delivery.” *Principles for Best Practice in Clinical Audit (2002, NICE/CHI)*

23. **Peer Assisted Learning:** Any situation where people learn from, or with, others of a similar level of training, background or other shared characteristic. Provides opportunities to reinforce and revise their learning. Encourages responsibility and increased self-confidence. Develops teaching and verbalization skills. Enhances communication skills, and empathy. Develops appraisal skills (of self and others) including the ability to give and receive appropriate feedback. Enhance organizational and team-working skills.
24. **Morbidity and Mortality Conference (MM):** The M&M Conference is held occasionally at noon throughout the year. A case, with an adverse outcome, though not necessarily resulting in death, is discussed and thoroughly reviewed. Faculty members from various disciplines are invited to attend, especially if they were involved in the care of the patient. The discussion focuses on how care could have been improved.
25. **Clinical Case Conference:** Each resident, except when on vacation, will be responsible for at least one clinical case conference each month. The cases discussed may be those seen on either the consultation or clinic service or during rotations in specialty areas. The resident, with the advice of the Attending Physician on the Consultation Service, will prepare and present the case(s) and review the relevant literature
26. **SEQ as assignments on the content areas:** SEQs assignments are given to the residents on regular basis to enhance their performance during written examinations.

27. Skill teaching in ICU, emergency, ward settings & skill laboratory: Two hours twice a month should be assigned for learning and practicing clinical skills. **List of skills to be learnt during these sessions is as follows:**

- Residents must develop a comprehensive understanding of the indications, contraindications, limitations, complications, techniques, and interpretation of results of those technical procedures integral to the discipline (mentioned in the Course outlines)
- Residents must acquire knowledge of and skill in educating patients about the technique, rationale and ramifications of procedures and in obtaining procedure-specific informed consent. Faculty supervision of residents in their performance is required, and each resident's experience in such procedures must be documented by the program director
- Residents must have instruction in the evaluation of medical literature, clinical epidemiology, clinical study design, relative and absolute risks of disease, medical statistics and medical decision-making
- Training must include cultural, social, family, behavioral and economic issues, such as confidentiality of information, indications for life support systems, and allocation of limited resources
- Residents must be taught the social and economic impact of their decisions on patients, the primary care physician and society. This can be achieved by attending the bioethics lectures and becoming familiar with Project Professionalism Manual such as that of the American Board of Internal Medicine
- Residents should have instruction and experience with patient counseling skills and community education
- This training should emphasize effective communication techniques for diverse populations, as well as organizational resources useful for patient and community education

- Residents may attend the series of lectures on Nuclear Medicine procedures (radionuclide scanning and localization tests and therapy) presented to the Radiology residents
- Residents should have experience in the performance of clinical laboratory and radionuclide studies and basic laboratory techniques including quality control, quality assurance and proficiency standards.

28. Bedside teaching rounds in ward: *"To study the phenomenon of disease without books is to sail an uncharted sea whilst to study books without patients is not to go to sea at all" Sir William Osler 1849-1919.* Bedside teaching is regularly included in the ward rounds. Learning activities include the physical exam, a discussion of particular medical diseases, psychosocial and ethical themes, and management issues

29. Directly Supervised Procedures - (DSP): Residents learn procedures under the direct supervision of an attending or fellow during some rotations. For example, in the Medical Intensive Care Unit the Pulmonary /Critical Care attending or fellow, or the MICU attending, observe the placement of central venous and arterial lines. Specific procedures used in patient care vary by rotation.

30. Self-directed learning: self-directed learning residents have primary responsibility for planning, implementing, and evaluating their effort. It is an adult learning technique that assumes that the learner knows best what their educational needs are. The facilitator's role in self-directed learning is to support learners in identifying their needs and goals for the program, to contribute to clarifying the learners' directions and objectives and to provide timely feedback. Self-directed learning can be highly motivating, especially if the learner is

focusing on problems of the immediate present, a potential positive outcome is anticipated and obtained and they are not threatened by taking responsibility for their own learning.

31. Follow up clinics: The main aims of our clinic for patients and relatives include (a)

Explanation of patient's stay in ICU or Ward settings: Many patients do not remember their ICU stay, and this lack of recall can lead to misconceptions, frustration and having unrealistic expectations of themselves during their recovery. It is therefore preferable for patients to be aware of how ill they have been and then they can understand why it is taking some time to recover.

(b) **Rehabilitation information and support:** We discuss with patients and relatives their individualized recovery from critical illness. This includes expectations, realistic goals, change in family dynamics and coming to terms with life style changes.

(c) **Identifying physical, psychological or social problems**

Some of our patients have problems either as a result of their critical illness or because of other underlying conditions. The follow-up team will refer patients to various specialties, if appropriate. (d) **Promoting a quality service:** By highlighting areas which require change in nursing and medical practice, we can improve the quality of patient and relatives care. Feedback from patients and relatives about their ICU & ward experience is invaluable. It has initiated various audits and changes in clinical practice, for the benefit of patients and relatives in the future.

32. Core curriculum meeting: All the core topics of Gastroenterology should be thoroughly discussed during these sessions. The duration of each session should be at least two hours

once a month. It should be chaired by the chief resident (elected by the residents of the relevant discipline). Each resident should be given an opportunity to brainstorm all topics included in the course and to generate new ideas regarding the improvement of the course structure

33. Annual Grand Meeting Once a year all residents enrolled for MD Gastroenterology should be invited to the annual meeting at RMU. One full day will be allocated to this event. All the chief residents from affiliated institutes will present their annual reports. Issues and concerns related to their relevant courses will be discussed. Feedback should be collected and suggestions should be sought in order to involve residents in decision making. The research work done by residents and their literary work may be displayed. In the evening an informal gathering and dinner can be arranged. This will help in creating a sense of belonging and ownership among students and the faculty.

34. Learning through maintaining log book: it is used to list the core clinical problems to be seen during the attachment and to document the student activity and learning achieved with each patient contact.

35. Learning through maintaining portfolio: Personal Reflection is one of the most important adult educational tools available. Many theorists have argued that without reflection, knowledge translation and thus genuine “deep” learning cannot occur. One of the Individual reflection tools maintaining portfolios, Personal Reflection allows students to take inventory of their current knowledge skills and attitudes, to integrate concepts from various

experiences, to transform current ideas and experiences into new knowledge and actions and to complete the experiential learning cycle.

36. **Task-based-learning:** A list of tasks is given to the students: participate in consultation with the attending staff, interview and examine patients, review a number of new radiographs with the radiologist.
37. **Teaching in the ambulatory care setting:** A wide range of clinical conditions may be seen. There are large numbers of new and return patients. Students have the opportunity to experience a multi-professional approach to patient care. Unlike ward teaching, increased numbers of students can be accommodated without exhausting the limited No. of suitable patients.
38. **Community Based Medical Education:** CBME refers to medical education that is based outside a tertiary or large secondary level hospital. Learning in the fields of epidemiology, preventive health, public health principles, community development, and the social impact of illness and understanding how patients interact with the health care system. Also used for learning basic clinical skills, especially communication skills.
39. **Audio visual laboratory:** audio visual material for teaching skills to the residents is used specifically in teaching gastroenterology procedure details.
40. **E-learning/web-based medical education/computer-assisted instruction:** Computer technologies, including the Internet, can support a wide range of learning activities from dissemination of lectures and materials, access to live or recorded presentations, real-time

discussions, self-instruction modules and virtual patient simulations. distance-independence, flexible scheduling, the creation of reusable learning materials that are easily shared and updated, the ability to individualize instruction through adaptive instruction technologies and automated record keeping for assessment purposes.

41. Research based learning: All residents in the categorical program are required to complete an academic outcomes-based research project during their training. This project can consist of original bench top laboratory research, clinical research or a combination of both. The research work shall be compiled in the form of a thesis which is to be submitted for evaluation by each resident before end of the training. The designated Faculty will organize and mentor the residents through the process, as well as journal clubs to teach critical appraisal of the literature.

42. Other teaching strategies specific for different specialties as mentioned in the relevant parts of the curriculum

Some of the other teaching strategies which are specific for certain domains of internal medicine are given along with relevant modules.

A crisp detail about modern Tools of Assessment intended to be used for the course

- **360-DEGREE EVALUATION INSTRUMENT- MULTI-SOURCE FEEDBACK (MSF):**
360-degree evaluations consist of measurement tools completed by multiple people in a person's sphere of influence. Evaluators completing rating forms in a 360-degree evaluation usually are superiors, peers, subordinates, and patients and families. Most 360-degree

evaluation processes use a survey or questionnaire to gather information about an individual's performance on several topics (e.g., teamwork, communication, management skills & decision-making). Most 360-degree evaluations use rating scales to assess how frequently a behavior is performed (e.g., a scale of 1 to 5, with 5 meaning "all the time" and 1 meaning "never"). The ratings are summarized for all evaluators by topic and overall to provide feedback. Evaluators provide more accurate and less lenient ratings when the evaluation is intended to give formative feedback rather than summative evaluations. A 360-degree evaluation can be used to assess interpersonal and communication skills, professional behaviors, and some aspects of patient care and systems-based practice.

- **CHART STIMULATED RECALL ORAL EXAMINATION (CSR)**

In a chart stimulated recall (CSR) examination patient cases of the examinee (resident) are assessed in a standardized oral examination. A trained and experienced physician examiner questions the examinee about the care provided probing for reasons behind the work-up, diagnoses, interpretation of clinical findings, and treatment plans. The examiners rate the examinee using a well-established protocol and scoring procedure. In efficiently designed CSR oral exams each patient case (test item) takes 5 to 10 minutes. A typical CSR exam is two hours with one or two physicians as examiners per separate 30 or 60-minute session. These exams assess clinical decision-making and the application or use of medical knowledge with actual patients.

- **CHECKLIST EVALUATION**

Checklists consist of essential or desired specific behaviors, activities, or steps that make up a more complex competency or competency component. Typical response options on these forms are a check () or "yes" to indicate that the behavior occurred or options to indicate the completeness (complete, partial, or absent) or correctness (total, partial, or incorrect) of the action. The forms provide information about behaviors but for the purpose of making a judgment about the adequacy of the overall performance, standards need to be set that indicate, for example, pass/fail or excellent, good, fair, or poor performance. Checklists are useful for evaluating any competency and competency component that can be broken down

into specific behaviors or actions. Documented evidence for the usefulness of checklists exists for the evaluation of patient care skills (history and physical examination, procedural skills) and for interpersonal and communication skills. Checklists have also been used for self-assessment of practice-based learning skills (evidence-based medicine). Checklists are most useful to provide feedback on performance because checklists can be tailored to assess detailed actions in performing a task.

- **GLOBAL RATING OF LIVE OR RECORDED PERFORMANCE**

Global rating forms are distinguished from other rating forms in that (a) a rater judges general categories of ability (e.g. patient care skills, medical knowledge, interpersonal and communication skills) instead of specific skills, tasks or behaviors; and (b) the ratings are completed retrospectively based on general impressions collected over a period of time (e.g., end of a clinical rotation) derived from multiple sources of information (e.g., direct observations or interactions; input from other faculty, residents, or patients; review of work products or written materials). All rating forms contain scales that the evaluator uses to judge knowledge, skills, and behaviors listed on the form. Typical rating scales consist of qualitative indicators and often include numeric values for each indicator, for example, (a) very good = 1, good =2, fair = 3, poor =4; or (b) superior =1, satisfactory =2, unsatisfactory =3. Written comments are important to allow evaluators to explain the ratings. Global rating forms are most often used for making end of rotation and summary assessments about performance observed over days or weeks. Scoring rating forms entails combining numeric ratings with comments to obtain a useful judgment about performance based upon more than one rater.

- **OBJECTIVE STRUCTURED CLINICAL EXAMINATION (OSCE)**

In an objective structured clinical examination (OSCE) one or more assessment tools are administered at 12 to 20 separate standardized patient encounter stations, each station lasting 10-15 minutes. Between stations candidates may complete patient notes or a brief written examination about the previous patient encounter. All candidates move from station to station in sequence on the same schedule. Standardized patients are the primary assessment tool used in OSCEs, but OSCEs have included other assessment tools such as

data interpretation exercises using clinical cases and clinical scenarios with mannequins, to assess technical skills. OSCEs have been administered in most of the medical schools worldwide, many residency programs, and by the licensure board examinations. The OSCE format provides a standardized means to assess: physical examination and history taking skills; communication skills with patients and family members, breadth and depth of knowledge; ability to summarize and document findings; ability to make a differential diagnosis, or plan treatment; and clinical judgment based upon patient notes.

- **PROCEDURE, OPERATIVE, OR CASE LOGS**

Procedure, operative, or case logs document each patient encounter by medical conditions seen, surgical operation or procedures performed. The logs may or may not include counts of cases, operations, or procedures. Patient case logs currently in use involve recording of some number of consecutive cases in a designated time frame. Operative logs in current use vary; some entail comprehensive recording of operative data by CPT code while others require recording of operations or procedures for a small number of defined categories.

Logs of types of cases seen or procedures performed are useful for determining the scope of patient care experience. Regular review of logs can be used to help the resident track what cases or procedures must be sought out in order to meet residency requirements or specific learning objectives. Patient logs documenting clinical experience for the entire residency can serve as a summative report of that experience; as noted below, the numbers reported do not necessarily indicate competence.

- **PATIENT SURVEYS**

Surveys of patients to assess satisfaction with hospital, clinic, or office visits typically include questions about the physician's care. The questions often assess satisfaction with general aspects of the physician's care, (e.g., amount of time spent with the patient, overall quality of care, physician competency (skills and knowledge), courtesy, and interest or empathy). More specific aspects of care can be assessed including: the physician's explanations, listening skills and provision of information about examination findings, treatment steps, and drug side effects. A typical patient survey asks patients to rate their satisfaction with care

using rating categories (e.g., poor, fair, good, very good, excellent) or agreement with statements describing the care (e.g., “the doctor kept me waiting,” --Yes, always; Yes, sometimes; or No, never or hardly ever). Each rating is given a value and a satisfaction score calculated by averaging across responses to generate a single score overall or separate scores for different clinical care activities or settings. Patient feedback accumulated from single encounter questionnaires can assess satisfaction with patient care competencies (aspects of data gathering, treatment, and management; counseling, and education; preventive care); interpersonal and communication skills; professional behavior; and aspects of systems-based practice (patient advocacy; coordination of care). If survey items about specific physician behaviors are included, the results can be used for formative evaluation and performance improvement. Patient survey results also can be used for summative evaluation, but this use is contingent on whether the measurement process meets standards of reliability and validity.

- **PORTFOLIOS**

A portfolio is a collection of products prepared by the resident that provides evidence of learning and achievement related to a learning plan. A portfolio typically contains written documents but can include video- or audio-recordings, photographs, and other forms of information. Reflecting upon what has been learned is an important part of constructing a portfolio. In addition to products of learning, the portfolio can include statements about what has been learned, its application, remaining learning needs, and how they can be met. In graduate medical education, a portfolio might include a log of clinical procedures performed; a summary of the research literature reviewed when selecting a treatment option; a quality improvement project plan and report of results; ethical dilemmas faced and how they were handled; a computer program that tracks patient care outcomes; or a recording or transcript of counseling provided to patients. Portfolios can be used for both formative and summative evaluation of residents. Portfolios are most useful for evaluating mastery of competencies that are difficult to evaluate in other ways such as practice-based improvement, use of scientific evidence in patient care, professional behaviors, and patient advocacy. Teaching experiences, morning report, patient rounds, individualized study or

research projects are examples of learning experiences that lend themselves to using portfolios to assess residents.

- **RECORD REVIEW**

Trained staff in an institution's medical records department or clinical department perform a review of patients' paper or electronic records. The staff uses a protocol and coding form based upon predefined criteria to abstract information from the records, such as medications, tests ordered, procedures performed, and patient outcomes. The patient record findings are summarized and compared to accepted patient care standards. Standards of care are available for more than 1600 diseases on the Website of the Agency for HealthCare Research and Quality (<http://www.ahrq.gov/>). Record review can provide evidence about clinical decision-making, follow-through in patient management and preventive health services, and appropriate use of clinical facilities and resources (e.g., appropriate laboratory tests and consultations). Often residents will confer with other clinical team members before documenting patient decisions and therefore, the documented care may not be directly attributed to a single resident but to the clinical team.

- **SIMULATIONS AND MODELS**

Simulations used for assessment of clinical performance closely resemble reality and attempt to imitate but not duplicate real clinical problems. Key attributes of simulations are that: they incorporate a wide array of options resembling reality, allow examinees to reason through a clinical problem with little or no cueing, permit examinees to make life-threatening errors without hurting a real patient, provide instant feedback so examinees can correct a mistaken action, and rate examinees' performance on clinical problems that are difficult or impossible to evaluate effectively in other circumstances. Simulation formats have been developed as paper-and-pencil branching problems (patient management problems or PMPs), computerized versions of PMPs called clinical case simulations (CCX[®]), role-playing situations (e.g., standardized patients (SPs), clinical team simulations), anatomical models or mannequins, and combinations of all three formats. Mannequins are imitations of body organs or anatomical body regions frequently using pathological findings to simulate patient

disease. The models are constructed of vinyl or plastic sculpted to resemble human tissue with imbedded electronic circuitry to allow the mannequin to respond realistically to actions by the examinee. Virtual reality simulations or environments (VR) use computers sometimes combined with anatomical models to mimic as much as feasible realistic organ and surface images and the touch sensations (computer generated haptic responses) a physician would expect in a real patient. The VR environments allow assessment of procedural skills and other complex clinical tasks that are difficult to assess consistently by other assessment methods. Simulations using VR environments have been developed to train and assess surgeons performing arthroscopy of the knee and other large joints, anesthesiologists managing life-threatening critical incidents during surgery, surgeons performing wound debridement and minor surgery, and medical students and residents responding to cardio-pulmonary incidents on a full-size human mannequin. Written and computerized simulations have been used to assess clinical reasoning, diagnostic plans and treatment for a variety of clinical disciplines as part of licensure and certification examinations. Standardized patients as simulations are described elsewhere.

- **STANDARDIZED ORAL EXAMINATION**

The standardized oral examination is a type of performance assessment using realistic patient cases with a trained physician examiner questioning the examinee. The examiner begins by presenting to the examinee a clinical problem in the form of a patient case scenario and asks the examinee to manage the case. Questions probe the reasoning for requesting clinical findings, interpretation of findings, and treatment plans. In efficiently designed exams each case scenario takes three to five minutes. Exams last approximately 90 minutes to two and one-half hours with two to four separate 30 or 60-minute sessions. One or two physicians serve as examiners per session. An examinee can be tested on 18 to 60 different clinical cases. These exams assess clinical decision-making and the application or use of medical knowledge with realistic patients. Multiple-choice questions are better at assessing recall or understanding of medical knowledge.

- **STANDARDIZED PATIENT EXAMINATION (SP)**

Standardized patients (SPs) are well persons trained to simulate a medical condition in a standardized way or actual patients who are trained to present their condition in a standardized way. A standardized patient exam consists of multiple SPs each presenting a different condition in a 10-12 minute patient encounter. The resident being evaluated examines the SP as if (s) he were a real patient, (i.e., the resident might perform a history and physical exam, order tests, provide a diagnosis, develop a treatment plan, or counsel the patient). Using a checklist or a rating form, a physician observer or the SPs evaluate the resident's performance on appropriateness, correctness, and completeness of specific patient care tasks and expected behaviors (See description of Checklist Evaluation...). Performance criteria are set in advance. Alternatively or in addition to evaluation using a multiple SP exam, individual SPs can be used to assess specific patient care skills. SPs are also included as stations in Objective Structured Clinical Examinations (See description of OSCE).SPs have been used to assess history-taking skills, physical examination skills, communication skills, differential diagnosis, laboratory utilization, and treatment. Reproducible scores are more readily obtained for history-taking, physical examination, and communication skills. Standardized patient exams are most frequently used as summative performance exams for clinical skills. A single SP can assess targeted skills and knowledge.

- **WRITTEN EXAMINATION (MCQ)**

A written or computer-based MCQ examination is composed of multiple-choice questions (MCQ) selected to sample medical knowledge and understanding of a defined body of knowledge, not just factual or easily recalled information. Each question or test item contains an introductory statement followed by four or five options in outline format. The examinee selects one of the options as the presumed correct answer by marking the option on a coded answer sheet. Only one option is keyed as the correct response. The introductory statement often presents a patient case, clinical findings, or displays data graphically. A separate booklet can be used to display pictures, and other relevant clinical information. In computer-based examinations the test items are displayed on a computer monitor one at a time with pictures and graphical images also displayed directly on the monitor. In a computer-adaptive test fewer test questions are needed because test items are selected

based upon statistical rules programmed into the computer to quickly measure the examinee's ability. Medical knowledge and understanding can be measured by MCQ examinations. Comparing the test scores on in-training examinations with national statistics can serve to identify strengths and limitations of individual residents to help them improve. Comparing test results aggregated for residents in each year of a program can be helpful to identify residency training experiences that might be improved.

- **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 clinical care such as history taking, examination and clinical reasoning. The trainee receives immediate feedback to aid learning. The can be used at any time and in any setting when there is a trainee and patient interaction and an assessor is available.

- **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.

- **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, out-patient letter, and discharge summary). A typical encounter might be when presenting newly referred patients in the out-patient department.

- **Acute Care Assessment Tool (ACAT)**

The ACAT is designed to assess and facilitate feedback on a doctor's performance

during their practice on the Acute Medical Take. Any doctor who has been responsible for the supervision of the Acute Medical Take can be the assessor for an ACAT.

- **Audit Assessment (AA)**

The Audit Assessment tool is designed to assess a trainee's competence in completing an audit. The Audit Assessment can be based on review of audit documentation OR on a presentation of the audit at a meeting. If possible the trainee should be assessed on the same audit by more than one assessor.

- **Teaching Observation (TO)**

The Teaching Observation form is designed to provide structured, formative feedback to trainees on their competence at teaching. The Teaching Observation can be based on any instance of formalized teaching by the trainee who has been observed by the assessor. The process should be trainee-led (identifying appropriate teaching sessions and assessors).

- **Decisions on progress (ARCP)**

The Annual Review of Competence Progression (ARCP) is the formal method by which a trainee's progression through her/his training programme is monitored and recorded. ARCP is not an assessment – it is the review of evidence of training and assessment. The ARCP process is described in A Reference Guide for Postgraduate Specialty Training in the UK (the “Gold Guide” – available from www.mmc.nhs.uk). Deaneries are responsible for organising and conducting ARCPs. The evidence to be reviewed by ARCP panels should be collected in the trainee's ePortfolio.

General outline of Intermediate Examination of MD GASTROENTEROLOGY

The Intermediate Examination of M.D. Internal Medicine will held at the end of

2nd year of the programme.

Eligibility Criteria:

The candidates appearing in Intermediate Examination of the M.D. Gastroenterology Programme are required:

- a) To have submitted certificate of completion of mandatory workshops.
- b) To have submitted certificate / certificates of completion of first two years of training from the supervisor / supervisors of rotations.
- c) To have submitted CIS assessment proforma from his/her own supervisor on 03 monthly basis and also from his/her supervisors during rotation, achieving a cumulative score of **75%**.
- d) To have submitted certificate of approval of synopsis or undertaking / affidavit that if synopsis not approved with 30 days of submission of application for the Intermediate Examination, the candidate will not be allowed to take the examinations and shall be removed from the training programme.
- e) To have submitted evidence of payment of examination fee.

Intermediate Examination Schedule and Fee

- a) Intermediate Examination at completion of two years training, will be held twice a year.
- b) There will be a minimum period of 30 days between submission of application for the examination and the conduction of examination.

- c) Examination fee will be determined periodically by the University.
- d) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
- e) The Controller of Examinations will issue Roll Number Slips on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee.

At the end of 2nd Year of MD Gastroenterology Programme.

Written Examination = 300 Marks
 Clinical, TOACS/OSCE & ORAL = 200 Marks

Written:

MCQs = 100 (2 marks each MCQ)
 SEQs = 10 (10 Marks each SEQ)

Total = 300 Marks

Principles of Internal Medicine	= 70 MCQs	7 SEQs
Specialty specific	= 10 MCQs	1 SEQs
Basic Sciences	= 20 MCQs	2 SEQs
• Physiology	= 8 MCQs	1 SEQ
• Pharmacology	= 4 MCQs	-----
• Pathology	= 8 MCQs	1 SEQ

Clinical, TOACS/OSCE & ORAL

Four Short Cases	= 100 Marks
One Long Case	= 50 Marks
TOACS/OSCE & ORAL	= 50 Marks
Total	= 200 Marks

Declaration of Results

The Candidate will have to score 50% marks in written and oral, practical/ clinical component and a cumulative score of 60% to be declared successful in the Intermediate Examination.

A maximum total of four consecutive attempts (availed or unavailed) will be allowed in the Intermediate Examination during which the candidate will be allowed to continue his training program. If the candidate fails to pass his Intermediate Examination within the above mentioned limit of four attempts, the candidate shall be removed from the training program, and the seat would fall vacant, stipend/ scholarship if any would be stopped.

Final Examination

M.D. Gastroenterology

At the end of 5th Calendar year of the Programme Eligibility Criteria:

To appear in the Final Examination the candidate shall be required:

- i) To have submitted the result of passing Intermediate Examination.

ii) To have submitted the certificate of completion of training, issued

by the Supervisor which will be mandatory.

- iii) To have achieved a cumulative score of 75% in Continuous Internal assessments of all training years.
- iv) To have got the thesis accepted and will then be eligible to appear in Final Examination.
- v) To have submitted no dues certificate from all relevant departments including library, hostel, cashier etc.
- vi) To have submitted evidence of submission of examination fee.

Final Examination Schedule and Fee

- a) Final examination will be held twice a year.
- b) The candidates have to satisfy eligibility criteria before permission is granted to take the examination.
- c) Examination fee will be determined and varied at periodic intervals by the University.
- d) The examination fee once deposited cannot be refunded / carried over to the next examination under any circumstances.
- e) The Controller of Examinations will issue an Admittance Card with a photograph of the candidate on receipt of prescribed application form, documents satisfying eligibility criteria and evidence of payment of examination fee. This card will also show the Roll Number, date / time and venue of examination.

Written Part	= 500 Marks
Clinical, TOACS/OSCE & ORAL	= 500 Marks
Contribution to Internal Assessment	= 100 Marks
Thesis Examination	= 400 Marks

Total = 1500 Marks

Written Papers:

Paper 1	= 100 MCQs	5 SEQs
Paper 2	= 100 MCQs	5 SEQs
Total	= 500 Marks	

Clinical, TOACS/OSCE & ORAL

Short Cases	= 200 Marks
Long Case	= 100 Marks
TOACS/OSCE & ORAL	= 200 Marks
Total	= 500 Marks

Declaration of Result

For the declaration of result

- I. The candidate must get his/her Thesis accepted.
- II. The candidate must have passed the final written examination with 50% marks and the

clinical & oral examination securing 50% marks. The cumulative passing score from the written and clinical/ oral

examination shall be 60%. Cumulative score of 60% marks to be calculated by adding up secured marks of each component of the examination i.e written and clinical/ oral and then calculating its percentage.

III. The MD degree shall be awarded after acceptance of thesis and success in the final examination.

On completion of stipulated training period, irrespective of the result (pass or fail) the training slot of the candidate shall be declared vacant.

Submission / Evaluation of Synopsis

- a. The candidates shall prepare their synopsis as per guidelines provided by the Advanced Studies & Research Board, available on university website.
- b. The research topic in clinical subject should have 30% component related to basic sciences and 70% component related to applied clinical sciences. The research topic must consist of a reasonable sample size and sufficient numbers of variables to give training to the candidate to conduct research, to collect & analyze the data.
- c. Synopsis of research project shall be got approved by the end of the 3rd year of MD program. The synopsis after review by an Institutional Review Committee shall be submitted to the University for Consideration by the Advanced Studies & Research Board, through the Principal / Dean /Head of the institution.

Submission of Thesis

1. Thesis shall be submitted by the candidate duly recommended by the Supervisor.
2. The minimum duration between approval of synopsis and submission of thesis shall be one year.
3. The research thesis must be compiled and bound in accordance with the Thesis Format Guidelines approved by the University and available on website.
4. The research thesis will be submitted along with the fee prescribed by the University.

Thesis Evaluation

- a. The candidate will submit his/her thesis at least 06 months prior to completion of training.
- b. The Thesis along with a certificate of approval from the supervisor will be submitted to the Registrar's office, who would record the date / time etc. and get received from the Controller of Examinations within 05 working days of receiving.
- c. The Controller of Examinations will submit a panel of eight examiners within 07 days for selection of four examiners by the Vice Chancellor. The Vice Chancellor shall return the Final panel within 05 working days to the Controller of Examinations for processing and assessment. in case of any delay the Controller of Examinations would bring the case personally to the Vice Chancellor.
- d. The Supervisor shall not act as an examiner of the candidate and will not take part in evaluation of thesis.
- e. The Controller of Examinations will make sure that the Thesis is submitted to examiners in appropriate fashion and a reminder is sent after every ten days.
- f. The thesis will be evaluated by the examiners within a period of 06 weeks.
- g. in case the examiners fail to complete the task within 06 weeks with 02 fortnightly reminders by the Controller of Examinations, the Controller of Examinations will bring it to the notice of Vice Chancellor in person.
- h. In case of difficulty in find an internal examiner for thesis evaluation, the Vice Chancellor would, in consultation with the concerned Deans, appoint any relevant person as examiner in supersession of the relevant Clause of the University Regulations.

- i. There will be two internal and two external examiners. In case of difficulty in finding examiners, the Vice Chancellor would, in consultation with the concerned Deans, appoint minimum of three, one internal and two external examiners.
- j. The total marks of thesis evaluation will be 400 and 60% marks will be required to pass the evaluation.
- k. The thesis will be considered accepted, if the cumulative score of all the examiners is 60%.
- l. The clinical training will end at completion of stipulated training period but the candidate will become eligible to appear in the Final Examination at completion of clinical training and after acceptance of thesis. In case clinical training ends earlier, the slot will fall vacant after stipulated training period.

Award of MD GASTROENTEROLOGY Degree

After successful completion of the structured course of MD Gastroenterology and qualifying Intermediate, Final Examinations (Written, Clinical TOACS/OSCE & ORAL and Thesis), the degree with title MD Internal Medicine shall be awarded.

MD Gastroenterology

Basic Principles of Gastroenterology

After 6 months of Induction period in Gastroenterology the resident shall start next 18 months Internal Medicine training. Resident should get exposure in the following organ and system competencies (listed below) while considering and practicing each system in terms of: -

- Medical ethics
- Professional values, student teachers relationship
- Orientation of in-patient, out-patients and Gastroenterological labs
- Approach to the patient
- History taking
- General physical examination
- Systemic examination
- Routine investigations
- Special investigations
- Diagnostic and therapeutic procedures

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S NO.	CONTENT
1	History Taking (Knowledge)
2	History Taking (Skills)
3	History Taking (Behaviors)
4	Clinical examination (knowledge)
5	Clinical examination (skills)
6	Clinical examination (Behaviors)
7	Time management and decision making
8	Decision making and clinical reasoning

CLINICAL CURRICULUM FOR FIRST YEAR MD Gastroenterology

TOPICS TO BE TAUGHT	LEARNING OBJECTIVES Student should be able to know:	TEACHING METHOD	ASSESSMENT
<p>1. History Taking (Knowledge)</p>	<ul style="list-style-type: none"> • To progressively develop the ability to obtain a relevant focused history from increasingly complex patients and challenging circumstances • To record accurately and synthesize history with clinical examination and formulation of management plan according to likely clinical evolution • Recognizes the importance of different elements of history 	<p>Bedside teaching in wards and outpatient departments</p>	<p>mini-CEX MCQs</p>

	<ul style="list-style-type: none">• Recognizes the importance of clinical (particularly cognitive impairment), psychological, social, cultural and nutritional factors particularly those relating to ethnicity, race, cultural or religious beliefs and preferences, sexual orientation, gender and disability• Recognizes that patients do not present history in structured fashion and that the history may be influenced by the presence of acute and chronic medical conditions• Knows likely causes and risk factors for conditions relevant to mode of presentation• Recognizes that history should inform examination,		
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	investigation and management		
2. History Taking (Skills)	<ul style="list-style-type: none"> • Identify and overcome possible barriers (eg cognitive impairment) to effective communication • Manage time and draw consultation to a close appropriately • Supplement history with standardised instruments or questionnaires when relevant • Manage alternative and conflicting views from family, carers and friends • Assimilate history from the available information from patient and other sources • Recognise and interpret the use of non verbal communication from patients and carers • Focus on relevant aspects of history 	Bedside teaching in wards and outpatient departments	mini-CEX
3. History Taking (Behaviors)	<ul style="list-style-type: none"> • Show respect and behave in accordance with Good Medical Practice 	Bedside teaching in wards and outpatient departments	ACAT mini-CEX
4. Clinical examination (knowledge)	<ul style="list-style-type: none"> • To progressively develop the ability to perform focussed and accurate clinical examination in increasingly 		CbD mini-CEX ACAT

	<p>complex patients and challenging circumstances</p> <ul style="list-style-type: none"> • To relate physical findings to history in order to establish diagnosis and formulate a management plan • Understand the need for a valid clinical examination • Understand the basis for clinical signs and the relevance of positive and negative physical signs • Recognise constraints to performing physical examination and strategies that may be used to overcome them • Recognise the limitations of physical examination and the need for adjunctive forms of assessment to confirm diagnosis 	<p>Bedside teaching in wards and outpatient departments</p>	
<p>5. Clinical examination (skills)</p>	<ul style="list-style-type: none"> • Perform an examination relevant to the presentation and risk factors that is valid, targeted and time efficient • Recognize the possibility of deliberate harm in vulnerable patients and report to appropriate agencies • Interpret findings from the history, physical examination and mental state examination, appreciating the importance of clinical, psychological, religious, social and cultural factors 	<p>Bedside teaching in wards and outpatient departments</p>	<p>CbD mini-CEX ACAT</p>

	<ul style="list-style-type: none"> Actively elicit important clinical findings Perform relevant adjunctive examinations including cognitive examination such as Mini Mental state Examination (MMSE) and Abbreviated Mental Test Score (AMTS) 		
6. Clinical examination (Behaviors)	<ul style="list-style-type: none"> Show respect and behaves in accordance with Good Medical Practice 	Bedside teaching in wards and outpatient departments	CbD, mini-CEX, MSF
7. Time management and decision making	<ul style="list-style-type: none"> To become increasingly able to prioritise and organise clinical and clerical duties in order to optimise patient care. To become increasingly able to make appropriate clinical and clerical decisions in order to optimise the effectiveness of the clinical team resource 	Bedside teaching in wards and outpatient departments	ACAT, CbD
8. Decision making and clinical reasoning	<ul style="list-style-type: none"> To progressively develop the ability to formulate a diagnostic and therapeutic plan for a patient according to the clinical information available To progressively develop the ability to prioritise the diagnostic and therapeutic plan 	Bedside teaching in wards	ACAT, CbD, mini-CEX

	<ul style="list-style-type: none">• To be able to communicate the diagnostic and therapeutic plan appropriately		
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Course Contents:

1. Cardiovascular Medicine

Common and / or important Cardiac Problems:

- Arrhythmias
- Ischaemic Heart Disease: acute coronary syndromes, stable angina, atherosclerosis
- Heart Failure
- Hypertension – including investigation and management of accelerated hypertension
- Valvular Heart Disease
- Endocarditis
- Aortic dissection
- Syncope
- Dyslipidaemia

Clinical Science:

- Physiological principles of cardiac cycle and cardiac conduction
- Pharmacology of major drug classes: beta blockers, alpha blockers, ACE inhibitors, Angiotensin receptor blockers (ARBs), anti-platelet agents, thrombolysis, inotropes, calcium channel antagonists, potassium channel activators, diuretics, anti-arrhythmics, anticoagulants, lipid modifying drugs, nitrates, centrally acting anti-hypertensives

2. Dermatology;

Common and / or Important Problems:

- Cellulitis
- Cutaneous drug reactions
- Psoriasis and eczema
- Skin failure: eg erythroderma, toxic epidermal necrolysis
- Urticaria and angio-oedema
- Cutaneous vasculitis
- Herpes zoster and Herpes Simplex infections
- Skin tumours
- Skin infestations
- Dermatomyositis
- Scleroderma

- Lymphoedema

Clinical Science:

- Pharmacology of major drug classes: topical steroids, immunosuppressants

3. Diabetes & Endocrine Medicine

Common and / or Important Diabetes Problems:

- Diabetic ketoacidosis
- Non-acidotic hyperosmolar coma / severe hyperglycaemia
- Hypoglycaemia
- Care of the acutely ill diabetic
- Peri-operative diabetes care

Common or Important Endocrine Problems:

- Hyper/Hypocalcaemia
- Adrenocortical insufficiency
- Hyper/Hyponatraemia
- Thyroid dysfunction
- Dyslipidaemia
- Endocrine emergencies: myxoedemic coma, thyrotoxic crisis, Addisonian crisis, hypopituitary coma, pheochromocytoma crisis

Clinical Science:

- Outline the function, receptors, action, secondary messengers and feedback of hormones
- Pharmacology of major drug classes: insulin, oral anti-diabetics, thyroxine, anti-thyroid drugs, corticosteroids, sex hormones, drugs affecting bone metabolism

4. Renal Medicine

Common and / or Important Problems:

- Acute renal failure
- Chronic renal failure
- Glomerulonephritis

- Nephrotic syndrome
- Urinary tract infections
- Urinary Calculus
- Renal replacement therapy
- Disturbances of potassium, acid/base, and fluid balance (and appropriate acute interventions)

Clinical Science:

- Measurement of renal function
- Metabolic perturbations of acute, chronic, and end-stage renal failure and associated treatments

5. Respiratory Medicine

Common and / or Important Respiratory Problems:

- COPD
- Asthma
- Pneumonia
- Pleural disease: Pneumothorax, pleural effusion, mesothelioma
- Lung Cancer
- Respiratory failure and methods of respiratory support
- Pulmonary embolism and DVT
- Tuberculosis
- Interstitial lung disease
- Bronchiectasis
- Respiratory failure and cor-pulmonale
- Pulmonary hypertension

Clinical Science:

- Principles of lung function measurement
- Pharmacology of major drug classes: bronchodilators, inhaled corticosteroids, leukotriene receptor antagonists, immunosuppressants

6. Allergy

Common or Important Allergy Problems

- Anaphylaxis

- Recognition of common allergies; introducing occupation associated allergies
- Food, drug, latex, insect venom allergies
- Urticaria and angioedema

Clinical Science

- Mechanisms of allergic sensitization: primary and secondary prophylaxis
- Natural history of allergic diseases
- Mechanisms of action of anti-allergic drugs and immunotherapy
- Principles and limitations of allergen avoidance

7. Haematology

Common and / or Important Problems:

- Bone marrow failure: causes and complications
- Bleeding disorders: DIC, haemophilia
- Thrombocytopaenia
- anticoagulation treatment: indications, monitoring, management of over- treatment
- Transfusion reactions
- Anaemia: iron deficient, megaloblastic, haemolysis, sickle cell,
- Thrombophilia: classification; indications and implications of screening
- Haemolytic disease
- Myelodysplastic syndromes
- Leukaemia
- Lymphoma
- Myeloma
- Myeloproliferative disease
- Inherited disorders of haemoglobin (sickle cell disease, thalassaemias)
- Amyloid

Clinical Science:

- Structure and function of blood, reticuloendothelial system, erythropoietic tissues

8. Immunology

Common or Important Problems:

- Anaphylaxis (see also 'Allergy')

Clinical Science:

- Innate and adaptive immune responses
- Principles of Hypersensitivity and transplantation

9. Infectious Diseases

Common and / or Important Problems:

- Fever of Unknown origin
- Complications of sepsis: shock, DIC, ARDS
- Common community acquired infection: LRTI, UTI, skin and soft tissue infections, viral exanthema, gastroenteritis
- CNS infection: meningitis, encephalitis, brain abscess
- HIV and AIDS including ethical considerations of testing
- Infections in immuno-compromised host
- Tuberculosis
- Anti-microbial drug monitoring
- Endocarditis
- Common genito-urinary conditions: non-gonococcal urethritis, gonorrhoea, syphilis

Clinical Science:

- Principles of vaccination
- Pharmacology of major drug classes: penicillins, cephalosporins, tetracyclines, aminoglycosides, macrolides, sulphonamides, quinolones, metronidazole, anti-tuberculous drugs, anti-fungals, anti-malarials, anti-helminthics, anti-virals

10. Medicine in the Elderly

Common or Important Problems:

- Deterioration in mobility
- Acute confusion
- Stroke and transient ischaemic attack
- Falls
- Age related pharmacology
- Hypothermia
- Continence problems

- Dementia
- Movement disorders including Parkinson's disease
- Depression in the elderly
- Osteoporosis
- Malnutrition
- Osteoarthritis

Clinical Science:

- Effects of ageing on the major organ systems
- Normal laboratory values in older people

11. Musculoskeletal System

Common or Important Problems:

- Septic arthritis
- Rheumatoid arthritis
- Osteoarthritis
- Seronegative arthritides
- Crystal arthropathy
- Osteoporosis – risk factors, and primary and secondary prevention of complications of osteoporosis
- Polymyalgia and temporal arteritis
- Acute connective tissue disease: systemic lupus erythematosus, scleroderma, poly- and dermatomyositis, Sjogren's syndrome, vasculitides

Clinical Science:

- Pharmacology of major drug classes: NSAIDs, corticosteroids, immunosuppressants, colchicines, allopurinol, bisphosphonates

12. Neurology

Common or Important Problems:

- Acute new headache
- Stroke and transient ischaemic attack
- Subarachnoid haemorrhage

- Coma
- Central Nervous System infection: encephalitis, meningitis, brain abscess
- Raised intra-cranial pressure
- Sudden loss of consciousness including seizure disorders (see also above syncope etc)
- Acute paralysis: Guillian-Barré, myasthenia gravis, spinal cord lesion
- Multiple sclerosis
- Motor neuron disease

Clinical Science:

- Pathophysiology of pain, speech and language
- Pharmacology of major drug classes: anxiolytics, hypnotics inc. benzodiazepines, antiepileptics, anti-Parkinson's drugs (anti-muscarinics, dopaminergics)

13. Psychiatry

Common and /or Important Problems:

- Suicide and parasuicide
- Acute psychosis
- Substance dependence
- Depression

Clinical Science:

- Principles of substance addiction, and tolerance
- Pharmacology of major drug classes: anti-psychotics, lithium, tricyclic antidepressants, mono-amine oxidase inhibitors, SSRIs, venlafaxine,

donepezil, drugs used in treatment of addiction (bupropion, disulpharam, acamprosate, methadone)

14. Cancer and Palliative Care

Common or Important Gastroenterology Problems:

- Hypercalcaemia
- SVC obstruction
- Spinal cord compression

- Neutropenic sepsis
- Common cancers (presentation, diagnosis, staging, treatment principles): lung, bowel, breast, prostate, stomach, oesophagus, bladder)

Common or Important Palliative Care Problems:

- Pain: appropriate use, analgesic ladder, side effects, role of radiotherapy
- Constipation
- Breathlessness
- Nausea and vomiting
- Anxiety and depressed mood Clinical Science:
- Principles of oncogenesis and metastatic spread
- Apoptosis
- Principles of staging
- Principles of screening
- Pharmacology of major drug classes in palliative care: anti-emetics, opioids, NSAIDS, agents for neuropathic pain, bisphosphonates, laxatives, anxiolytics

15. Clinical Genetics

Common and / or Important problems:

- Down's syndrome
- Turner's syndrome
- Huntington's disease
- Haemochromatosis
- Marfan's syndrome
- Klinefelter's syndrome
- Familial cancer syndromes
- Familial cardiovascular disorders

Clinical Science:

- Structure and function of human cells, chromosomes, DNA, RNA and cellular proteins
- Principles of inheritance: Mendelian, sex-linked, mitochondrial
- Principles of pharmacogenetics
- Principles of mutation, polymorphism, trinucleotide repeat disorders

- Principles of genetic testing including metabolite assays, clinical examination and analysis of nucleic acid (e.g. PCR)

16. Clinical Pharmacology

Common and / or Important problems:

- Corticosteroid treatment: short and long-term complications, bone protection, safe withdrawal of corticosteroids, patient counselling regarding avoid adrenal crises
- Specific treatment of poisoning with:
 - Aspirin,
 - Paracetamol
 - Tricyclic anti-depressants
 - Beta-blockers
 - Carbon monoxide
 - Opiates
 - Digoxin
 - Benzodiazepines

Clinical Science:

- Drug actions at receptor and intracellular level
- Principles of absorption, distribution, metabolism and excretion of chemotherapeutic and palliative drugs
- Effects of genetics on drug metabolism
- Pharmacological principles of drug interaction
- Outline the effects on drug metabolism of: pregnancy, age, renal and liver impairment

Investigation Competencies

Outline the Indications for, and Interpret the Following Investigations:

- Basic blood biochemistry: urea and electrolytes, liver function tests, bone biochemistry, glucose, magnesium
- Inflammatory markers: CRP / ESR
- Arterial Blood Gas analysis
- Cortisol and short Synacthen test
- HbA1C

- Lipid profile
- Amylase
- Full blood count
- Coagulation studies
- Haemolysis studies
- D dimer
- Blood film report
- Blood / Stool / urine culture
- Fluid analysis: peritoneal, ascitic
- Abdominal and pelvic radiograph

More Advanced Competencies;

- Viral hepatitis serology
- HIV testing
- Ultrasound
- Detailed imaging: Barium studies, CT, CT Gastroenterological angiography, high resolution CT, MRI
- Ambulatory blood pressure monitoring

Procedural Competencies

- The trainee is expected to be competent in performing the following procedures by the end of core training. The trainee must be able to outline the indications for these interventions. For invasive procedures, the trainee must recognize the indications for the procedure, the importance of valid consent, aseptic technique, safe use of local anaesthetics and minimization of patient discomfort.
- Venepuncture
- Cannula insertion, including large bore
- Ascitic tap and aspiration
- Abdominal paracentesis
- Central venous cannulation
- Initial airway protection: chin lift, Guedel airway, nasal airway, laryngeal mask
- Basic and, subsequently, advanced cardiorespiratory resuscitation
- Cytology: ascitic fluid, saliva
- Nasogastric tube placement and checking
- Urethral catheterization

SPECIFIC LEARNING OUTCOMES

Residents completing MD Gastroenterology training will have formal instruction, clinical experience, and will be able to demonstrate competence in the evaluation and management of adult and paediatric patients and applying scientific principles for the identification, prevention, treatment and rehabilitation of following acute and chronic disorders in Gastroenterology.

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S NO.	CONTENT
1.	Training in acid peptic disease
2.	Training in biliary disorders
3.	Training in pancreatic diseases
4.	Training in liver diseases
5.	Training in inflammation and enteric infectious diseases
6.	Training in IBD
7.	Training in malignancies
8.	Training in Motility and Functional Disorders
9.	Training in pediatric gastroenterology
10.	Training in geriatric gastroenterology
11.	Training in Parenteral and Enteral Nutrition
12.	Training in endoscopy

TRAINING IN GASTROINTESTINAL DISEASES

1. Acid Peptic Disease

1. Anatomy, physiology, and pathophysiology of the esophagus, stomach, and duodenum.
2. Gastric secretion and indications for gastric analysis (i.e., measuring gastric acid output).
3. The indications for serum gastrin measurement and secretin testing for the diagnosis of gastrinoma and consequences of hypergastrinemia in both hypersecretory and achlorhydric states; trainees should also gain an understanding of the mechanisms involved in the development of secondary hypergastrinemia due to low acid states.
4. The natural history, epidemiology, and complications of acid-peptic disorders, including recognition of premalignant conditions (e.g., Barrett's metaplasia).
5. The role of *H. pylori* infection in acid-peptic diseases; trainees should gain an understanding of the properties of *H. pylori* infection, including its epidemiology and pathophysiology, such as factors specific to the organism (e.g., the CagA protein), factors specific to the host (e.g., interleukin polymorphisms), and factors specific to the environment (e.g., diet and antisecretory therapy).
6. The role of NSAIDs in the pathogenesis of gastroduodenal ulcers and their complications, including an understanding of risk factors for developing NSAID-related ulcers and the relative risks posed by different

Large class format
(interactive lecture)

Bed side teaching

Endoscopy Lab

MCQs & SEQs

OSCE,

Long case

DOPS

	<p>individual NSAID preparations based on various different properties.</p> <ol style="list-style-type: none"> 7. The pharmacology, adverse reactions, efficacy, and appropriate use and routes of administration of drugs for acid-peptic disorders; these include antacids and histamine-2 receptor antagonists, proton pump inhibitors, mucosal protective agents, prostaglandin analogues, prokinetic agents, and antibiotics. 8. Endoscopic and surgical treatments of acid-peptic disorders. 		
<p>2. Training in biliary disorders</p>	<p>During fellowship, trainees should gain an understanding of the following:</p> <p><i>Biliary</i></p> <ol style="list-style-type: none"> 1. Basic embryology and anatomy of the biliary tree and congenital structural anomalies, including duplications and cysts. 2. Hormonal and neural regulation of bile flow and gallbladder function. 3. Physiology of bile secretion and its derangement in cholestatic disorders. 4. Bile composition in health and disease. 5. Cholelithiasis—epidemiology, etiology, clinical manifestations and complications, treatment modalities. 6. Other disorders of the bile ducts, including 	<p>Bed side teaching</p> <p>Radiology Rotation</p>	<p>MCQs & SEQs</p> <p>OSCE</p> <p>Long case</p> <p>Short case</p>

	<p>recurrent pyogenic cholangitis, parasitic and opportunistic infections.</p> <ol style="list-style-type: none"> 7. Other inflammatory disorders of the gallbladder such as acalculous cholecystitis. 8. Neoplastic diseases of the gallbladder and bile ducts. 9. Motility disorders including gallbladder dyskinesia, sphincter of Oddi dysfunction. 10. Principles of evaluation and treatment of common clinical syndromes: <ol style="list-style-type: none"> a. Cholestasis b. RUQ and “biliary-type” pain c. Incidental findings on radiographic testing 11. Radiographic evaluation of the biliary tree: basic principles, utility and lesion recognition: <ol style="list-style-type: none"> a. Ultrasonography b. CT c. MRI d. Scintigraphic techniques e. MRCP <p>Principles, utility, and complications of biliary surgery.</p>		
<p>3. Training in pancreatic disorders</p>	<ol style="list-style-type: none"> 2. The embryological development and anatomy of the pancreas and the pancreatic duct system and congenital disorders such as pancreas divisum, annular pancreas. 3. The physiological processes involved in pancreatic exocrine secretion of digestive enzymes, water, and electrolytes. 4. The types of digestive enzymes secreted 	<p>Problem Based Learning</p>	<p>MCQs & SEQs</p> <p>OSCE</p> <p>Long case</p> <p>Short case</p>

	<p>by the pancreas, their mechanisms of activation and their roles in the digestive process.</p> <ol style="list-style-type: none"> 5. The factors that protect the pancreas from autodigestion. 6. The epidemiology, etiology, pathophysiology, natural history, and management of acute pancreatitis in all spectra of severity and its complications. 7. The epidemiology, etiology, pathophysiology, natural history, and management of chronic pancreatitis with particular emphasis on management of exocrine insufficiency and chronic pain. 8. The epidemiology, etiology, natural history, and management of pancreatic cancer and its complications. 9. The molecular genetics of pancreatic disease with particular reference to hereditary pancreatitis and cystic fibrosis, their diagnosis and management. <p>Radiographic evaluation of the pancreas: basic principles, utility, and lesion recognition:</p> <ol style="list-style-type: none"> a. Ultrasonography b. EUS c. CT d. MRI e. MRCP <ol style="list-style-type: none"> 2. Principles, utility, and complications of pancreatic surgery. 3. The basis and indications for and the interpretation of diagnostic test results in 		
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	<p>the diagnosis and management of diseases of the pancreas, in particular, serum amylase and lipase determination, markers for chronic pancreatitis (fecal elastase, serum trypsinogen-like immunoreactivity, etc.) serum tumor markers (e.g., CA 19-9), radiological and endoscopic imaging studies (see Training in Endoscopy and Training in Radiology), indirect tests of pancreatic secretory function, direct tests of secretory function (e.g., secretin and secretin/cholecystokinin stimulation tests, test meals), duodenal drainage with analysis for biliary crystals, fine-needle aspiration of pancreatic masses, and analysis of cytology in endoscopic aspirates of pancreatic juice.</p> <p>4. Principles and practice of nutritional support for patients with both acute and chronic pancreatitis.</p>		
<p>4. Training in liver diseases</p>	<ol style="list-style-type: none"> 1. Significant knowledge about genetic markers of liver disease, immunology, virology, and other pathophysiological mechanisms of liver injury; the basic biology and pathobiology of the liver and biliary systems as well as a thorough understanding of the diagnostic and treatment of a broad range of hepatobiliary disorders. 2. Skill in the performance of a limited number of diagnostic and therapeutic procedures. 3. An appreciation of the indications and use of a number of diagnostic and therapeutic procedures that are needed to manage hepatobiliary disorders. <p>During the training period,</p>	<p>Large class format (interactive lecture)</p>	<p>MCQs & SEQs</p> <p>OSCE</p> <p>Long case</p> <p>Short case</p>

	<p>comprehensive teaching of the following subjects is essential:</p> <ol style="list-style-type: none">1. The biology and pathophysiology of liver diseases2. Diagnosis and management of patients with the wide variety of diseases of the liver and biliary tract systems, including the following:<ol style="list-style-type: none">a. Acute hepatitis: viral, drug, toxic, drug-induced.b. Fulminant hepatic failure, including the timing to transplant, management of cerebral edema, coagulopathy, and other complications associated with acute hepatic failure.c. Chronic hepatitis (and cirrhosis); chemical, biochemical, serological, and histopathologic diagnosis of chronic viral hepatitis.d. Complications of chronic liver disease, including complications of portal hypertension (ascites, spontaneous bacterial peritonitis, prevention and treatment of bleeding esophageal varices and gastropathy), hepatic encephalopathy, hepatorenal syndrome.e. Hepatocellular carcinoma (screening and diagnostic options, treatment options).f. Nonviral causes of chronic liver disease, such as alcohol, nonalcoholic fatty liver disease (including nonalcoholic steatohepatitis), Wilson's disease, primary biliary cirrhosis, autoimmune hepatitis		
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	<p>hemochromatosis, and α_1-antitrypsin deficiency.</p> <ul style="list-style-type: none"> g. Gallstone disease, including the appropriate use of medical and surgical therapies (see Training in Biliary Tract Diseases and Pancreatic Disorders). h. Hepatobiliary disorders associated with pregnancy, including care of patients with abnormal liver tests as well as those with severe liver disease associated with pregnancy. i. Perioperative care of patients with defined disease of the liver or evidence of hepatobiliary dysfunction. j. Selection and care of patients awaiting liver transplantation, including the assessment of the candidacy of patients for transplantation. k. Care of patients following liver transplantation, including an understanding of the use of immunosuppressive agents; diagnosis and management of rejection; and recognition of other complications of transplantation, such as certain infections and biliary tract and vascular problems. l. Use of antiviral agents in the treatment of liver disease. <ul style="list-style-type: none"> 3. Management of the nutritional problems associated with chronic liver disease (see Training in Nutrition). 4. Liver pathology, including histological 		
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	<p>interpretation and specific pathological techniques (see Training in Pathology).</p> <p>5. Pediatric and congenital hepatobiliary disorders (see Training in Pediatric Gastroenterology).</p> <p>Liver imaging modalities, including interpretation of computed tomography, magnetic resonance-based techniques (magnetic resonance imaging, magnetic resonance angiography, magnetic resonance cholangiography), hepatic angiography, and ultrasound (including Doppler evaluation of hepatic vasculature). The limitations of each modality should be understood. Some programs may choose to provide selected fellows with hands-on training in hepatic ultrasound for liver biopsy guidance; formal training in liver biopsy requires an understanding of the use of ultrasound in the setting of liver biopsy.</p>		
<p>5. Training in inflammation and enteric infectious diseases</p>	<p>During fellowship, trainees should gain an understanding of gastrointestinal infections, including the following:</p> <ol style="list-style-type: none"> 1. The mechanisms of inflammation 2. Elements of the mucosal defense system (including the mucosal immune system and the components of intestinal barrier function) 3. The composition and function of normal enteric flora (including 	<p>Large class format (interactive lecture)</p>	<p>MCOs & SEQs</p> <p>Long case</p> <p>Short case</p>

	<p>protection against pathogens, colonization resistance, role in metabolism [nitrogen, carbohydrate, fat, vitamins, bile salts], and the effects of antibiotics on the flora)</p> <ol style="list-style-type: none">4. The prevalence, clinical presentation, and virulence factors (including mechanism of toxin action, colonization, translocation, and invasion) of gastrointestinal pathogens (viruses, bacteria, fungi, and protozoa)5. The pathophysiology of diarrhea due to infection6. The indications and contraindications for antimicrobial therapy, mechanisms of microbial drug resistance, and risk of infections from altering normal flora (e.g., <i>Clostridium difficile</i>) <p>Clinical skills should include a familiarity with the following diagnostic and histopathologic studies (see Training in Pathology):</p> <ol style="list-style-type: none">1. Microscopic examination of stool: fecal leukocytes and ova and parasites2. Culture of stool, intestinal fluid, and mucosal biopsy specimens (specimen collection, handling, special stains, and media)3. Mucosal biopsy interpretation4. Antigen detection in stool and fluid (enzyme immunoassay, fluorescent antibody) and stool toxin testing5. Rapid diagnostic tests (DNA probes or polymerase chain reaction)<ul style="list-style-type: none">• Liver biopsy and interpretation (see Training in Hepatology)		
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	<p>During fellowship, trainees should be able to assess the broad range of gastrointestinal symptoms and signs of illness in immunosuppressed patients and be able to differentiate AIDS-related from AIDS-unrelated conditions. Esophageal disorders include infectious esophagitis (fungal, viral, HIV, and neoplasms). Trainees should be able to assess AIDS gastropathy and other infectious and neoplastic gastric disorders. They should be able to assess disorders of the small intestine, including causes of diarrhea in immunosuppressed patients; interpret endoscopic, barium, and computed tomographic and ultrasound examinations; and treat bacterial, fungal, viral, and protozoal infections of the small</p> <p>bowel in patients with AIDS. Trainees should also recognize causes of colorectal disorders, including proctitis, proctocolitis, and AIDS-related malignancies (e.g., Kaposi's sarcoma) and should be familiar with the indications for and interpretation of flexible sigmoidoscopic, colonoscopic, and radiographic studies of the colon.</p> <p>Within the biliary system, trainees should be capable of evaluating causes of hepatomegaly, abnormal liver test results (infections, neoplasia, drugs), and the interaction of hepatitis viruses and HIV; distinguish AIDS cholangiopathy and cholecystitis; and assess indications for liver biopsy.</p> <p>AIDS-associated pancreatic disorders, including causes of pancreatitis (infectious, neoplastic, toxic), the implications of hyperamylasemia, and the nutritional evaluation of pancreatic disorders in patients</p>	<p>Bedside teaching</p>	<p>MCOs & SEQs</p> <p>OSCE</p> <p>Long case</p> <p>Short case</p>
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	<p>with AIDS (assessment of nutritional status and development and implementation of nutritional therapies, including enteral and parenteral) should be incorporated (see Training in Nutrition).</p> <ul style="list-style-type: none"> • Trainees should be able to determine the cause of and prescribe a rational treatment plan for common opportunistic and neoplastic conditions in a cost-effective and humanitarian fashion. 		
<p>6. Training in IBD</p>	<ul style="list-style-type: none"> ▪ Recognition of clinical and laboratory features (including serum antibody testing) of intestinal inflammation that may aid in differentiating between Crohn's disease and ulcerative colitis. ▪ Distinction between the signs of intestinal inflammation from those of secretory and osmotic diarrhea and from symptoms of irritable bowel syndrome. ▪ Differentiation of chronic idiopathic IBD from other specific entities, such as acute self-limited (infectious) ileitis and colitis, drug- or radiation- induced colitis, ischemic bowel disease and diverticulitis. ▪ Understanding the indications for and interpretation of serologic, endoscopic, radiological, histological, and microbiological studies used in the diagnosis and evaluation of patients with IBD. ▪ Understanding the cost-benefit and risk-benefit ratios for endoscopic and radiological procedures used to diagnose, define disease extent and severity, and to assess complications of ulcerative colitis and Crohn's disease. ▪ Recognition of different presentations of IBD, including the pediatric manifestations, anorectal complications, and inflammatory 	<p>Large class format (interactive lecture)</p>	<p>MCQs & SEQs</p> <p>Long case</p> <p>Short case</p>

	<p>versus fistulizing versus fibrostenotic patterns of Crohn's disease, and be able to recognize these various presentations on history-taking and physical examination.</p> <ul style="list-style-type: none">▪ Recognition and management of the intestinal (hemorrhage, obstruction), extraintestinal (ocular, dermatologic, musculoskeletal, hepatobiliary, urinary tract), and nutritional complications of ulcerative colitis and Crohn's disease.▪ Understanding the influence of IBD on pregnancy and of pregnancy on IBD and acquire knowledge on the safe use of IBD medications during pregnancy.▪ Recognition and management of the adverse effects of medicines used in the treatment of IBD, including the role of measuring serum enzyme (thiopurine methyltransferase) and 6-mercaptopurine metabolite levels in conjunction with the use of immunomodulators.▪ Addressing issues pertaining to family history and genetic counseling, including knowledge about the implications of gene mutations relevant to IBD.▪ Awareness of the long-term cancer risks in ulcerative colitis and Crohn's disease and be able to implement appropriate cost-effective surveillance programs.▪ Understanding the histopathologic criteria for diagnosis of dysplasia in ulcerative colitis.▪ Understanding the indications for surgery in ulcerative colitis and Crohn's disease.▪ Diagnosing postoperative complications of surgery in ulcerative colitis (including pouchitis <p>after ileo-anal anastomoses) and</p>		
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	<p>Crohn's disease (including the differentiation and management of postoperative diarrhea).</p> <ul style="list-style-type: none"> ▪ Sensitivity to psychosocial influences as well as the consequences of IBD on patients and on family dynamics. ▪ Capability of developing a therapeutic plan commensurate with disease extent severity for both ulcerative colitis and Crohn's disease. ▪ Understanding the indications, contraindications, and pharmacology of nonspecific therapies, including new biologic therapies such as infliximab, anticholinergic agents, antidiarrheals, and bile salt sequestrants; oral and topical aminosalicylates; parenteral, enteral, and rectal corticosteroids; and immunosuppressants (purine analogues and methotrexate) antibiotics and probiotics used in relevant clinical situations. ▪ Understanding the impact of antibodies to biologic agents and how to prevent, diagnose, and manage immunogenicity to biologic agents. <ul style="list-style-type: none"> • Understanding the indications for enteral and parenteral alimentation and be able to implement nutritional therapies 		
<p>7. TRAINING IN MALIGNANCY</p>	<p>During fellowship, trainees should:</p> <ul style="list-style-type: none"> • Develop a sound knowledge of tumor biology to a level similar to that traditionally achieved for acid-base or smooth muscle physiology. Balanced training now should reflect the state-of-the-art and the relative importance of cancer to this field. • Develop a thorough familiarity with the literature on cancer epidemiology, 	<p>Small group discussion</p>	<p>MCOs & SEQs</p> <p>Long case</p> <p>Short case</p>

	<p>primary prevention, and screening for colorectal cancer with fecal occult blood tests as well as endoscopic and radiological approaches.</p> <ul style="list-style-type: none">• Become knowledgeable about the recommended guidelines for screening for gastrointestinal neoplasia and the literature supporting these recommendations.• Be able to read and interpret literature about the emerging technologies and know how to evaluate novel technologies and approaches.• Have a working knowledge of clinical genetics and understand the approaches to the genetic diagnosis of FAP, HNPCC, and other rarer polyposis syndromes. They should recognize the clinical characteristics of these diseases, the distinctions among the familial forms of cancer, the specific diagnostic and screening tests for each, and the rational approaches to their treatment.• Learn the principles of neoplastic growth as they relate to therapy, including endoscopic treatment as well as traditional surgical approaches. A complete understanding of the management of premalignant conditions is necessary.• Become familiar with the pathological interpretation of tissue biopsies (endoscopic and percutaneous) and have a thorough working knowledge of the management of dysplastic lesions. They must understand the distinctions among the varieties of colorectal polyps and their management.		
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	<ul style="list-style-type: none">• Learn the principles of chemotherapy for gastrointestinal cancer and radiation treatment for early and advanced tumors. They must understand the initial management of those patients in whom the diagnosis of gastrointestinal cancer has just been made. <p>Understand how to counsel patients who have had gastrointestinal neoplasia and how to manage patients who inquire about the management of positive family histories of gastrointestinal cancer. Trainees should understand the principles and importance of genetic counseling as it pertains to genetic testing and the management of the inherited gastrointestinal diseases. They should be familiar with the prognoses associated with different types of gastrointestinal cancer.</p> <ol style="list-style-type: none">1. Become familiar with the technical considerations in the therapy of colorectal adenomas and carcinomas. They should be thoroughly experienced in colonoscopic polypectomy of pedunculated and sessile polyps and ablative therapies for sessile lesions. Trainees must understand the capabilities and limitations of endoscopic mucosectomy for early gastrointestinal cancers.2. Understand the appropriate surveillance and surveillance intervals for patients at high risk for developing cancer and those in whom premalignant epithelium has already been detected. <ul style="list-style-type: none">• Gain additional experience, for those who desire advance training, in the placement of endoscopic stents, laser ablation, photodynamic therapy, endoscopic		
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	ultrasound, fine-needle aspiration of tumors, endoscopic mucosectomy, and endoscopic celiac ganglion block for patients with pancreatic cancer (level 2 training).		
8. TRAINING IN MOTILITY AND FUNCTIONAL DISORDERS	<p>To diagnose and treat motility and functional disorders effectively, trainees in gastroenterology must attain knowledge and understanding of the following specific topics:</p> <ul style="list-style-type: none"> • Organization of the contractile apparatus of the gastrointestinal tract including smooth muscle and interstitial cells of Cajal. • Anatomy and physiology of the enteric nervous system: fasting and postprandial programs of motility and secretion. • Anatomical and physiological basis of visceral afferent signaling, including vagal and spinal pathways, neurobiology of pain signaling, and visceral sensitization. • Brain–gut interactions and the biopsychosocial continuum. • Pharmacology of agents modulating motility and sensation, including prokinetic drugs, antidiarrheals, and laxatives • Development of the enteric nervous system and congenital disorders of motility such as Hirschsprung’s Disease and hypertrophic pyloric stenosis. • Physiology of deglutition and neural control mechanisms and disorders of swallowing, including secondary and primary etiologies. • Esophageal motor physiology, 	Bedside teaching	<p>MCQs & SEQs</p> <p>Long case</p> <p>Short case</p>

	<p>esophageal dys- motility, including achalasia, diffuse esophageal spasm and other spastic disorders, noncardiac chest pain.</p> <ul style="list-style-type: none"> • Physiology and pathophysiology of gastroe- sophageal reflux, singultus, and belching. • Organization and control of gastric motor activity and physiology of gastric emptying, gastroparesis and postsurgical gastric syn- dromes, nonulcer dyspepsia. • Small bowel physiology, congenital and acquired disorders of small bowel motility, including dia- betes, scleroderma, and pseudo-obstruction. • Colonic and defecatory physiology and patho- physiology, colonic inertia, anorectal and pelvic outlet/floor disorders, irritable bowel syndrome, and diverticular disease. • Motility of the biliary tract, Sphincter of Oddi dysfunction, and gallbladder dyskinesia • Systemic disorders affecting gastrointestinal motility (diabetes mellitus, scleroderma, thy- roid disease, paraneoplastic syndromes, and neurologic disorders including dysautonomia). • Principles of clinical psychology as it relates to the management of patients with chronic disor- ders including an understanding of cognitive- behavioral therapy, hypnosis, and other forms of alternative medicine indications and appro- priate use of 		
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	<p>psychopharmaceuticals.</p> <ul style="list-style-type: none"> ○ Basic principles of nutrient requirements, ingestion, digestion, absorption, and metabolism in the healthy and diseased gut. ○ Assessment of nutritional status, including specific nutrient deficiencies and excesses, protein-energy malnutrition, and obesity. ○ Metabolic response to starvation and the pathophysiological effects of malnutrition. ○ Metabolic response to illness and injury and nutrient requirements during stress states. ○ Indications for nutrition support. ○ Implementation and management of nutritional therapy, including modified diets, enteral tube feeding, and parenteral nutrition. ○ Pathophysiology and clinical management of obesity. ○ Ethical and legal issues involved in provision and withdrawal of nutrition support. <p>During fellowship, trainees should gain an understanding of the following:</p> <ul style="list-style-type: none"> ▪ Appropriate recommendation of endoscopic procedures based on findings from personal consultations and in consideration of specific indications, contraindications, and diagnostic/therapeutic alternatives. ▪ Performance of specific procedures safely, completely, and expeditiously. 		
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	<ul style="list-style-type: none">▪ Correct interpretation of most endoscopic and capsule endoscopic findings.▪ Integration of endoscopic findings or therapy into the patient management plan.▪ Recognition of risk factors attendant to endoscopic procedures and to be able to recognize and manage complications.▪ Personal and procedural limits and to know when to request help.▪ Indications, complications, and risks of capsule endoscopy and how to integrate this technology into the overall clinical evaluation of the patient.▪ Safe and appropriate use of moderate sedation.		
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9. Pediatric Gastroenterology

- IBD issues in pediatric population
- Neonatal jaundice, and cholestasis
- Common pediatric gastrointestinal problems:
 - Abdominal pain, constipation, diarrhea, cystic fibrosis necrotizing enterocolitis, Meckel's diverticulum, intestinal intussusception, and mid- gut volvulus
- GI complications of malignancy and treatment
- Rickets and other systemic disorders in GI and liver diseases

10. Geriatric Gastroenterology

- Endoscopic gastrostomy tube risks and complications
- Evaluation and risks of endoscopic procedures among elderly

- Effect of aging on gastrointestinal tract and common GI illness among elderly population

11. Parenteral and Enteral Nutrition

- General indications and contraindications for parenteral and enteral nutrition.
- Utility of central and peripheral parenteral nutrition including advantages and disadvantages.
- IV access utilized in parenteral nutrition.
- Major components of nutritional assessments and demonstrate the calculations for the usual requirements of fluids, carbohydrates, protein, fat and calories.
- Parenteral nutrition formula for a given patient.
- Advantages and disadvantages of total nutrient admixture system.
- Application of transitional therapy as it applies to parenteral nutrition.
- Rationale and benefit of early enteral feeding.

- Differences in macronutrients available in enteral formulas.
- Benefits that enteral products with fiber provide.
- Advantages/disadvantages of polymeric, partially hydrolyzed and disease specific formulas.
- Formula osmolarity and its effect on enteral feeding tolerance.
- Indications and advantages and disadvantages of the following access routes: nasogastric, gastrostomy and jejunostomy.
- Difference between continuous and intermittent feedings, including advantages, disadvantages and general administration protocols.

- Complications of parenteral and enteral nutrition including mechanical, gastrointestinal, infectious and metabolic.
- Monitoring guidelines for parenteral and enteral nutrition.

12. Endoscopic Training

- Endoscopes and accessories
- Sterilization of endoscopes and accessories
- Other electrosurgical instrument
- Consent and pre-procedure patient evaluation
- Sedation and monitoring
- Advance endoscopic technique
- Capsule endoscopy
- Double balloon enteroscopy, single fiber endoscopy, narrow band imaging and confocal (high magnification endoscopy)
- Anticoagulants and antiplatelet agents and GI endoscopy
- Complications of endoscopic procedures

Guidelines for Endoscopic Training in Routine Procedures: Threshold for Assessing Competence

Procedure	Required number ^a
Esophagogastroduodenoscopy	130
Including treatment of nonvariceal hemorrhage (10 actively bleeding)	25
Including treatment of variceal hemorrhage (5 actively bleeding)	20
Esophageal dilation (guidewire and through the scope)	20
Colonoscopy	140
Including snare polypectomy and hemostasis	30
Percutaneous endoscopic gastrostomy placement	15
Capsule endoscopy (small bowel)	25

NOTE. The information in this table represents the current recommendations of the ASGE. Because ASGE guidelines are living documents, they undergo frequent revision. Please check the ASGE web site (www.asge.org) to obtain the most current information.

a Required number represents the threshold number of procedures that must be performed before competency can be assessed. The number represents a minimum, and it is understood that most trainees will require more (never less) than the stated number to meet the competency standards based on existing data.

b Refers to the gastric component of the PEG tube placement.

Studies	Required number
Standard esophageal motility	50
Gastric and small bowel motility studies (either perfused catheter or solid-state transducers, or impedance catheters)	25
Indications, interpretation, and significance of scintigraphic measurement of gastric emptying	25
Colonic motility studies (either perfused catheter or solid-state transducers)	20
Anorectal motility studies/anal sphincter manometric studies	30
Anal sphincter biofeedback training	10
Colonic transit with radiopaque markers or scintigraphy	20

Professional Skills:

Residents shall learn professional skills in:

- Patient Management including eliciting pertinent history, performing physical examination, ordering and interpreting the result of appropriate investigations and thereby deciding and implementing appropriate treatment plan by maintaining follow up
- Psychosocial and emotional effects of acute and chronic illness on patients and their families
- Management of end of life issues and palliative care
- Quality improvement and patient safety activities

Procedural and Technical Skills:

Residents shall learn technical and procedural skills in:

- Blood sample collection - venepuncture and finger prick methods of sample collection, use of different types of anticoagulants, containers and the effects of delay in processing and storage.
- Trainees should have knowledge of the indications, results and methods for:
 - Breath testing for H pylori, bacterial overgrowth
 - Oesophageal and rectal manometry and pH testing
 - Gastric secretory tests
 - Tests for gut absorption and inflammation
 - Radiological evaluation of the GI tract
 - Liver function tests
 - Intestinal biopsy
 - Liver biopsy
 - Paracentesis
- Endoscopic procedures: Upper GI endoscopy including esophagogastro- duodenoscopy

- Endoscopic therapy of benign and malignant oesophageal strictures
- Thermal therapy of gastro-oesophageal tumours, ulcers and vascular malformations
- Direct injection/banding techniques for bleeding lesions and tumour
- Enteroscopy
- Flexible sigmoidoscopy
- ERCP ; Therapeutic
- Diagnostic total colonoscopy
- Colonoscopic therapy of benign and malignant tumours and strictures

- Review of normal and abnormal blood films with emphasis on morphology of red cells, white cells and platelets.
- Familiarization with cytogenetics, understanding the principles of cytogenetics and appreciating the relevance and significance of chromosomes in diagnostic hematology and Gastroenterology
- Understanding the principles involved in the molecular diagnosis of Gastroenteric disorders by
 - Flow cytometry
 - PCR
 - FISH
 - Western and Southern Blotting.
 - Microarray technology
- Interpretation of imaging techniques commonly employed in the evaluation of patients with critical illness
- Practice infection control procedures and perform continuous quality improvement.

SECTION – III

RESEARCH & THESIS WRITING

Total of one year will be allocated for work on a research project with thesis writing. Project must be completed and thesis be submitted before the end of training. Research can be done as one block in 4th year of training or it can be stretched over four years of training in the form of regular periodic rotations during the course as long as total research time is equivalent to one calendar year.

Research Experience

The active research component program must ensure meaningful, supervised research experience with appropriate protected time for each resident while maintaining the essential clinical experience. Recent productivity by the program faculty and by the residents will be required, including publications in peer-reviewed journals. Residents must learn the design and interpretation of research studies, responsible use of informed consent, and research methodology and interpretation of data. The program must provide instruction in the critical assessment of new therapies and of the medical literature. Residents should be advised and supervised by qualified staff members in the conduct of research

Clinical Research

Each resident will participate in at least one clinical research study to become familiar with

1. Research design
2. Research involving human subjects including informed consent and operations of the Institutional Review Board and ethics of human experimentation
3. Data collection and data analysis
4. Research ethics and honesty
5. Peer review process

This usually is done during the consultation and outpatient clinic rotations

Case Studies or Literature Reviews

Each resident will write, and submit for publication in a peer-reviewed journal, a case study or literature review on a topic of his/her choice

Laboratory Research

1. **Bench Research** Participation in laboratory research is at the option of the resident and may be arranged through any faculty member of the Division. When appropriate, the research may be done at other institutions

2. **Research involving animals**

Each resident participating in research involving animals is required to:

1. Become familiar with the pertinent Rules and Regulations of the Rawalpindi Medical University i.e. those relating to "Health and Medical Surveillance Program for Laboratory Animal Care Personnel" and "Care and Use of Vertebrate Animals as Subjects in Research and Teaching".
2. Read the "Guide for the Care and Use of Laboratory Animals".
3. View the videotape of the symposium on Humane Animal Care

3. **Research involving Radioactivity**

Each resident participating in research involving radioactive materials is required to:

1. Attend a Radiation Review session
2. Work with an Authorized User and receive appropriate instruction from him/h

SECTION – IV **DETAILS OF RESEARCH CURRICULUM & MANDATORY
WORKSHOPS**

CURRICULUM OF RESEARCH & MANDATORY WORKSHOPS

2017

FOR
MD SCHOLARS & POST GRADUATE TRAINEES
of
RAWALPINDI MEDICAL UNIVERSITY

INTRODUCTION

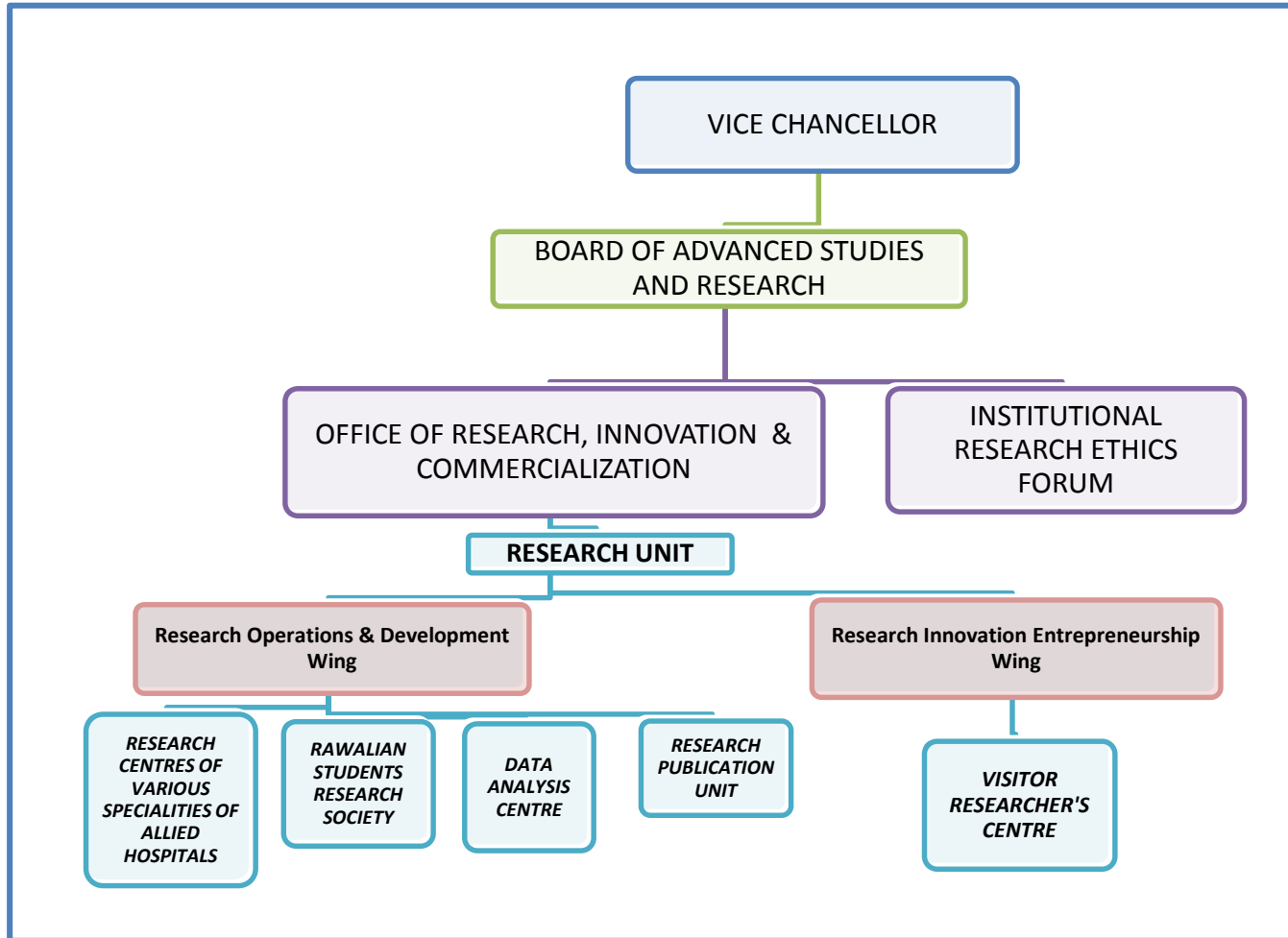
With advent of Evidence Based Practice over last two to three decades in medical science, merging the best research **evidence** with good clinical expertise and patient values is inevitable in decision making process for patient care. Therefore apart from receiving per excellence knowledge of the essential 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 practically conduct 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 to the research courses during 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 (Annexure 1) and the terms of references of corresponding authorities (Annexure 2) 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 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 evidences in research through well organized literature search and also how to critically appraise them. The course will not only provide them comprehensive knowledge but will also impart optimum skills on 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 to 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 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, analyse 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 utilisation 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 defence 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

Following academic and scholarly activities will be carried out during year 1 ie R-Y1 of Research course catering the post graduate trainees

A. TEACHING SESSIONS:

Research will be taught to the trainees through 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 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 course

Format of 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 a 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 hard copies as well as soft copies of the course content in a folder at the initiation of the course.
- iii. In addition to it they will be provided various soft copies and links of updated and good resource materials regarding research by the course facilitators.

Curriculum of teaching sessions:

The details of the 22 teaching sessions of the trainees during year one R-Y1 along with the tentative time frame work, teaching strategies, content of curriculum and objectives/Learning outcomes of each sessions 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 <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
SESSION 1 WEEK 1 Month 1	Lecture through power point presentation followed by both individual exercise & Group exercise	Introduction to health systems research Identifying and Prioritizing Research Problems	Describe the purpose, scope and characteristics of health systems research 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	Analyze a selected problem and the factors influencing it and understand how to prepare the statement of the problem for research. Describe the reasons for reviewing available literature and other information for preparation of a research. Identify the resources that are available for carrying out such a review.
SESSION 3 WEEK 3 Month 1	Lecture through power point presentation	Literature review Referencing systems;	Describe the methods for reviewing available literature and other information for preparation of a research.

	<p>followed by Individual exercise & Take home assignment</p>	<p>Vancouver & Harvard referencing systems</p>	<p>Should be familiar with referencing systems and its importance.</p> <p>Use Vancouver and Harvard referencing systems and should be able to differentiate between them.</p>
<p>SESSIONS & TIMINGS</p>	<p>TEACHING STRATEGY</p>	<p>TOPIC OF SESSION</p>	<p>SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i></p>
<p>SESSION 4 WEEK 1 Month 2</p>	<p>Lecture through power point presentation followed by Individual exercise & Take home assignment</p>	<p>Literature review Referencing managing systems</p>	<p>Describe the methods for reviewing available literature and other information for preparation of a research.</p> <p>Should be familiar with use and importance of reference managing systems; Endnote & Mendeley.</p> <p>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.</p>
<p>SESSION 5 WEEK 2</p>	<p>Lecture through power point presentation</p>	<p>Plagiarism</p>	<p>Describe the significance and necessity of plagiarism detection</p>

Month 2	followed by Individual exercise & Take home assignment		Use online plagiarism detection tools and turn-it-in for detecting plagiarism through assessment of originality scores/similarity index for plagiarism
SESSION 6 WEEK 3 Month 2	Lecture through power point presentation followed by Individual exercise	Formulation of research objectives	<ul style="list-style-type: none"> State the reasons for writing objectives for a research project. Define and describe the difference between general and specific objectives. Define the characteristics of research objectives. Prepare research objectives in an appropriate format. Develop further research questions, and research hypotheses, if appropriate for study.
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
SESSION 7 WEEK 4 Month 2	Lecture through power point presentation followed by Individual Assignment	Formulation of Hypothesis for a research	<ul style="list-style-type: none"> State the reasons and scenario for formull2ating research hypothesis. Define and describe the types difference between one sided and two sided hypothesis.

			<ul style="list-style-type: none"> Formulate Null hypothesis and Alternate hypothesis in an appropriate format. Identify importance of hypothesis testing and to identify type I & type II errors.
<p>SESSION 8 WEEK 1 Month 3</p>	<p>Lecture through power point presentation followed by a group exercise.</p>	<p>Research methodology; Variables and Indicators</p>	<ul style="list-style-type: none"> Define what study variables are and describe why their selection is important in research. State the difference between numerical and categorical variables and define the types of scales of measurement. Discuss the difference between dependent and independent variables and how they are used in research designs. 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>SESSIONS & TIMINGS</p>	<p>TEACHING STRATEGY</p>	<p>TOPIC OF SESSION</p>	<p>SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i></p>

<p>SESSION 9 WEEK 2 Month 3</p>	<p>Lecture through power point presentation followed by a group exercise.</p>	<p>Research methodology; Study types</p>	<ul style="list-style-type: none"> Describe the study types mostly used in HSR. Define the uses and limitations of each study type. Describe how the study design can influence the validity and reliability of the study results. Identify the most appropriate study design for a study.
<p>SESSION 10 WEEK 1 Month 4</p>	<p>Lecture through power point presentation</p>	<p>Data collection techniques</p>	<p>Describe various data collection techniques and state their uses and limitations.</p> <p>Advantageously use a combination of different data collection techniques.</p> <p>Identify various sources of bias in data collection and ways of preventing bias.</p> <p>Identify ethical issues involved in the implementation of research and ways of ensuring that informants or subjects are not harmed.</p> <p>Identify appropriate data-collection techniques.</p>

SESSION 11 WEEK 2 Month 4	Lecture through power point presentation	Data collection tools	Prepare data-collection tools that cover all important variables.
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
SESSION 12 WEEK 1 Month 5	Lecture through power point presentation	Sampling	Identify and define the population(s) to be studied Describe common methods of sampling. 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	List the issues to consider when deciding on sample size. Calculate minimally required sample size according to study designs Use WHO's (World Health Organization's) sample size calculator. Decide on the sample size(s) most appropriate for a research design.

<p>SESSION 14 WEEK 3 Month 5</p>	<p>Lecture through power point presentation</p>	<p>Plan for Data Entry , storage and Statistical Analysis</p>	<p>Identify and discuss the most important points to be considered when starting to plan for data collection. Determine what resources are available and needed to carry out data collection for study. Have knowledge of resources, available for data recording, storage and to carry out data analysis of a study? Describe typical problems that may arise during data collection and how they may be solved. Identify important issues related to sorting, quality control, and processing of data.</p>
<p>SESSIONS & TIMINGS</p>	<p>TEACHING STRATEGY</p>	<p>TOPIC OF SESSION</p>	<p>SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i></p>
			<p>Describe how data can best be analyzed and interpreted based on the objectives and variables of the study</p>

			Prepare a plan for the processing and analysis of data (including data master sheets and dummy tables) for the research proposal being developed.
SESSION 15 WEEK 1 Month 6	Lecture through power point presentation and individual exercises	Introduction to Statistical Package of Social Sciences (SPSS)	Introduction to Statistical Package of Social Sciences. Entry of various types of variables in SPSS.
SESSION 16 WEEK 2 Month 6	Lecture through power point presentation and individual exercises	Pilot and project planning	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. Plan and carry out pre-tests of research components for the proposal being developed. Describe the characteristics and purposes of various project planning and scheduling techniques such as work scheduling & GANTT charting. 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

SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
			<p>supervision.</p> <p>Prepare a work schedule, GANTT chart and staffing plan for the project proposal.</p>
<p>SESSION 17 WEEK 3 Month 6</p>	<p>Lecture through power point presentation and individual exercises</p>	<p>Budgeting for a study</p>	<p>Identify major categories for a budget.</p> <p>Make reasonable estimates of the expenses in various budget categories.</p> <p>List various ways a budget can be reduced, if necessary, without substantially damaging a project.</p> <p>Prepare a realistic and appropriate budget for the project proposal</p>
<p>SESSION 18 WEEK 1 Month 7</p>	<p>Lecture through power point presentation.</p>	<p>Project administration Plan for dissemination Research ethics & concepts of protection of human study subjects</p>	<p>List the responsibilities of the team leader and project administrator related to the administration and monitoring of a research project.</p> <p>Prepare a brief plan for administration and monitoring of a project.</p> <p>Identify the ethical considerations mandatory during execution of a research project and their importance.</p>

			Prepare a plan for actively disseminating and fostering the utilization of results for a 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	Differentiate between original articles, short communications, case reports, systematic reviews and meta-analysis
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;
SESSION 20 WEEK 3 Month 7	Lecture through power point presentation and group exercises	Writing a Case report	Identify important components of a good case report. 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.	Identify Clinical audit as an essential and integral part of clinical governance. Differentiate between research and clinical audit. Identify types of Clinical Audit

			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	Identify the importance and purpose of critical appraisal of research papers or articles. Have ample knowledge of important steps of critical appraisal 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	Making effective power-point presentations Making effective poster presentations Presenting a research paper	Determine various tips for making effective power-point presentations. Determine various tips for making effective poster and its presentations. Identify important components of research paper that essentially should be communicated in a presentation. Can effectively and confidently make a power-point presentation of a research paper published in any national or international
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
			journal.

			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. 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 by 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 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 will be submitted after completion to the facilitators after period specified for each task. Assignments should be submitted in electronic version and no manually written assignment will be accepted.
- ii. Each assignment will be checked for plagiarism through turn-it-in soft ware. Any assignment that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission.
- iii. Assignments will be assessed and checked during the sessions and will be scored by the facilitators who had taken the session.
- iv. A total of 50 marks in total will be assigned for evaluation of all of 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 interneers 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 also to explore 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 in 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 journal club will be to enhance their scientific literacy and to have optimal insight of the relationship between clinical practice and evidenced-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 evidences available according to the latest research.
- iv. The year one trainee i.e. R-Y1 trainee will only participate in the journal club and will not present during first year of training. He/she will be informed regarding the selected paper one and a half month prior to the meeting and should do extensive literature search on the topic and also of the research paper that will be presented in meeting.
- v. The trainees should actively participate in 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 trainee:

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 trainee during year one for their participation in the journal club.

C. OBSERVATION OF 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 format of presentation for their future presentations at IREF meetings.

Minimal Attendance of IREF meetings by R-Y1 trainee:

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 trainee during year one for their participation in the IREF meetings.

D. 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 first six months. The Dean of the specialty will decide the nomination of the supervisor for the post graduate trainee as well as MD scholars.
- 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 respective heads of each department in meeting. All of the eligible trainees and supervisors will also be around for brief interviews during the meeting.
- iii. The head of departments, prior to interviews of 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, Head of departments (HOD's) will recommend or propose 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 will also be 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 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 of Clinical Audit, mentioned in next section.
- xi. In case of any issues, either of both will have right to request any change in nomination to the Dean, till last week of 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 agreement of supervision 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 weekly basis exclusively for research activity with documented record of the activity done during the meeting in the log book.

E. UNDERTAKING A CLINICAL AUDIT PROJECT

- i. During 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 will comprise of two trainees and their supervisors' then there will be four group members in that group and if 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 first week of 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 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.

F. 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 Log books of trainees and also section of Research in portfolio record of the trainees specific to research component 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 Log books 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 record 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 log books 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 Log Book 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 log books by the end of every month.
- viii. The result of the annual research paper of R-Y1 will be entered in the Log books 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 the 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 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-Y1.
- x. The research portfolio will assist the trainees to reinforce the importance of strategic thinking as a way to understand their context and look to the future. By having a recorded insight of 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.

G. 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.

H. 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 eg content, medium used, facilitators performance and knowledge, extent of objectives attained etc through Likert scale. They will mark, through their personal choice without any pressure or peer consultation, one particular category amongst five scales specified ranging from 1-5, 1 representing the poorest quality while 5 representing 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 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, 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 all concerned stake holders, since the course evaluations will play a significant role in curriculum modification and planning.

I. QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 1

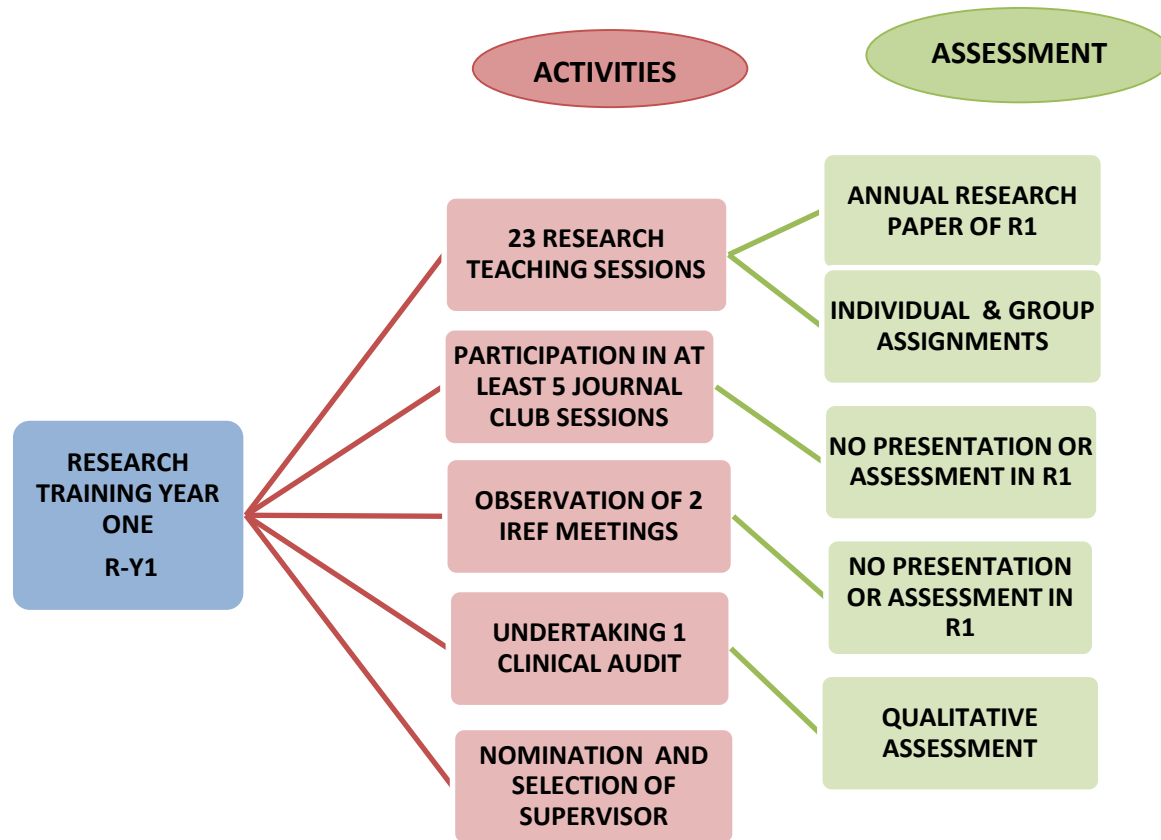
- i. The final quality evaluation report along with all the feedback material, randomly selected log books, research portfolios, submitted individual & groups assessments and randomly selected annual research course examination papers will be observed by an evaluation team of Research course. The quality 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 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 involvement of a third party that may include members of 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 OF R-Y1 POST GRADUATE/MD TRAINEE OF RMU AND THEIR ASSESSMENT



RESEARCH COURSE OF SECOND POST GRADUATION 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 actually 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 clarity of basic epidemiological and biostatistics concepts that they essentially require to transform their data into substantial evidences, 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 them expertise to explore evidences in research through well organized literature search and also 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 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

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 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 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 of 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 mentioned learning outcomes. Each didactic lecture will be of 30 minutes duration using the power-point medium that will be followed by a 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 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 hard copies as well as soft copies of the course content in a folder at the initiation 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 frame work, teaching strategies, content of curriculum and objectives/Learning outcomes of each sessions 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 i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;
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)	Describe the purpose, scope and importance of Biostatistics in Health systems research Identify basic four steps of Biostatistics. Describe data in terms of frequency distributions, percentages, and proportions. Explain the difference between mean, median and mode. 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	Graphical presentation of data	Identify various types of graphs Identify the graphical presentations appropriate for each type of variables Describe data in terms of figures Use of Microsoft Excel and SPSS in formulation of graphs.

	individual exercises & Take home individual assignments.		
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
SESSION 3 WEEK 3 Month 1	Lecture through power point presentation followed by Individual exercise & Take home assignment	Cross-tabulation of quantitative data	Describe the difference between descriptive and analytical cross-tabulations. Construct all important cross-tabulations which will help meet the research objectives manually as well as through SPSS. 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	<p>Define incidence, risk, relative risk and odds ratio.</p> <p>Calculate relative risk for appropriate study designs (cross-sectional comparative studies, cohort studies, case-control studies and experimental studies)</p> <p>Calculate measures of association manually and also through SPSS and med-calculator.</p>
SESSION 5 WEEK 2 Month 2	Lecture through power point presentation followed by Individual exercise & Take home assignment	Confounding and methods to control confounding	<p>Identify what is confounding and what are confounder variables</p> <p>Explain different ways of dealing with confounding at the design and analysis stage of a study.</p> <p>Evaluate whether an association between two variables may be influenced by another confounding variable/risk factor.</p> <p>Calculate association in a way that takes into consideration the effect of potential confounding by another variable/risk factor.</p>
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>

<p>SESSION 6 WEEK 3 Month 2</p>	<p>Lecture through power point presentation followed by Individual exercise & Take home individual assignments</p>	<p>Basic statistical concepts; Measure of dispersion and confidence Intervals</p>	<p>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>Calculate ranges, standard deviations, standard errors and 95% confidence intervals for data, manually as well as through SPSS.</p>
<p>SESSION 7 WEEK 1 Month 3</p>	<p>Lecture through power point presentation</p>	<p>Hypothesis testing for a research</p>	<p>State the concept of hypothesis testing.</p> <p>Define and describe the types difference between one sided and two sided hypothesis.</p> <p>Formulate Null hypothesis and Alternate hypothesis in an appropriate format.</p> <p>Identify importance of hypothesis testing and to identify type I & type II errors.</p>
<p>SESSION 8 WEEK 2 Month 3</p>	<p>Lecture through power point presentation followed by a Take home individual assignment.</p>	<p>Tests of Significance</p>	<p>Explain what a significance test is and what its purpose is.</p> <p>Explain what is probability value or p-value</p> <p>Identifying various tests of significances</p> <p>Identifying appropriate test of significance for a specific research design.</p>

SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
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	Decide when to apply the chi-square test. Calculate chi-square values. Use the chi-square tables to assess whether calculated chi-square values are significant. Decide when to apply the McNemars test and calculate its values. Make a decision concerning whether these tests can be used on give data and, if so, what test should be used on which data. Perform these tests on data manually as well as through SPSS.

<p>SESSION 10 WEEK 2 Month 4</p>	<p>Lecture through power point presentation followed by an individual exercise & Take home individual assignment.</p>	<p>Determining difference between two groups- numerical data Paired & unpaired observations</p>	<p>Decide when to apply the independent and dependent t-test. Calculate paired and unpaired t- values. Use the t tables to assess whether calculated t values are significant. Decide when to apply the independent and dependent t test and calculate its values. Make a decision concerning whether these tests can be used on give data and, if so, what test should be used on which data. Perform these tests on data manually as well as through SPSS.</p>
<p>SESSIONS & TIMINGS</p>	<p>TEACHING STRATEGY</p>	<p>TOPIC OF SESSION</p>	<p>SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i></p>

<p>SESSION 11 WEEK 1 Month 5</p>	<p>Lecture through power point presentation followed by an individual exercise & Take home individual assignment.</p>	<p>Determining difference between more than two groups- numerical data ANOVA (Analysis of Variance)</p>	<p>Decide when to apply the ANOVA test. Calculate F- values. Use the F tables to assess whether calculated t values are significant. Make a decision concerning whether this tests can be used on give data and, if so, what test should be used on which data. Perform ANOVA tests on data through SPSS.</p>
<p>SESSION 12 WEEK 2 Month 5</p>	<p>Lecture through power point presentation followed by an individual exercise</p>	<p>Determining Correlation between variables</p>	<p>Decide when to apply the Pearson's and Spearman's correlation tests. Calculate Pearson's correlation coefficient and Spearman's Pearson's correlation coefficient. Use the p-values to assess whether calculated coefficients are significant. 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>Explain what is a regression analysis</p> <p>Differentiate between simple linear and multiple logistic regression analysis.</p> <p>Decide when to apply the regression analysis and how to interpret.</p> <p>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>Perform these tests on data through SPSS.</p>
SESSIONS & TIMINGS	TEACHING STRATEGY	TOPIC OF SESSION	SESSION OBJECTIVES <i>i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;</i>
SESSION 14 WEEK 1 Month 6	Lecture through power point presentation and individual exercises	Diagnostic Accuracy of a test	<ul style="list-style-type: none"> Identify what is a diagnostic accuracy of a test compared to gold standard tests. <p>Identify what are true positives, true negatives, false positive and false negatives in a diagnostic testing.</p> <p>Calculate Sensitivity, specificity, Positive and negative predictive values of a diagnostic test using standard formulae.</p>
SESSION 15 WEEK 2	Lecture through power point	Writing a research paper	<p>List the main components of a research paper.</p> <p>Make an outline of a research paper.</p>

Month 6	presentation and individual exercises		Write drafts of report in stages. Check the final draft for completeness, possible overlaps for clarity and smoothness of style. Draft recommendations for action based on research findings.
SESSION 16 WEEK 3 Month 6	Lecture and individual exercises	Writing a dissertation	List the main components of a dissertation Explain how a research paper differs from a dissertation Make an outline of a dissertation.

Minimal Attendance of teaching sessions:

The attendance of the trainees in the Research training sessions must be 80% or above during year 2 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.
- ii.* One examination paper of Research of R-Y2 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 Numerical Problems/Conceptual questions.
- iii.* Total duration of the paper will be 120 minutes.
- iv.* The papers will be checked by the research associates and Bio-statisticians of ORIC.

Assessment of individual exercises:

- i. The quality, correctness and completeness of the individual exercises will be evaluated during the teaching sessions, when they will be presented by the end of each session by trainees.
- ii. The mode of presentations will be oral, electronic or written accordingly and if needed using media of charts, flip charts & white boards.
- iii. Most of the individual exercises will be observed and evaluated by the facilitators directly on computers since it mostly will involve skills of data analysis through Statistical Package of Social Sciences.
- iv. There will be no scores or marks specified for the individual exercises but the feedback of evaluation by the facilitators will be on spot.

Assessment of individual; take home tasks/assignments:

- i. The take home assignments of the trainees will be checked once these will be submitted after completion to the facilitators after period specified for each task.
- ii. Most of the take home assignments will be related to numerical problem solving, calculations or tasks of analysis in SPSS.
- iii. Assignments should be submitted in electronic version and no manually written assignment will be accepted.
- iv. Each assignment will be checked for plagiarism through turn-it-in soft ware. Any assignment that will have originality score less than 90% or similarity index more than 10% will be returned back to trainees for rephrasing and resubmission.
- v. They will be assessed and checked within one week of the session and will be scored by the facilitators.
- vi. A total of 50 marks in total will be assigned for evaluation of all of these take home tasks/assignments.

B. PRESENTATION IN JOURNAL CLUB SESSIONS

- i. During year 2 of training, the trainees should actively participate in the journal club sessions of the department regular basis.
- ii. One journal club meeting must be organized in the department within every two months of a year and apart from mandatory more than 80% yearly attendance, the trainees must present two research paper in year 2 of training individually.

- iii. The purpose of presentation of the second year trainees in journal club is to teach them how to form a bridge between research and practice, how to confidently appraise recent research and then how to practically apply best research findings into their clinical setting as their first steps in evidence-based medicine.

Format of Journal Club Meetings:

- i. In a journal club meeting, two research papers, published in an indexed national or international journal, selected by the Dean of the department must be presented by second year trainee during R-Y2 training year, in two different meetings.
- ii. Trainee will be given the selected paper one and a half month prior to the meeting by the Dean of the department.
- iii. After thoroughly going through the research paper, trainee should do extensive literature search on the topic also and must be familiar with all the recent and current research done on the similar topic by other researchers.
- iv. An approximately 30 minutes long oral presentation will be made by the trainee, in monthly journal club session on the selected research paper. The research paper will be presented through power-point and the critical appraisal of the paper will follow it.
- v. The topic will also be discussed in comparison to other evidences available according to the latest research.
- vi. The other second year trainees should actively participate in 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 compulsory for each R-Y2 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-Y2 trainee:

The R-Y2 trainees should attend at least 5 out of 6 journal club meetings during their second year of training. Out of these 6 journal clubs, he/she must make presentation in any two sessions as a compulsion.

Assessment of presentation of the trainee at Journal Club:

- i. During the presentation, 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.
- ii. The scoring will not be done for the first paper presentation by the trainee, since that will be the first ever presentation by the trainee. During the first presentation the evaluators will generally qualitatively evaluate the skills of presenter without any quantitative assessment. They will inform the presenter by the end of first paper presentation, his/her mistakes, weaknesses and scope for improvement. The strengths and competences, on the other hand, will also be appreciated for encouragement.
- iii. A structured checklist for scoring the skills and abilities of trainee will be used by the above mentioned senior faculty members. The average of the three total scores will be calculated, out of total attainable score of 25 that will then be used in overall assessment of the trainee.
- iv. The evaluation will include aspects like the presenter's aptitude to identify the strengths and weaknesses of a research article, apart from assessment of the usefulness and validity of research findings. He/she should be able to determine the appropriateness of the study methodology and design for the research question, apart from suitability of the statistical methods used, their appropriate presentation, interpretation and discussion. He/she should also be able to identify and justify relevance of the research to one's own practice.

C. FORMULATION OF RESEARCH PROPOSAL/S OF DISSERTATION/RESEARCH PAPERS AS REQUISITE TO POST GRADUATE DEGREE/MD DEGREE

- i. At the beginning of year 2, the trainee will start sorting out various research questions for his/her research project as dissertation requisite for the post graduation degree.
- ii. Trainee must submit and seek approval of the research proposal/s from the concerned institutions till end of year 2 i.e. R-Y2.
- iii. Since post graduate trainees seeking Fellowship from the College of Physicians and surgeons of Pakistan (CPSP) have either of the two following options, as per guidelines of CPSP:

OPTION A: Submission of one dissertation in specialty field as requisite to FCPS degree OR

OPTION B: Publication of two original research articles in any CPSP recognized journals, being first author, as requisite to FCPS degree

They will have to submit one research proposal for the dissertation till end of second year of training, if following option A and two research proposals of the original articles, if following option B accordingly.

- iv. The MD scholars will also have to submit one research dissertation, in specialty field, to Rawalpindi Medical University, so they will also submit one research proposal for the dissertation till end of second year of training.
- v. Whatever is the post graduation academic scenario; the trainee must decide the research question/s under the guidance of the supervisor till third month of R-Y2 and hence decide the final title of the research project/s.
- vi. During these first three months of R-Y2, the trainee under guidance of the supervisor and ORIC will do extensive review of the literature, relevant to topic. He/she will do online as well physical search of printed, Journal articles, reports, books, conference papers, dissertations, Research and program reports- published/ unpublished. He/she will also access the libraries of Rawalpindi medical University, repositories of various institutions.
- vii. The trainee will also consult the research Associates and Deputy Directors at the ORIC for the feasibility of the research question and any modification. The trainees will be encouraged to preferably select research questions that will be better answered through cross sectional comparative, analytic and experimental study designs instead of simple descriptive cross sectional or case series design. Descriptive cross sectional, exploratory or case series design will be allowed only in special cases when the research question will deal with an exceedingly significant and priority issue, not addressed previously ever though published work either locally/nationally or internationally.
- viii. Once the research question and topic is finalized with mutual understanding of the supervisor, trainee will submit the selected topic to the Head of Department and Dean of specialty.
- ix. The Dean of the specialty will give approval of the topic after scrutiny and will confirm that there is no duplication of the topic in the department, after consultation with HOD's.

- x. Then the Dean will finalize the list of the topics of research proposals of all trainees during fourth month of R-Y2 and will submit the list to BASR.
- xi. BASR will give the final approval of all topics within same month.
- xii. For the post graduate trainees following aforementioned option B (Publication of two original research articles in any CPSP recognized journals, being first author, as requisite to FCPS degree) must submit their topics (already approved from BASR) to CPSP for its approval. Once the topics are approved by CPSP, they will initiate research proposal development for these research projects that they will publish as original articles.
- xiii. Once the trainee gets the approval of the topic/s from all concerned authorities, the formal write up of proposal/s must be initiated within fifth month of R-Y2 in consultation with supervisor and the research associates of ORIC for guidance in methodology.
- xiv. The research proposal/s will be brief outline of trainees' future research project/s (approx of 1000-1500 words) and must comprise of the following topics:
 - 1. Title of research project.
 - 2. Introduction and rationale (with Vancouver in text citations)
 - 3. Research aim, purpose and objectives
 - 4. Hypothesis, if required according to the study design.
 - 5. Operational Definitions
 - 6. Research Methodology:
 - a) Setting
 - b) Study Population
 - c) Study Duration
 - d) Study Design
 - e) Sampling: *Sample size with statistical justifications, sampling technique, inclusion criteria & exclusion criteria.*

- f) Data Collection technique/s
 - g) Data Collection tool/s
 - h) Data Collection procedure
 - i) Plan for Data entry & Analysis
7. Ethical Considerations
 8. Work plan/Gantt chart
 9. Budget with justifications
 10. Reference list according to the Vancouver referencing style
 11. Annexure (*including data collection tool or performa, consent form, official letters, scales, scoring systems and/or any other relevant material*)
 - xv. The research proposal should be completed in eighth month of R-Y2 and should also be reviewed and finalized by the Supervisor of the trainees.
 - xvi. The finalized research proposal will be reviewed by publication in charge of ORIC for plagiarism through turn-it-in soft ware. Any proposal that will have 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 will be reached, then the proposal will be further processed.
 - xvii. The statistician at data analysis centre of ORIC will facilitate the trainees in sample size calculation through sample size calculators according their study designs.
 - xviii. The trainees should formulate all the data collection tools under guidance of supervisor and research associates of ORIC and should also pretest to finalize all the data collection tools for their research projects.
 - xix. These research proposals along with the tools will be submitted to all concerned authorities for appraisal.
 - xx. The supervisors and research associates of ORIC will also ensure that the duration of research project should be adequate and realistic so that trainees will be able to complete their project/s during third year of training leaving enough time for its write up

during year 4 of training. For the post graduate trainees following option of Publication of two original research articles as requisite to FCPS degree, the study duration will be even briefer.

D. 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 last one 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 updated format of presentation for their Research Proposal presentations at IREF meetings.
- iii. 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 date and month of the IREF meeting for presentation and the trainee must present in the meeting along with his/her supervisor.
- iv. The trainee must make a five to ten minutes' presentation through power-point at 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.
- v. 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 written approval letter within next two weeks to the trainees.
- vi. 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.

- vii. The written approval letter of IREF will be issued within next two weeks of meeting, to the trainee.
- viii. 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.

E. 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.

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

- i. Post graduate trainees applying for their CPSP fellowship using aforementioned 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 their 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 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 next two weeks to the trainee. The trainees will thus receive formal permission to initiate data collection phase through this acceptance of BASR.

- iv. All trainees who will 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 will need 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).

G. MONITORING OF 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 concerned faculty 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 Log books 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 Log books 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 monthly updated and endorsed by the department of Medical Education (DME) of RMU.

- iv. It will also comprise of all the submission record 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 log books 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 Log Book 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 Log books 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 the 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.

H. OVERALL ASSESSMENT OF PERFORMANCE OF TRAINEES FOR YEAR 2

- i. The overall assessment of performance of trainee for R-Y2 will rely on marks attained out of total 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, 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.

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/questionnaire 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 5 based on their honest and unbiased personal choice. The open ended questions in form will indicate qualitative evaluation of the trainees. There will also an overall feedback questionnaire for 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, 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 all concerned stake holders.

J. QUALITY ASSURANCE OF RESEARCH COURSE OF YEAR 2

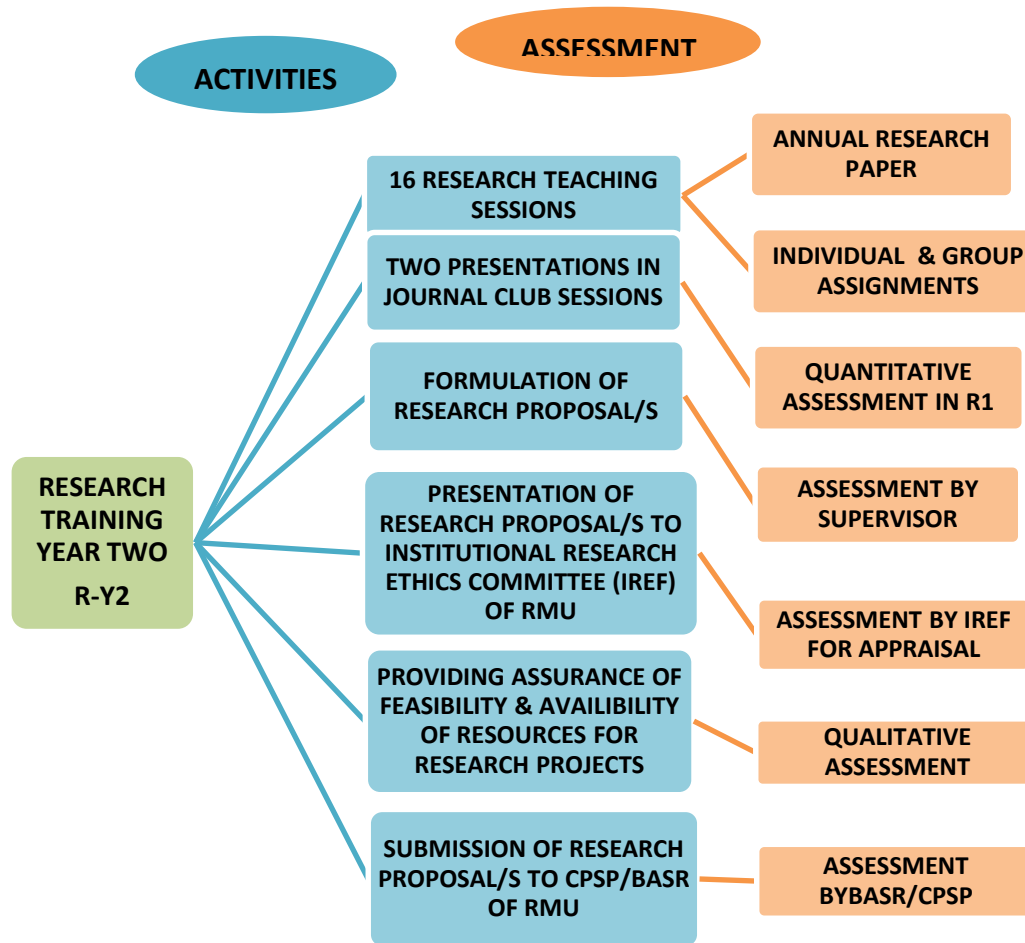
- i. The evaluation of research course of R-Y2 will follow exactly the same pattern of R-Y1, but all the feedback material will pertain to R-Y2 course (including feedback forms of R-Y2, randomly selected log books, research portfolios, individual & group assessment record and randomly selected annual research course examination papers).
- ii. The evaluation team that will observe all these R-Y2 course evidences will be 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 also of all the academic activities through uninformed visits will also follow same protocol as mentioned in 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 involvement of a third party that may include members of Quality assurance department of Higher Education Department based on their availability.
- vi. An annual meeting of the quality assessment and enhancement, by 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 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 over view 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 POST GRADUATE/MD TRAINEE OF RMU

AND THEIR ASSESSMENTS



RESEARCH COURSE OF THIRD POST GRADUATION 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 actually 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 to explore answer to their research questions formulated for their individual research project/dissertation, prerequisite to their degrees. This course will provide them an opportunity to revitalize and update their concepts, knowledge and skills in research methodologies.

LEARNING OUTCOMES OF R-Y3 RESEARCH COURSE

After completion of 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, specific to the needs and requirement of the post graduate trainees, using various national and international resource materials.
- ii. The trainees will be provided hard copies as well as soft copies of the course content in a folder at the initiation of the course. This take 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 the 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 FRAME WORK 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 workshops 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 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.

B. 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 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 trainee 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.

C. 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 is the option 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.

**D. 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 requisite to fellowship of CPSP, instead of submitting a dissertation.

- i. The trainees opting for 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 advise:

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.

- iii. 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 statement of final 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 soft ware. Any article that will have 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 will be 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.
- xii. 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.

E. MONITORING OF 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.

- vii. 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.

F. 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.

G. 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, 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 stake holders.

H. 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 POST GRADUATE/MD TRAINEE OF RMU WHO WILL OPT FOR DISSERTATION WRITING**

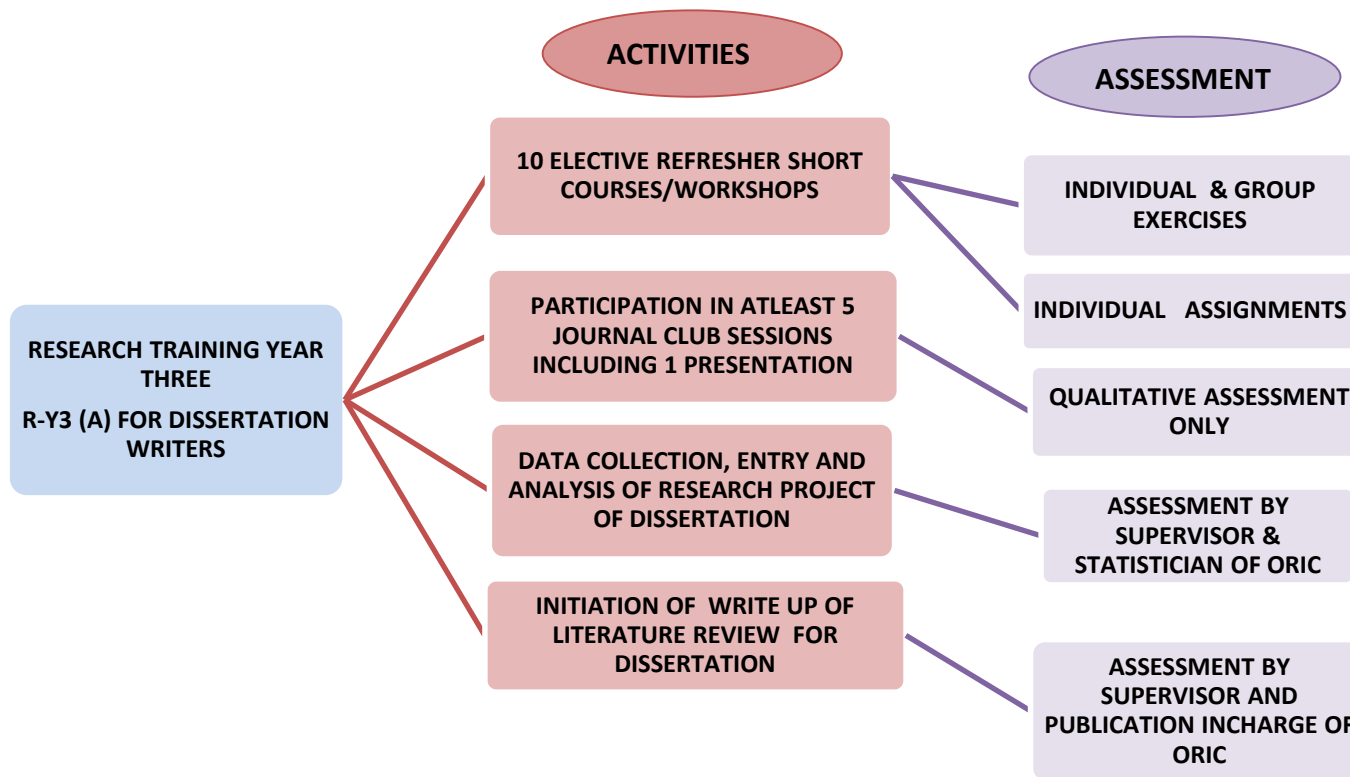
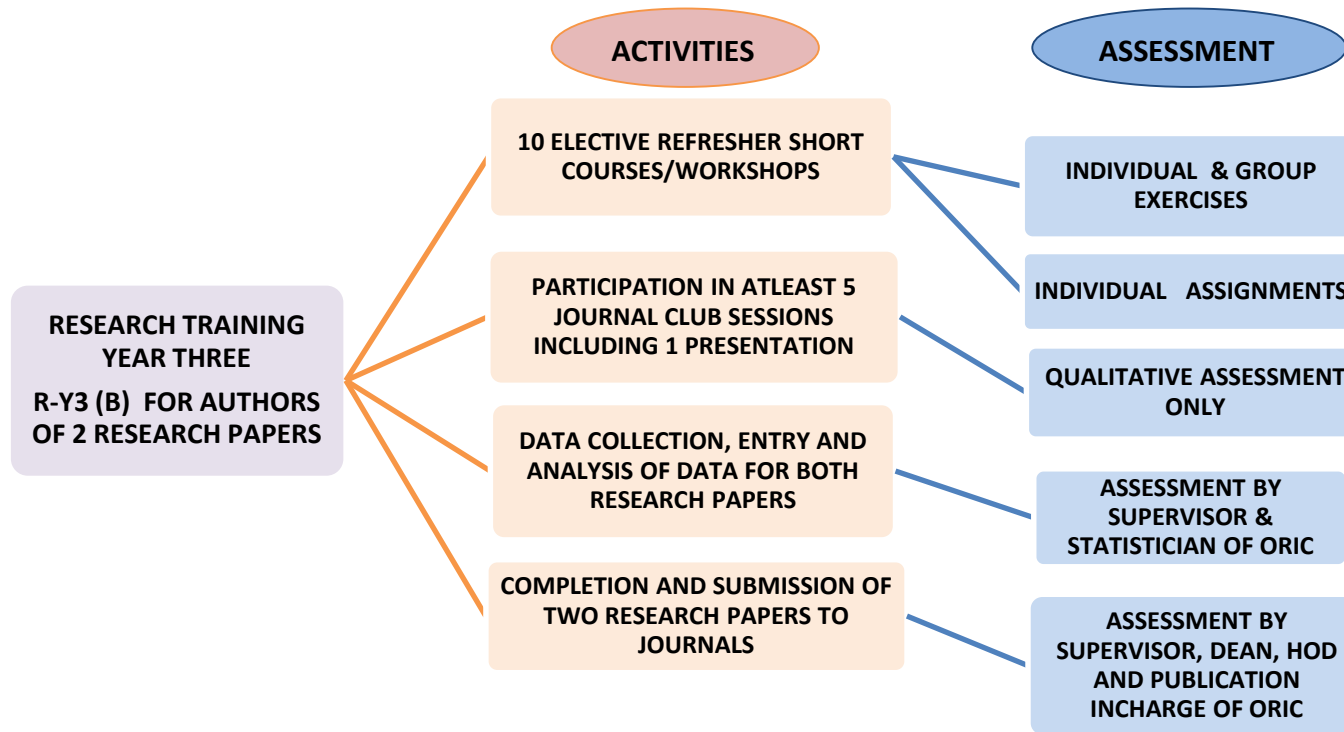


Figure 4 (B) . A FLOW CHART OF RESEARCH ACTIVITIES AND RELEVANT ASSESSMENTS

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 feed back 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 Chair person 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 log books 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 Log Books of the trainees in addition to the Research portfolio during 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 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.

- iii. 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 stake holders.

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 stake holders including a copy to the Quality Enhancement Cell (QEC) of RMU for internal as well as external evaluation.

- iv. 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 POST GRADUATE/MD TRAINEE OF RMU WHO WILL OPT FOR DISSERTATION WRITING**

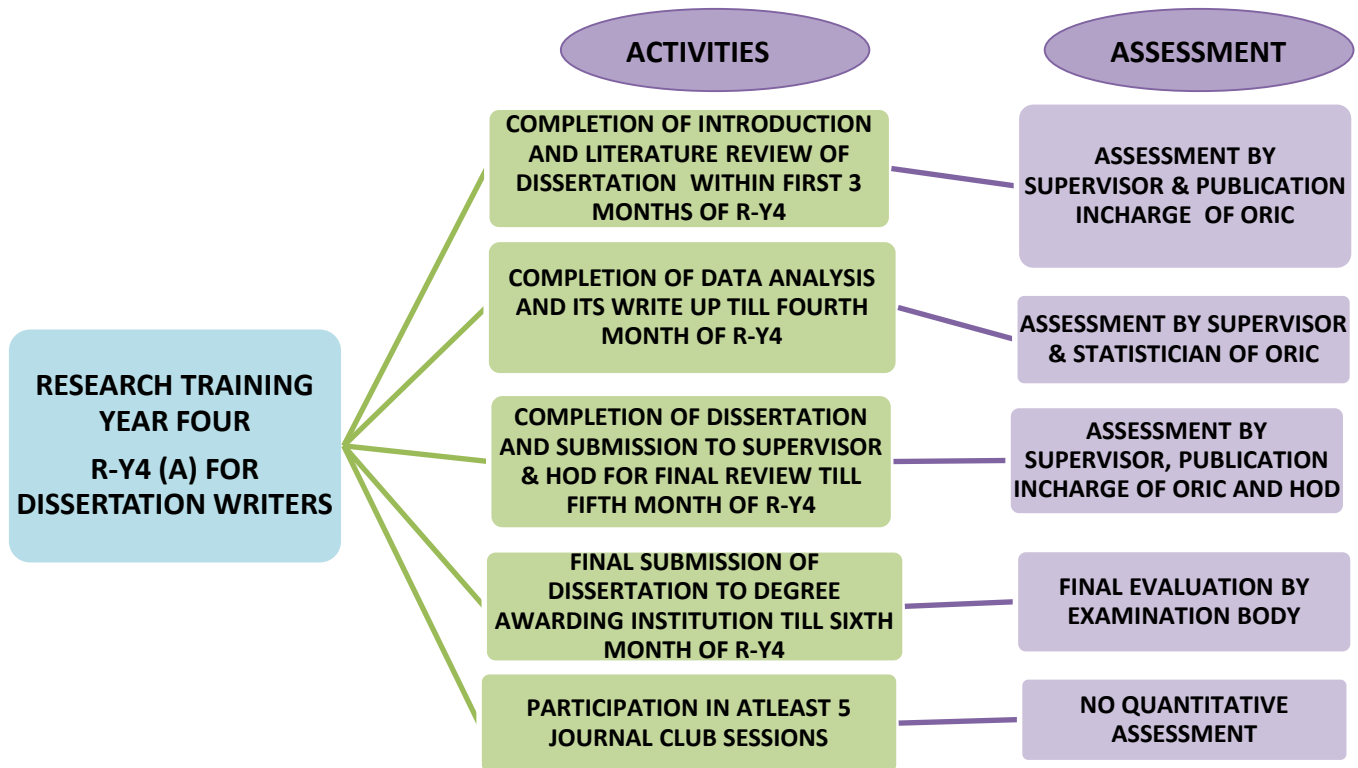
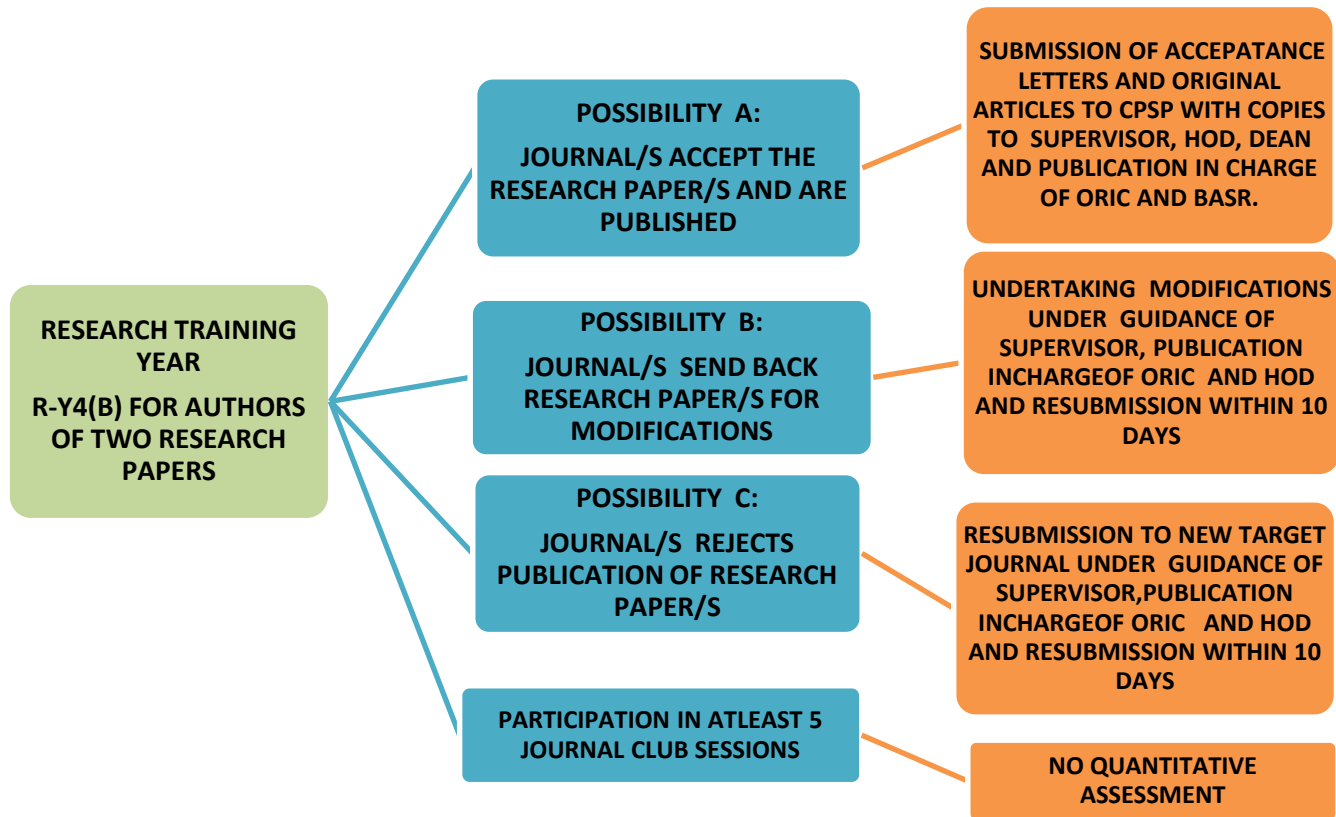


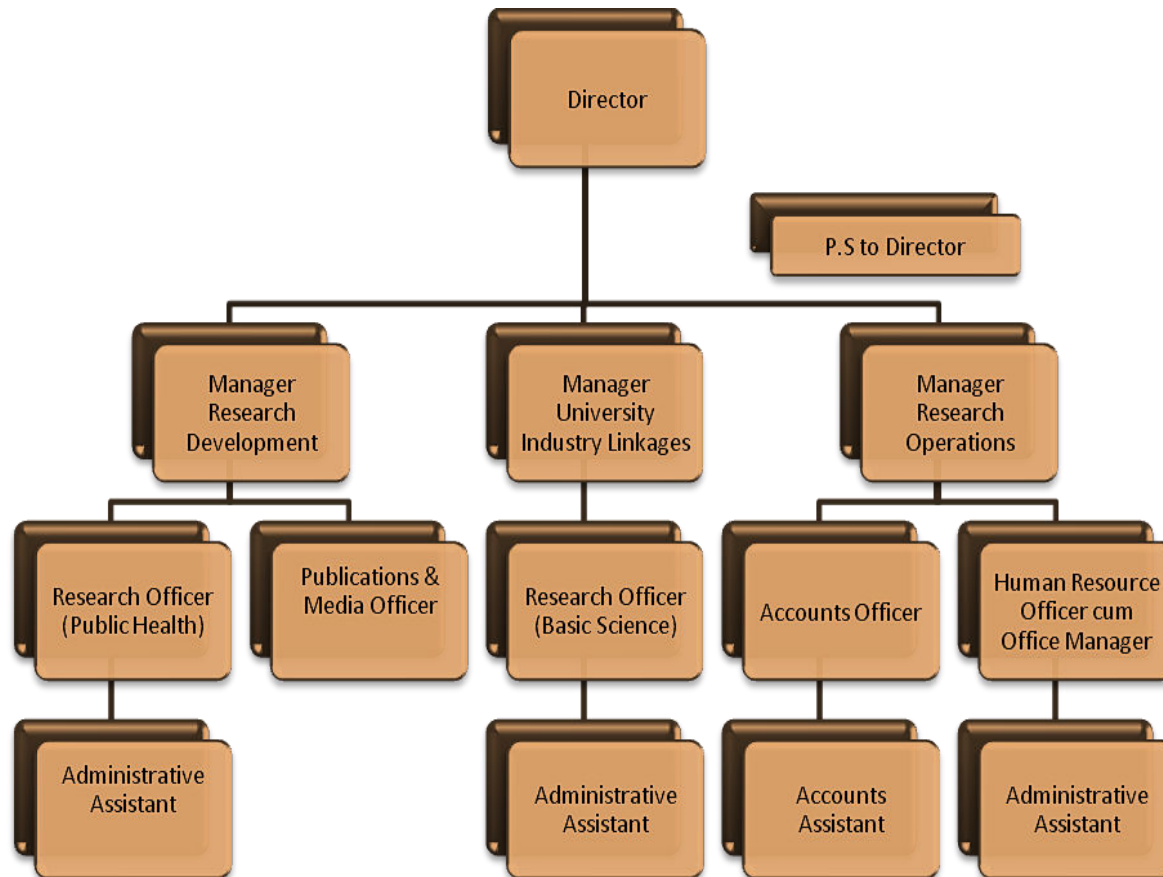
Figure 6 (B). A FLOW CHART OF RESEARCH ACTIVITIES AND ASSESSMENTS OF R-Y4 POST GRADUATE OF RMU WHO WILL OPT FOR 2 RESEARCH PAPERS AS REQUISITE TO CPSP FELLOWSHIP DEGREE

ACTIVITIES



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. THE VICE CHANCELLOR:

1. The vice chancellor of RMU will be final authority to approve nominations of external supervisors of MD scholars, in consultation with the Dean of specialty.
2. Regarding nominations of the internal supervisors of MD trainees and also of Post graduate trainees of fellowship of CPSP, after completion of first year of training, i.e. R-Y1, no substitution in nomination will be allowed. But 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. And only the vice chancellor will make the final decision accordingly, as the final authority.
3. The vice chancellor will also be the head of the quality evaluation team of research training courses that will also include the Head of departments, Deans, selected representatives of BASR, IREF, Director of ORIC and Director of Quality enhancement cell (QEC). The selection of above mentioned team members will be made by the Vice chancellor of RMU.
4. The Vice chancellor will have the authority through the research training course, to make surprise visits, evaluations, rounds and checking (without any prior information to the trainees and trainers) at any random occasion, being member of quality evaluation team individually or in team.
5. An annual meeting of the trainers will also be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, QEC & IREF and this meeting will be chaired by the Vice chancellor.
6. In perspective of the quality assessed through extensive procedure all the year round and also during the Annual meeting of quality assessment and enhancement, the Vice Chancellor and the Board of Advanced study and Research will finalize any modifications or enhancement in the next Research course.
7. When 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 that will be endorsed by the Vice chancellor of RMU.

B. MEMBERS OF BOARD OF ADVANCED STUDIES AND RESEARCH:

1. The Board of Advanced studies and Research of RMU will finalize, approve and issue final approval list of the supervisors of the trainees of RMU.
2. The Board of Advanced Studies and Research (BASR) of RMU will receive the submitted research proposals of MD scholars 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 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 next two weeks to the trainee. The trainees will thus receive formal permission to initiate data collection phase through this acceptance of BASR.
3. The quality evaluation team of research training course will include selected representatives of BASR who will be nominated and selected by BASR and Vice chancellor of RMU. The members may pay random visits for physical observation of the proceedings and materials of all the research related activities of the trainees and supervisors for quality assessment and assurance.
4. The copies of research papers or dissertations submitted by post graduate trainees following option of publication of two original articles to CPSP accredited journals will also be submitted to the chairperson of BASR for quality assessment to be observed as confidential evidences
5. Representative members of BASR will attend the annual meeting of Quality assurance, by end of each research training year and will also share their experiences of their evaluation visits and observations to validate the existing materials.
6. The quality of Research Training course will be stringently determined by BASR in their meetings and the members will provide recommendations for further quality enhancement and will have the authority for policy formulation or modification regarding the research training course.

C. MEMBERS OF INSTITUTIONAL RESEARCH AND ETHICS FORUM OF (IREF) RMU:

1. Institutional Research Ethics Forum will organize monthly meetings for approval of research proposals of the trainees of RMU in which the trainee must present along with his/her supervisor for presentation and defence of proposals of dissertations/research papers.
2. The members will be provided hard copies of the research proposals prior to the meetings that they will review before coming to the meeting.
3. Members will listen and visualize five to ten minutes' presentation through power-point by the trainees and by the end of presentation will make relevant queries to the trainees.
4. 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 written approval letter within next two weeks to the trainees.
5. 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.
6. The written approval letter of IREF will be issued within next two weeks of meeting, to the trainee.
7. 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.
8. The quality evaluation team of research training course will include selected representatives of IREF who will be nominated and selected by chairperson of IREF and Vice chancellor of RMU. The members may pay random visits for physical observation of the proceedings and materials of all the research related activities of the trainees and supervisors for quality assessment and assurance.
9. Representative members of IREF will attend the annual meeting of Quality assurance, by end of each research training year and will also share their experiences of their evaluation visits and observations to validate the existing materials.
10. The quality of Research Training course will be stringently determined by IREF in their meetings and the members will provide recommendations for further quality enhancement to BASR, if any, regarding research training course.

D. THE DEAN OF THE SPECIALITY:

1. The journal club meetings will be chaired by the Dean of speciality.

2. In a journal club meeting, one or two research paper/s published in an indexed national or international journal will be selected by the Dean and will be notified to the departments at least one and a half month prior to the meeting.
3. The Dean of the specialty will decide the nomination of the supervisor for the post graduate trainee as well as the internal supervisors of MD scholars within first six months of the first year of training R-Y1.
4. For the selection of supervisors, the Dean will chair meeting for selection of supervisors that will be held in the middle of the first research training year, preferably in June.
5. The list of all the first year trainees and the available supervisors in each department will be presented to the Dean, by respective heads of each department in meeting.
6. The Dean will consider the recommendations and proposals of most suitable supervisors for each trainee after eloquent discussions and justifications with the Head of Departments.
7. 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.
8. If the supervisor will also be willing to happily supervise the trainee, then the Dean will finally approve the nomination.
9. 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.
10. Both the trainees and the supervisors will be given two weeks to challenge the nominations and will also be given 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
11. 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).
12. 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.
13. In case of any issues, either of both will have right to request any change in nomination to the Dean, till last week of first year of training. The Dean will then consider the case and will seek modification in nomination from the BASR.

14. 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 Dean will have authority to bring it to the notice of the Vice chancellor as a special case.
15. 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. After finalization of nominations a letter of agreement of supervision 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.
16. Regarding the project of undertaking clinical audits on various aspects of the department during first year of research training, on one topic assigned to each group by the Dean in consultation with Heads of Departments.
17. The clinical audits completed in groups will be published as Annual Audit Reports of the departments by the Dean
18. The Dean will make the decision regarding the presentation of clinical audit weekly Clinico-pathological conferences (CPC) of the University.
19. Once the research question and topic is finalized with mutual understanding of the supervisor, the Dean will also be handed over the selected topic by the trainee. The Dean of the specialty will give approval of the topic after scrutiny and will confirm after consultation with HODs that there is no duplication of the topic in the department.
20. The Dean will finalize the list of the topics of research proposals of all trainees during fourth month of R-Y2 and then will submit the list to BASR.
21. Dean will also ensure the feasibility and availability of resources during second year of research training of the trainees of RMU, before initiation of the research project.
22. The office of Dean will receive a copy of approval of the acceptance letter of BASR once the MD scholars of RMU will get their research proposals approved by to the Board of Advanced Studies and Research (BASR) of RMU.
23. The Dean will receive the copies of final manuscript by post graduate trainees following option of publication of two original articles to CPSP accredited journals that will be observed as confidential evidences by Dean for quality assessment. It will be kept strictly confidential by the office of the Dean in order to avoid any risk of potential plagiarism
24. The Dean will also receive the copies of final dissertation manuscript by post graduate trainees and MD trainees that will be observed as confidential evidences by Dean for quality assessment. It will be kept strictly confidential by the office of the Dean in order to avoid any risk of potential plagiarism.

25. The office of Dean must also receive the letter of acceptance/s by the trainees, in case the research paper/s is/are approved by the target journals. 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 Dean of speciality for evidence.
26. The Dean of speciality will be member of the quality evaluation team of research course and he/she will have right to make any surprise visit during the four years training research course, at any random occasion, either individually or in teams, without any prior information to the trainees and trainers.
27. The Dean will also attend the annual meeting that will be organized by the Quality Enhancement Cell of RMU. During the meeting, the Dean will share his/her experience of evaluation visits and observations to validate the existing materials.

E. THE HEAD OF THE DEPARTMENT:

1. The Head of the Department (HOD) will oversee all the research activities of the trainees, in close consultation with the Dean and the supervisors at the departmental level.
2. The HOD will attend all the journal club sessions of department.
3. During the first six months of research training year 1 i.e. R-Y1, the HOD will be responsible for consideration of the nominations of the internal supervisor of each trainee. The HOD will decide these nominations based on his/her own personal observation of the level of performance, talent personality and temperament of both the trainees and the supervisors. Based on his/her personal observation of the compatibility of both eligible trainees and the supervisors, Head of department will recommend or propose most suitable supervisors for each trainee after eloquent discussions and justifications to the Dean during a nomination meeting that will be especially held for this purpose.
4. The nominations will be finalized in a special meeting 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 respective heads of each department in meeting.
5. In case of any objection to nominations of supervisors, the Dean will make changes after direct consultation with the HOD's, apart from final consent and satisfaction of both trainee and supervisor.
6. After finalization of nominations a copy of letter of agreement of supervision will be received by the office of HOD, submitted by the trainee.
7. The weekly meetings of the supervisor and the trainee will be monitored by the HOD through observation of the documented record of meeting in log books, by the end of every month.

8. During ninth month of training year 1; R-Y1 the head of department will supervise the project of clinical audit of the trainees. In this regard HOD will firstly 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.
9. The HOD in consultation with the Dean of specialty will assign topics of audits to each group.
10. The clinical audits completed in groups will be published as Annual Audit Reports of the departments under supervision of HOD's.
11. The presentation of clinical audit in weekly Clinico-pathological conferences (CPC) of the University, will also be supervised by HOD's.
12. The contribution of the trainees in execution and publication of clinical audit will also be qualitatively assessed by the head of departments.
13. Once the trainee finalizes research question and topic in mutual understanding with supervisor, the HOD will also be handed over the selected topic by the trainee who in consultation with the Dean of the specialty will confirm for non duplication of the topic in the department.
14. HOD will also ensure the feasibility and availability of resources during second year of research training of the trainees of RMU, before initiation of the research project.
15. The trainee should submit final draft of dissertation to the head of department till end of fifth month of year for final modifications and the Head of Department will also provide his /her feedback within 10-15 days.
16. The HOD will receive a copy of final dissertation by the trainee during fourth year of research training that will be kept by him/her as a confidential document in order to avoid any potential risk of plagiarism.
17. In case the research paper/s of the trainees is/are approved by the target journals, the office of HOD trainee will also receive a copy of the letter of acceptance/s and when the original article will be published in journal/s, even then the trainee will submit hard and soft copies of the original journal with his/her published articles to HOD.
18. All the Head of Departments along with other staff members of Office of Research Innovation & Commercialization of RMU will keep vigilant and continuous monitoring of all the research activities of each trainee.
19. The HOD will monthly check and endorse the sections of research in Structured Log books of trainees and also section of Research in portfolio record of the trainees specific to research component of the training.
20. The HOD will also endorse the attendance of the trainees in the Journal club sessions of the department in the log books along with his/her quantitative and/or qualitative assessment of the trainees' active participation and/or presentation during the journal club session. HOD will also endorse the information whether any question or comment was raised by the trainee during each journal club session or not. The Heads of

department will observe the log books for assessments of facilitators of short courses during third year of research training and their comments regarding the home tasks/assignments apart from the remarks of supervisor regarding his/her opinion regarding the trainee's overall performance during third year of training.

21. In case of any deficiencies or weaknesses, HOD will personally call the trainee and supervisor and will guide them how to correct or improve accordingly.
22. The research course of the trainees will also be evaluated by the HOD's through end of sessions forms and then collectively through end of course feedback forms.
23. The HODs will also be members of the quality evaluation team of research training course and will vigilantly and equitably observe and evaluate all the documented records and materials during the course and finally by the end of each course year for quality assessment.
24. They will also make surprise visits at any random occasion, without any prior information to the trainees and trainers, individually or in team.
25. HODs will also attend the annual meeting quality assessment and enhancement where they along with other participants will actively review and discuss all the evaluation material. And will also share their experiences of evaluation visits and observations to validate the existing materials.

F. THE DIRECTOR OF OFFICE OF RESEARCH INNOVATION AND COMMERCIALIZATION (ORIC):

1. The Director ORIC (Office of Research Commercialization and Innovation) of RMU will conduct an orientation session or an introductory session of one-hour duration along with Deputy Directors of ORIC at the commencement of first research training year of all post graduate trainees of RMU. During the session, the Director will make trainees acquainted to the complete research course of four years' post graduate training, its schedule of all scholarly and academic activities and the assessment procedures. He/she will also introduce the model of research at RMU, organizational structure of ORIC and all requisites of training along with introduction to the staff members of ORIC who will be involved in their training.
2. The director ORIC will take few research training sessions of first two training years (R-Y1 & R-Y2) that will comprise of didactic lecture followed by taking exercises and then also be responsible for giving and checking the home task assignments (if any) related to session.
3. During the third year of training the Director ORIC will conduct few of short refresher courses/workshops along with other staff members of Office of Research Innovation and commercialization. For the specific course, Director will have to carry out a 20-25 minutes' power-point presentation to restore the memories of the trainees regarding the previous knowledge attained by them in R-Y1 and R-Y2. The director ORIC will also facilitate the individual or groups exercises of trainees in the training session following the presentation and also check the take home assignments.

4. Director at the Office of Research Innovation & Commercialization of RMU will keep vigilant and continuous monitoring of all the academic activities of each trainee related to Research courses.
5. Director of ORIC will check the research portfolio of the trainee and will endorse it.
6. Based on his/her observations, the completeness and quality of performance of each trainee will be evaluated and in case of any deficiencies or weaknesses he/she will personally call the trainee and supervisor and will guide them how to correct or improve accordingly.
7. Director ORIC will supervise the formulation of evaluation report of the research training course and after its endorsement will send it to all concerned departments and stake holders. The director ORIC will also be responsible for submission of the evaluation content to the Quality Enhancement Cell (QEC) of RMU for internal evaluation and external evaluation.
8. The Director will also be member of the quality evaluation team of research training course and will also evaluate all the documented records and materials during the course and finally by the end of each course year for quality assessment.
9. Like all other members of Quality evaluation team, the director will also have the right to make a surprise visit at random individually or in team. 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.
10. The Director will attend the annual meeting quality assessment and enhancement where he/she will actively review and discuss all available material of training course will also share his/her experience of evaluation visits and observations to validate the existing materials.
11. The trainees who will opt for publication of research papers to journals will submit copy of submitted papers to Director of ORIC who will check and keep them secured in records as confidential documents.
12. The Director will receive a copy of dissertation of the trainee for record as a confidential document in order to avoid potential risk of plagiarism.

G. THE DEPUTY DIRECTORS OF OFFICE OF RESEARCH INNOVATION AND COMMERCIALIZATION (ORIC):

1. The Deputy Directors ORIC (Office of Research Commercialization and Innovation) of RMU, along with Deputy Director and other staff members of ORIC will conduct an orientation/introductory session of one-hour duration at the initiation of first research training year of all post graduate trainees of RMU. The Deputy Directors will provide introduction to trainees regarding the research course of four years' post graduate training, its

schedule of all scholarly and academic activities and the assessment procedures. They will also inform the trainees organizational structure of ORIC and all requisites of training along with introduction to the staff members of ORIC who will be involved in their training.

2. The Deputy directors ORIC will take research training sessions of first two training years (R-Y1 & R-Y2) that will comprise of didactic lecture followed by taking exercises and then also be responsible for giving and checking the home task assignments (if any) related to session.
3. The submitted record and scores of trainees attained for the individual and group assignments during first two training years will be endorsed by the Deputy Directors of ORIC.
4. During the third year of training the Deputy Directors ORIC will conduct a few of short refresher courses/workshops. For the specific course, they will have to carry out a 20-25 minutes' power-point presentation to restore the memories of the trainees regarding the previous knowledge attained by them in R-Y1 and R-Y2. In addition, they will also facilitate the individual or groups exercises of trainees in the training session following the presentation and will also check the take home assignments.
5. The submitted record and scores of trainees attained for the individual and group assignments of the short training courses of third year of training will also be endorsed by the Deputy Directors of ORIC.
6. The Deputy Directors will check and mark the written papers of end of year examination or Annual Research Paper of first two training year R-Y1 & R-Y2. They will also endorse the scores of the Annual papers in the log book of the trainees.
7. The research course will be evaluated by the deputy directors of ORIC too through end of sessions forms and then collectively through end of course feedback forms.
8. During these first three months of R-Y2, the Deputy Directors at the ORIC will provide consultation to the trainees regarding feasibility of their research questions and will be advised if any modification required.
9. The deputy directors will be continuously involved in an alert and continuous monitoring of all the scholarly activities of each trainee.
10. The structured Research component of Log books and Research portfolio of the trainees specific to research component of all the training years R-Y1 to R-Y4 will also be regularly observed, monitored and endorsed by the Deputy Directors of ORIC. Based on his/her observations, the completeness and quality of performance of each trainee will be evaluated and in case of any deficiencies or weaknesses he/she will personally call the trainee and supervisor and will guide them how to correct or improve accordingly.
11. The Deputy Director will also monitor the submission of the evaluation content to all including a copy to the Quality Enhancement Cell (QEC) of RMU for internal evaluation.

H. THE RESEARCH ASSOCIATES OF OFFICE OF RESEARCH INNOVATION AND COMMERCIALIZATION (ORIC):

1. The Research Associates of ORIC (Office of Research Commercialization and Innovation) of RMU, along with Deputy Director and other staff members of ORIC will facilitate the orientation/introductory session of one-hour duration at the initiation of first research training year of all post graduate trainees of RMU.
2. The Research Associates will take few research training sessions of first two training years (R-Y1 & R-Y2) that will comprise of didactic lecture followed by taking exercises and then also be responsible for giving and checking the home task assignments (if any) related to session.
3. The Research Associates will also be will be present and will be actively involved in facilitation of all the training sessions that will be taken by Director, Deputy Directors or guest facilitators. They will actively facilitate the individual and group works of the trainees during the sessions.
4. The Research Associates will be responsible for record keeping of the post graduate trainees regarding the training sessions and the records and scores of trainees for the individual and group assignments during all four training years that will also be endorsed by the Deputy Directors of ORIC. They will not only collate the record at the ORIC in computerized versions as well as in the form of hard copies. The Research Associates will also fill in the record in research sections of the log books relevant to the training sessions and other relevant activities that will be supervised by them.
5. During the third year of training, the Research Associates will also be present in the short refresher courses/workshops for facilitating the Director, Deputy Directors or guest facilitators. They will actively facilitate the individual and group works of the trainees during the workshops.
6. The Research Associates along with the Deputy Directors will check and mark the written papers of end of year examination or Annual Research Paper of first two training year R-Y1 & R-Y2. They will enter the the scores of the Annual papers in the log book of the trainees and will also keep its record at the ORIC in computerized versions as well as in the form of hard copies.
7. During the first three months of R-Y2, the Research Associates at the ORIC will provide consultation to the trainees regarding feasibility of their research questions and will advise trainees if any modification required.
8. Once the trainee gets the approval of the topic/s from all concerned authorities during R-Y2 and will initiate the formal write up of proposal/s, the research associates of ORIC will guide them regarding the research methodologies.

9. The research associates of ORIC will also ensure that the duration of research project should be adequate and realistic so that trainees will be able to complete their project/s timely during training leaving enough time for its write up.
10. The research associates of ORIC will also guide the trainees regarding the research formulation of data collection tools, their pre-testing and execution of data collection phase
11. Trainees will be individually provided an updated step wise guidance by the research associates of ORIC, regarding submission of their synopsis to IREF for appraisal. They will be supervised by Research Associates regarding how to access the RMU website, to download the application Performa and then how to electronically fill it in for final submission. They will also be provided updated format of presentation by the Research Associates for their Research Proposal presentations at IREF meetings.
12. 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 Log Book that will be entered by the research associates of ORIC and conveners of the IREF and BASR.
13. 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 and the Research Associates will also guide them along with the supervisors and the publication in charge at the ORIC.
14. 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 defence 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.
15. In case the dissertation is sent back with recommended corrections or modifications, research associates at ORIC will guide the trainee along with supervisor on urgent basis to get it rectified and resubmitted within at least 10 days' time.

I. THE PUBLICATION IN CHARGE OF OFFICE OF RESEARCH INNOVATION AND COMMERCIALIZATION (ORIC):

1. The Publication in charge will be actively involved in the Research training course and for the academic sessions relevant to literature search, review and write up, he/she will take didactic lectures, followed by facilitating individual and group exercises and checking of relevant home tasks and assignments.

2. The post graduate trainees and MD scholars submit a copy of their finalized research proposal/s for the dissertation/research papers to the publication in charge of ORIC who will review for plagiarism through turn-it-in soft ware. Any proposal that will have 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 will be reached, then the publication in charge will approve and the proposal will be further processed.
3. The publication in charge of ORIC will also guide the trainees to write the literature review sections and the section of “Discussion” based on the comparison of the findings of their study with the previously available research nationally as well as internationally.
4. The final research papers/dissertations of trainees will also be reviewed by publication in charge of ORIC for plagiarism through turn-it-in soft ware. Any article that will have 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 will be 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.
5. In case the research paper/s of trainees is/are sent back with recommended corrections or modifications publication in charge along with the supervisor and concerned facilitators at ORIC will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days’ time.
6. In case any of the paper of trainee is refused publication by a journal then the publication unit at ORIC along with the supervisor and concerned facilitators 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.

J. **THE STATISTICIANS AT DATA ANALYSIS UNIT OF OFFICE OF RESEARCH INNOVATION AND COMMERCIALIZATION (ORIC):**

1. The statisticians at the Data Analysis Unit of ORIC at data analysis centre of ORIC will also be actively involved in the Research training course specifically those of Basic and advanced Biostatistics and Epidemiological concepts. The statisticians will take didactic lectures, followed by facilitating individual and group exercises and checking of relevant home tasks and assignments.
2. The statisticians will facilitate the trainees in sample size calculation through sample size calculators according their study designs.

3. Trainees will also be assisted by the statisticians in planning the Data analysis for the research projects and also data coding, cleaning and sorting accordingly.
4. The statisticians will facilitate the trainees in formulation of the data entry sheets in SPSS or other data analysis softwares and will be continuously assisted in the process till data entry is completed.
5. The trainees will perform the data analysis of their research projects for research papers or dissertations, under continuous guidance and supervision of the statisticians who will also guide them how to interpret analyzed files and to write up results in textual forms, tabulated versions or figures/graphs.
6. In case the research paper/s or dissertation/s of trainees is/are sent back with recommended corrections or modifications in results section then the statisticians along with 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.

K. DEPARTMENT OF MEDICAL EDUCATION:

1. The quality evaluation team of research training course will include Director of Department of Medical Education who may pay random visits for physical observation of the proceedings and materials of all the research related activities of the trainees and supervisors for quality assessment and assurance.
2. The Director DME will also attend the annual meeting of Quality assurance, by end of each research training year and will also share his/her experiences of evaluation visits and observations to validate the existing materials.
3. The demonstrator at the DME will keep record of attendances of all the post graduate trainees and MD scholars for all the academic sessions attended by them regarding the research training course along with the record of all assessments, scores, marks of annual papers. They will monitor the log books and research portfolio for the completeness and regularity too. The record will not only be kept and maintained at DME as hard copies as well as computerized version, but they will also regularly share records with ORIC and Quality enhancement cells of RMU.

L. THE SUPERVISOR OF THE TRAINEE FOR THE DISSERTATION PROJECT

1. The supervisor of the trainee must be nominated within first six months of the research training. The Dean of the specialty will decide the nomination of the supervisor for the post graduate trainee as well as MD scholars. In this regards a meeting will be held 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 respective heads of each department in meeting. All of the eligible trainees and supervisors will also be around for brief interviews during the meeting. The supervisor for the trainee will be nominated based the the level of performance, talent personality and temperament of both the trainees and the supervisors by the HOD. If the supervisor will also be willing to happily supervise the trainee, then the Dean will finally approve the nomination, apart from other requirements.
2. After finalization of nominations a letter of agreement of supervision 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.
3. The supervisor will be bound to meet with the trainee, on weekly basis exclusively for research activity and will document the activity performed during the meeting in the log book along with endorsement.
4. During ninth month of training year 1; R-Y1 the supervisor/s will supervise trainees together in groups and will undertake clinical audit on various aspects of the department as a project assignment, on one topic assigned to each group by the Dean and Heads of Departments. The contribution of the post graduate trainees/ MD trainees in audits will be qualitatively assessed by the supervisors and the head of departments.
5. The supervisor will keep vigilant and continuous monitoring of all the research related academic activities of each trainee.
6. The supervisors 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 effectiveness of the course contents, curriculum, teaching methodologies, teaching aids and technologies, content and usefulness of the exercises and assessments etc.
7. One Focus group discussion of supervisors will also be organized by the ORIC to evaluate the research course, its benefits and weaknesses and scope for improvement, each year.

8. The supervisor will keep a close and continuous check on the Log books, Research portfolio of the trainee and will endorse it regularly. Based on his/her observations, the supervisor will evaluate the performance of the trainee and will discuss it in monthly meeting with the Head of Department or Dean of the speciality if required.
9. The supervisor will not only guide and facilitate the trainee in preparation of presentation of Journal Club but will also ensure that trainees should actively participate in question & answer session of the journal club meeting and will also ensure the attendance of the trainees in Journal club as per set requirements.
10. During these first three months of R-Y2, supervisor will guide and supervise the trainee to do extensive review of the literature, relevant to topic and finalize the research question/s and research topic/s with mutual understanding and will submit the selected topic to the Head of Department and Dean of specialty.
11. The supervisor will facilitate the trainee at every step, the formal write up of research proposal/s in consultation with the research associates of ORIC for guidance in methodology. The research proposal should be completed in eighth month of R-Y2 and should also be reviewed and finalized by the Supervisor of the trainees.
12. The trainees should formulate all the data collection tools under guidance of supervisor and should also pretest to finalize all the data collection tools for their research projects.
13. The supervisors will also ensure that the duration of research project should be adequate and realistic so that trainees will be able to complete their project/s during third year of training leaving enough time for its write up during year 4 of training. 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.
14. The supervisor will help the trainee to make a five to ten minutes' presentation through power-point at Institutional Research Ethics Forum during 9-10 months of R-Y2. By the end of presentation, the supervisor will facilitate in defence of the proposal.
15. During first quarter of year 3, it will be mandatory for the trainees to initiate the data collection phase of their project/s under continuous guidance of their supervisors. In case the data collection will require more human resources, other than trainee himself/herself, the supervisor will 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.
16. The data storage will also be finalized by trainee under the guidance of Supervisor and research centre of specialty.

17. Whether the trainee is opting for dissertation writing or research paper publication, the supervisor will ensure that every step and procedure is being followed effectively and timely meeting all set requirements as per standard operational procedures.
 18. The supervisor will actively assist the trainee in write up of dissertation/ research papers.
 19. The trainee should submit final draft of dissertation to the supervisor till end of fifth month of year 4 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.
 20. In case the dissertation or research paper/s is/are sent back with recommended corrections or modifications, the supervisor will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time. In case any of the paper is refused publication by a journal even then the supervisor 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.
 21. In case the research paper/s is/are sent back with recommended corrections or modifications, the supervisor will assist the trainee on urgent basis to get it rectified and resubmitted within next 10 days' time. 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.
 22. While the dissertations will be under review by the degree awarding authority for acceptance, the trainees will be continuously guided by the supervisor 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.
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MANDATORY WORKSHOPS

WORKSHOPS (3 hours each for 2-5 days)

S.NO	NAME OF THE WORKSHOP	LEARNING OBJECTIVES	TOPICS TO BE COVERED
1.	Biostatistics & Research Methodology (4 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 Bio-Statistics 2. 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 Research ii. Drivers for Health Research iii. Participation in National and International Research iv. Participation in Pharmaceutical Company Research v. Where do research ideas come from vi. Criteria for a good research topic Ethics in Health Research 4. Writing a Scientific Paper 5. Making a Scientific Presentation & Searching the Literature

<p>2.</p>	<p>Introduction to computer/Information Technology & Software (5 days)</p>	<p>By the end of this workshop student should be able to:</p> <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 	<p>1.Hardware and Software</p> <ul style="list-style-type: none"> • Understand the main components of a computer, 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. • Minimising, maximising, 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. • Understandings 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>
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			<ul style="list-style-type: none"> • Understanding spreadsheet functionality. • 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 an email message. • 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 (3 days)	<ul style="list-style-type: none"> • To learn to use Non-medical Interventions in Communication Skills of Clinical Practice • To discuss the importance of counseling • To role play as a counselor 	<ol style="list-style-type: none"> 1. Use of Non-medical Interventions in Clinical Practice Communication Skills 2. Counseling 3. Informational Skills 4. Crisis Intervention/Disaster 5. Management Conflict Resolution

		<ul style="list-style-type: none"> • To learn to manage a conflict resolution • 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 	<ol style="list-style-type: none"> 6. Breaking Bad News 7. Medical Ethics, Professionalism and Doctor-Patient Relationship Hippocratic Oath 8. Four Pillars of Medical Ethics (Autonomy, Beneficence, Non-maleficence and Justice) 9. Informed Consent and Confidentiality 10. Ethical Dilemmas in a Doctor's Life
4.	Clinical Audit (2 days) (Workshop is specific for MD Internal Medicine only)	<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 	<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

		<ul style="list-style-type: none"> • Readily accessible data which can be collected within a reasonable length of time • Consensus on the audit topic among the practice members 	<p>principles and strategies for taking action to achieve changes in clinical practice.</p> <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.	<p>Advanced Cardiac Life Support (4 days) (Workshop is specific for MD Internal Medicine only)</p>	<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 	<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

		recognize the impact of team dynamics on overall team performance	<ul style="list-style-type: none">○ Ventricular tachycardia○ Asystole○ Ventricular fibrillation○ Organized rhythm without a pulse 12. Basic understanding of the essential drugs used in: <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 – V

Charting the Road to Competence: Developmental Milestones for MD Gastroenterology Program at Rawalpindi Medical University

Remember to celebrate for 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 gastroenterology 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.

Table-1 Developmental Milestones for gastroenterology Training—Patient Care			
Competency	Developmental Milestones Informing Competencies	Approximate Time Frame Trainee Should Achieve Stage (months)	General Evaluation Strategies Assessment Methods/ Tools
A. Clinical skills and reasoning	Historical data gathering		

<ul style="list-style-type: none"> • Manage patients using clinical skills of interviewing and physical examination • Demonstrate competence in the performance of procedures • Appropriately use laboratory and imaging techniques 	1. Acquire accurate and relevant history from the patient in an efficiently customized, prioritized, and hypothesis driven fashion	8	<ul style="list-style-type: none"> • Standardized patient • Direct observation
	2. Seek and obtain appropriate, verified, and prioritized data from secondary sources (eg, family, records, pharmacy)	12	
	3. 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	24	
	4. Role model gathering subtle and reliable information from the patient for junior members of the health care team	40	
<i>Performing a physical examination</i>			
	1. Perform an accurate physical examination that is appropriately targeted to the patient's complaints and medical conditions. Identify pertinent abnormalities using common maneuvers	8	<ul style="list-style-type: none"> • Standardized patient Direct observation • Simulation
	2. Accurately track important changes in the physical examination over time in the outpatient and inpatient settings	12	
	3. Demonstrate and teach	24	

	how to elicit important physical findings for junior members of the health care team		
	4. Routinely identify subtle or unusual physical findings that may influence clinical decision making, using advanced maneuvers where applicable	40	
<i>Clinical reasoning</i>			
	1. Synthesize all available data, including interview, physical examination, and preliminary laboratory data, to define each patient's central clinical problem	16	<ul style="list-style-type: none"> • Chart-stimulated recall • Direct observation • Clinical vignettes
	2. Develop prioritized differential diagnoses, evidence- based diagnostic and therapeutic plan for common inpatient and ambulatory conditions	32	
	3. Modify differential diagnosis and care plan based on clinical course and data as appropriate	32	
	4. Recognize disease presentations that deviate from common patterns and that require complex decision making	48	
<i>Invasive procedures</i>			
	1. Appropriately perform invasive procedures and provide post-procedure management for common procedures	24	<ul style="list-style-type: none"> • Simulation • Direct observation
<i>Diagnostic tests</i>			

<p>B. 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, detection, diagnosis, and treatment of gender-specific diseases • Manage patients as a consultant to other physicians 	1. Make appropriate clinical decisions based on 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	16	<ul style="list-style-type: none"> • Chart-stimulated recall • Standardized tests • Clinical vignettes
	2. Make appropriate clinical decision based on the results of more advanced diagnostic tests	24	
	Patient management		
	1. Recognize situations with a need for urgent or emergent medical care, including life-threatening conditions	8	<ul style="list-style-type: none"> • Simulation • Chart-stimulated recall • Multisource feedback • Direct observation • Chart audit
	2. Recognize when to seek additional guidance	8	
	3. Provide appropriate preventive care and teach patient regarding self-care	8	
	4. With supervision, manage patients with common clinical disorders seen in the practice of inpatient and ambulatory general internal medicine	16	
	5. With minimal supervision, manage patients with common and complex clinical disorders seen in the practice of inpatient and ambulatory	16	

	general internal medicine		
	6. Initiate management and stabilize patients with emergent medical conditions	16	
	7. Manage patients with conditions that require intensive care	48	
	8. Independently manage patients with a broad spectrum of clinical disorders seen in the practice of general internal medicine	48	
	9. Manage complex or rare medical conditions	48	
	10. Customize care in the context of the patient's preferences and overall health	48	
Consultative care			
	1. Provide specific, responsive consultation to other services	32	<ul style="list-style-type: none"> • Simulation • Chart-stimulated recall • Multisource feedback • Direct observation • Chart audit
	2. Provide internal medicine consultation for patients with more complex clinical problems requiring detailed risk assessment	48	

Table-2 Developmental Milestones for gastroenterology Training— Medical Knowledge

Competency	Developmental Milestones Informing Competencies	Approximate Time Frame Trainee Should Achieve Stage (months)	General Evaluation Strategies Assessment Methods/ Tools
A. Core knowledge of general internal medicine and its subspecialties <ul style="list-style-type: none"> • Demonstrate a level of expertise in the 	Knowledge of core content		
	1. Understand the relevant pathophysiology and basic science for common medical conditions	8	<ul style="list-style-type: none"> • Direct observation • Chart audit • Chart-stimulated recall

<p>knowledge of those areas appropriate for an internal medicine specialist</p> <ul style="list-style-type: none"> • Demonstrate sufficient knowledge to treat medical conditions commonly managed by internists, provide basic preventive care, and recognize and provide initial management of emergency medical problems 	2. Demonstrate sufficient knowledge to diagnose and treat common conditions that require hospitalization	16	<ul style="list-style-type: none"> • Standardized tests
	3. Demonstrate sufficient knowledge to evaluate common ambulatory conditions	24	
	4. Demonstrate sufficient knowledge to diagnose and treat undifferentiated and emergent conditions	24	
	5. Demonstrate sufficient knowledge to provide preventive care	24	
	6. Demonstrate sufficient knowledge to identify and treat medical conditions that require intensive care	32	
	7. Demonstrate sufficient knowledge to evaluate complex or rare medical conditions and multiple coexistent conditions	48	
	8. Understand the relevant pathophysiology and basic science for uncommon or complex medical conditions	48	
	9. Demonstrate sufficient knowledge of sociobehavioral sciences including but not limited to health care economics, medical ethics, and medical education	48	
	<p>B. Common modalities used in the practice of internal medicine & Demonstrate sufficient knowledge to interpret basic clinical tests and images, use common</p>	Diagnostic tests	
1. Understand indications for and basic interpretation of common diagnostic testing, including but not limited to routine blood chemistries,		16	

pharmacotherapy, and appropriately use and perform diagnostic and therapeutic procedures.	hematologic studies, coagulation tests, arterial blood gases, ECG, chest radiographs, pulmonary function tests, urinalysis, and other body fluids		
	2. Understand indications for and has basic skills in interpreting more advanced diagnostic tests	24	
	3. Understand prior probability and test performance characteristics	24	

Table-3 Developmental Milestones for gastroenterology Training— Practice-Based Learning and Improvement

Competency	Developmental Milestones Informing Competencies	Approximate Time Frame Trainee Should Achieve Stage (months)	General Evaluation Strategies Assessment Methods/ Tools
A. Learning and improving via audit of performance & Systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement	<i>Improve the quality of care for a panel of patients</i>		
	1. Appreciate the responsibility to assess and improve care collectively for a panel of patients	16	<ul style="list-style-type: none"> • Several elements of quality improvement project • Standardized tests
	2. Perform or review audit of a panel of patients using standardized, disease-specific, and evidence-based criteria	32	
	3. Reflect on audit compared with local or national benchmarks and explore possible explanations for deficiencies, including doctor-related, system-related, and patient related factors	32	
	4. Identify areas in resident's own practice and local system that can	48	

	be changed to improve effect of the processes and outcomes of care		
	5. Engage in a quality improvement intervention	48	
B. 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 	<i>Ask answerable questions for emerging information needs</i>		
	1. Identify learning needs (clinical questions) as they emerge in patient care activities	16	<ul style="list-style-type: none"> • Evidence-based medicine evaluation instruments • EBM mini-CEX • Chart-stimulated recall
	2. Classify and precisely articulate clinical questions	32	
	3. Develop a system to track, pursue, and reflect on clinical questions	32	
	<i>Acquires the best evidence</i>		
	1. Access medical information resources to answer clinical questions and support decision making	16	<ul style="list-style-type: none"> • Evidence-based medicine evaluation instruments • EBM mini-CEX • Chart-stimulated recall
	2. Effectively and efficiently search NLM database for original clinical research articles	16	
	3. Effectively and efficiently search evidence- based summary medical information resources	32	
	4. Appraise the quality of medical information resources and select among them based on the characteristics of the clinical question	48	
	<i>Appraises the evidence for validity and usefulness</i>		
	1. With assistance, appraise study design, conduct, and statistical analysis in clinical research papers	16	<ul style="list-style-type: none"> • Evidence-based medicine evaluation instruments • EBM mini-CEX • Chart-stimulated recall
	2. With assistance, appraise clinical guidelines	32	
	3. Independently appraise study design, conduct, and statistical analysis in clinical research papers	48	

	4. Independently, appraise clinical guideline recommendations for bias and cost-benefit considerations	48		
	<i>Applies the evidence to decision-making for individual patients</i>			
	1. Determine if clinical evidence can be generalized to an individual patient	16	<ul style="list-style-type: none"> • Evidence-based medicine evaluation instruments • EBM mini-CEX • Chart-stimulated recall 	
	2. Customize clinical evidence for an individual patient	32		
	3. Communicate risks and benefits of alternatives to patients	48		
	4. Integrate clinical evidence, clinical context, and patient preferences into decision making	48		
C. Learning and improving via feedback and self-assessment <ul style="list-style-type: none"> • 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 	<i>Improves via feedback</i>			
	1. Respond welcomingly and productively to feedback from all members of the health care team including faculty, peer residents, students, nurses, allied health workers, patients, and their advocates	16	<ul style="list-style-type: none"> • Multisource feedback • Self-evaluation forms with action plans 	
	2. Actively seek feedback from all members of the health care team	24		
	3. Calibrate self-assessment with feedback and other external data	32		
	4. Reflect on feedback in developing plans for improvement	32		
		<i>Improves via self-assessment</i>		
	1. Maintain awareness of the situation in the moment, and respond to meet situational needs	32	<ul style="list-style-type: none"> • Multisource feedback • Reflective practice surveys 	
	2. Reflect (in action) when surprised, applies new insights to future clinical scenarios, and reflects (on action) back on the	48		

education of patients, families, students, residents, and other health professionals	process		
	<i>Participates in the education of all members of the health care team</i>		
	1. Actively participate in teaching conferences	16	<ul style="list-style-type: none"> • OSCE with standardized learners • Direct observation • Peer evaluations
	2. Integrate teaching, feedback, and evaluation with supervision of interns' and students' patient care	32	
3. Take a leadership role in the education of all members of the health care team.	48		

Table-4 Developmental Milestones for gastroenterology Training— Interpersonal and Communication Skills

Competency	Developmental Milestones Informing Competencies	Approximate Time Frame Trainee Should Achieve Stage (months)	General Evaluation Strategies Assessment Methods/ Tools
A. Patients and family Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds	<i>Communicate effectively</i>		
	1. Provide timely and comprehensive verbal and written communication to patients/advocates	16	<ul style="list-style-type: none"> • Multisource feedback • Patient surveys • Direct observation • Mentored self-reflection
	2. Effectively use verbal and nonverbal skills to create rapport with patients/families	16	
	3. Use communication skills to build a therapeutic relationship		
	4. Engage patients/advocates in shared decision making for uncomplicated diagnostic and therapeutic scenarios	32	
	5. Use patient-centered education strategies	32	
	6. Engage patients/advocates in shared decision making for difficult, ambiguous, or controversial scenarios	48	

	7. Appropriately counsel patients about the risks and benefits of tests and procedures, highlighting cost awareness and resource allocation	48	
	8. Role model effective communication skills in challenging situations	48	
<i>Intercultural sensitivity</i>			
	1. Effectively use an interpreter to engage patients in the clinical setting, including patient education	8	<ul style="list-style-type: none"> • Multisource feedback • Direct observation • Mentored self-reflection
	2. Demonstrate sensitivity to differences in patients including but not limited to race, culture, gender, sexual orientation, socioeconomic status, literacy, and religious beliefs	16	
	3. 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	40	
<i>Transitions of care</i>			
B. Physicians and other health care 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 	1. Effectively communicate with other caregivers in order to maintain appropriate continuity during transitions of care	16	<ul style="list-style-type: none"> • Multisource feedback • Direct observation • Sign-out form ratings • Patient surveys
	2. Role model and teach effective communication with next caregivers during transitions of care	32	
	<i>Interprofessional team</i>		

<ul style="list-style-type: none"> group Act in a consultative role to other physicians and health professionals 	1. Deliver appropriate, succinct, hypothesis-driven oral presentations	8	<ul style="list-style-type: none"> Multisource feedback
	2. Effectively communicate plan of care to all members of the health care team	16	
	3. Engage in collaborative communication with all members of the health care team	40	
	Consultation		
	1. Request consultative services in an effective manner	8	<ul style="list-style-type: none"> Multisource feedback Chart audit
	2. Clearly communicate the role of consultant to the patient, in support of the primary care relationship	16	
	3. Communicate consultative recommendations to the referring team in an effective manner	48	
C. Medical records	Health records		
<ul style="list-style-type: none"> Maintain comprehensive, timely, and legible medical records 	1. Provide legible, accurate, complete, and timely written communication that is congruent with medical standards	8	<ul style="list-style-type: none"> Chart audit
	2. Ensure succinct, relevant, and patient-specific written communication	32	

Table-5 Developmental Milestones for gastroenterology Training— Professionalism

Competency	Developmental Milestones Informing Competencies	Approximate Time Frame Trainee Should Achieve Stage (months)	General Evaluation Strategies Assessment Methods/ Tools
<p>A. <u>Physicianship</u></p> <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 	<i>Adhere to basic ethical principles</i>		
	1. Document and report clinical information truthfully	15	<ul style="list-style-type: none"> • Multisource feedback
	2. Follow formal policies	15	
	3. Accept personal errors and honestly acknowledge them	8	
	4. Uphold ethical expectations of research and scholarly activity	48	
	<i>Demonstrate compassion and respect to patients</i>		
	1. Demonstrate empathy and compassion to all patients	4	<ul style="list-style-type: none"> • Multisource feedback
	2. Demonstrate a commitment to relieve pain and suffering	4	
	3. Provide support (physical, psychological, social, and spiritual) for dying patients and their families	32	
	4. Provide leadership for a team that respects patient dignity and autonomy	32	

<i>Provide timely, constructive feedback to colleagues</i>		
1. Communicate constructive feedback to other members of the health care team	16	<ul style="list-style-type: none"> • Multisource feedback • Mentored self- reflection • Direct observation
2. Recognize, respond to, and report impairment in colleagues or substandard care via peer review process	24	
<i>Maintain accessibility</i>		
1. Respond promptly and appropriately to clinical responsibilities including but not limited to calls and pages	15	<ul style="list-style-type: none"> • Multisource feedback
2. Carry out timely interactions with colleagues, patients, and their designated caregivers	8	
<i>Recognize conflicts of interest</i>		
1. Recognize and manage obvious conflicts of interest, such as caring for family members and professional associates as patients	8	<ul style="list-style-type: none"> • Multisource feedback • Mentored self- reflection • Clinical vignettes
2. Maintain ethical relationships with industry	40	
3. Recognize and manage subtler conflicts of interest	40	
<i>Demonstrate personal accountability</i>		
1. Dress and behave appropriately	15	<ul style="list-style-type: none"> • Multisource feedback • Direct observation
2. Maintain appropriate professional relationships with patients, families, and staff	15	
3. Ensure prompt completion of clinical, administrative, and	8	

	curricular tasks		
	4. Recognize and address personal, psychological, and physical limitations that may affect professional performance	16	
	5. Recognize the scope of his/her abilities and ask for supervision and assistance appropriately	16	
	6. Serve as a professional role model for more junior colleagues (eg, medical students, interns)	40	
	7. Recognize the need to assist colleagues in the provision of duties	40	
	<i>Practice individual patient advocacy</i>		
	1. Recognize when it is necessary to advocate for individual patient needs	8	<ul style="list-style-type: none"> • Multisource feedback • Direct observation
	2. Effectively advocate for individual patient needs	40	
	<i>Comply with public health policies</i>		
	1. Recognize and take responsibility for situations where public health supersedes individual health (eg, reportable infectious diseases)	32	<ul style="list-style-type: none"> • Multisource feedback
<i>B. Patient-centeredness</i> <ul style="list-style-type: none"> • Respect for patient privacy and autonomy Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, 	<i>Respect the dignity, culture, beliefs, values, and opinions of the patient</i>		
	1. Treat patients with dignity, civility and respect, regardless of race, culture, gender, ethnicity, age, or socioeconomic status	15	<ul style="list-style-type: none"> • Multisource feedback • Direct observation
	2. Recognize and manage conflict when patient values	40	

age, culture, race, religion, disabilities, and sexual orientation	differ from their own		
	Confidentiality		
	1. Maintain patient confidentiality	15	<ul style="list-style-type: none"> • Multisource feedback • Chart audits
	2. Educate and hold others accountable for patient confidentiality	24	
	Recognize and address disparities in health care		
	1. Recognize that disparities exist in health care among populations and that they may impact care of the patient	16	<ul style="list-style-type: none"> • Multisource feedback • Direct observation • Mentored self- reflection
	2. Embrace physicians' role in assisting the public and policy makers in understanding and addressing causes of disparity in disease and suffering	40	
	3. Advocates for appropriate allocation of limited health care resources.	40	

Table-6 Developmental Milestones for gastroenterology Training— Systems-Based Practice

Competency	Developmental Milestones Informing Competencies	Approximate Time Frame Trainee Should Achieve Stage (months)	General Evaluation Strategies Assessment Methods/ Tools
<p>A. <u>Work effectively with other care providers and settings</u></p> <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 interprofessional 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 patients, including the transition of care between settings 	<i>Works effectively within multiple health delivery systems</i>		
	1. Understand unique roles and services provided by local health care delivery systems.	16	<ul style="list-style-type: none"> • Multisource feedback • Chart-stimulated recall • Direct observation
	2. Manage and coordinate care and care transitions across multiple delivery systems, including ambulatory, subacute, acute, rehabilitation, and skilled nursing.	32	
	3. Negotiate patient-centered care among multiple care providers.	48	
	<i>Works effectively within an interprofessional team</i>		
	1. Appreciate roles of a variety of health care providers, including but not limited to consultants, therapists, nurses, home care workers, pharmacists, and social workers.	8	<ul style="list-style-type: none"> • Multisource feedback • Chart-stimulated recall • Direct observation
	2. Work effectively as a member within the interprofessional team to ensure safe patient care.	8	
	3. Consider alternative solutions provided by other teammates	16	
	4. Demonstrate how to manage the team by using the skills and coordinating the activities of interprofessional team members.	48	
	<p>B. <u>Improving health care delivery</u></p> <ul style="list-style-type: none"> • Advocate for quality patient care and optimal patient 	<i>Recognizes system error and advocates for system improvement</i>	
1. Recognize health system forces that increase the risk for error including barriers to optimal patient care	16	<ul style="list-style-type: none"> • Multisource feedback • Quality improvement project 	

<p>care systems</p> <ul style="list-style-type: none"> Participate in identifying system errors and implementing potential systems solutions Recognize and function effectively in high-quality care system 	2. Identify, reflect on, and learn from critical incidents such as near misses and preventable medical errors	16	
	3. Dialogue with care team members to identify risk for and prevention of medical error	32	
	4. Understand mechanisms for analysis and correction of systems errors	32	
	5. Demonstrate ability to understand and engage in a system-level quality improvement intervention.	48	
	6. Partner with other health care professionals to identify, propose improvement opportunities within the system.	48	
<p>C. <u>Cost-effective care for patients and populations</u> & Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population- based care as appropriate</p>	<i>Identifies forces that impact the cost of health care and advocates for cost-effective care</i>		
	1. Reflect awareness of common socioeconomic barriers that impact patient care.	16	<ul style="list-style-type: none"> Standardized examinations Direct observation Chart-stimulated recall
	2. Understand how cost-benefit analysis is applied to patient care (ie, via principles of screening tests and the development of clinical guidelines)	16	
	3. Identify the role of various health care stakeholders including providers, suppliers, financiers, purchasers, and consumers and their varied impact on the cost of and access to health care.	32	
	4. Understand coding and reimbursement principles.	32	
	<i>Practices cost-effective care</i>		
1. Identify costs for common diagnostic or therapeutic tests.	8	<ul style="list-style-type: none"> Chart-stimulated recall 	

	2. Minimize unnecessary care including tests, procedures, therapies, and ambulatory or hospital encounters	8	
	3. Demonstrate the incorporation of cost-awareness principles into standard clinical judgments and decision making	24	
	4. Demonstrate the incorporation of cost-awareness principles into complex clinical scenarios	48	

References of Mile stones

1. <https://www.acgme.org/Portals/0/PDFs/Milestones/InternalMedicineMilestones.pdf>
2. <http://education.med.ufl.edu/files/2010/10/InternalMedicineMilestones.pdf>
3. <http://www.upstate.edu/medresidency/current/competencies.php>

SECTION –VI

EVALUATION & ASSESSMENT STRATEGIES

The purpose of the Assessment system:

The purpose of the assessment system is to:

- enhance learning by providing formative assessment, enabling trainees to receive immediate feedback, measure their own performance and identify areas for development;
- drive learning and enhance the training process by making it clear what is required of trainees and motivating them to ensure they receive suitable training and experience;
- provide robust, summative evidence that trainees are meeting the curriculum standards during the training programme;
- ensure trainees are acquiring competencies within the domains of Good Medical Practice;
- assess trainees' actual performance in the workplace;
- ensure that trainees possess the essential underlying knowledge required for their specialty;
- inform the Annual Review of Competence Progression (ARCP), identifying any requirements for targeted or additional training where necessary and facilitating decisions regarding progression through the training programme;
- Identify trainees who should be advised to consider changes of career direction.

The integrated assessment system

The integrated assessment system comprises a mixture of workplace-based assessments and knowledge-based assessments. Individual assessment methods are described in more detail below. The assessments will be supported by structured feedback for trainees within the training programme of General Internal Medicine. Assessment tools will be both formative and summative and will be selected on the basis of their fitness for purpose. Workplace-based assessments will take place throughout the training programme to allow trainees to continually gather evidence of learning and to provide formative feedback. They are not individually summative but overall outcomes from a number of such assessments provide evidence for summative decision making. The number and range of these will ensure a reliable assessment of the training relevant to their stage of training and achieve coverage of the curriculum.

Assessment methods

The following methods are used in the integrated assessment system:

A. Examinations

- Intermediate Examination (at the end of second calendar year)
- Final Examination (at the end of fourth calendar year)

B. Workplace-based assessments

- mini-Clinical Evaluation Exercise (mini-CEX)
- Direct Observation of Procedural Skills (DOPS)
- Multi-Source Feedback (MSF)
- Case-Based Discussions (CbD)
- Patient Survey (PS)
- Acute Care Assessment Tool (ACAT)
- Audit Assessment (AA)
- Teaching Observation (TO)
- Many others as described earlier in the section of modern assessment tools

MD GASTROENTEROLOGY EXAMINATIONS

Intermediate Examination MD Gastroenterology

All candidates admitted in MD Gastroenterology course shall appear in Intermediate examination at the end of 2nd calendar year.

At the end of 2nd Year of MD Gastroenterology Programme.

Written Examination = 300 Marks Clinical, TOACS/OSCE &

ORAL = 200 Marks Total = 500 Marks

Written:

MCQs = 100 (2 marks each MCQ)

SEQs = 10 (10 Marks each SEQ)

Total = 300 Marks

Principles of Internal Medicine = 70 MCQs 7 SEQs

Specialty specific = 10 MCQs 1 SEQs

Basic Sciences = 20 MCQs 2 SEQs

• Physiology = 8 MCQs 1 SEQ

• Pharmacology = 4 MCQs -----

• Pathology = 8 MCQs 1 SEQ

Clinical, TOACS/OSCE & ORAL

Four Short Cases	= 100 Marks
One Long Case	= 50 Marks
TOACS/OSCE & ORAL	= 50 Marks

Total= 200 Marks

Final Examination MD Gastroenterology Total Marks: 1500

All candidates admitted in MD course shall appear in Final examination at the end of structured training programme (end of 5th calendar year) and after clearing Intermediate Examination.

There shall be two written papers of 250 marks each, Clinical, TOACS/OSCE & ORAL of 500 marks, Internal assessment of 100 marks and thesis examination of 400 marks.

Topics included in paper 1

- | | |
|---|-----------|
| 1. Upper GI Disorders | (35 MCQs) |
| 2. Lower GI Disorders | (35 MCQs) |
| 3. Pediatric and Geriatric Gastroenterology | (30 MCQs) |

Topics included in paper 2

- | | |
|--|-----------|
| 1. Hepatology | (30 MCQs) |
| 2. GI Radiology and Other Diagnostic tests | (15 MCQs) |
| 3. Gastrointestinal Oncology | (20 MCQs) |
| 4. Parenteral and Enteral Nutrition | (15 MCQs) |

Vascular, Infectious & Immune Disorders (20 MCQs)

Components of Final Examination

Theory

Paper I	<u>250 Marks</u>	3 Hours
5 SEQs	50 Marks	
100 MCQs	200 Marks	
Paper II	<u>250 Marks</u>	3 Hours
5 SEQs	50 Marks	
100 MCQs	200 Marks	

The candidates, who pass in theory papers, will be eligible to appear in the clinical, TOACS/OSCE & ORAL.

Clinical, TOACS/OSCE & ORAL

Four short cases	200 Marks
One long case	100 Marks
TOACS/OSCE & ORAL	200 Marks

Continuous Internal Assessment **100 Marks**

Thesis Examination **400 Marks**

All candidates admitted in MD courses shall appear in Thesis examination at the end of 5th calendar year of the MD programme. The examination shall include thesis evaluation with defense.

SECTION – VII

LOG BOOK Templates



MD GASTROENTEROLOGY

RAWALPINDI MEDICAL UNIVERSITY RAWALPINDI



ENROLMENT DETAILS

Program of Admission _____

Session _____

Registration / Training Number _____

Name of Candidate _____

Father's Name _____

Date of Birth ____ / ____ / ____ CNIC No. _____

Present Address _____

Permanent Address _____

E-mail Address _____

Cell Phone _____

Date of Start of Training _____

Date of Completion of Training _____

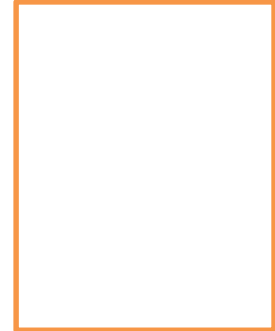
Name of Supervisor _____

Designation of Supervisor _____

Qualification of Supervisor _____

Title of department / Unit _____

Name of Training Institute / Hospital _____



INTRODUCTION OF LOGBOOK:

A structured book in which certain types of educational activities and patient related information is recorded, usually by hand. Logbooks are used all over the world from undergraduate to postgraduate training, in human, veterinary and dental medicine, nursing schools and pharmacy, either in paper or electronic format .

Logbooks provide a clear setting of learning objectives and give trainees and clinical teachers a quick overview of the requirements of training and an idea of the learning progress. Logbooks are especially useful if different sites are involved in the training to set a (minimum) standard of training. Logbooks assist supervisors and trainees to see at one glance which learning objectives have not yet been accomplished and to set a learning plan. The analysis of logbooks can reveal weak points of training and can evaluate whether trainees have fulfilled the minimum requirements of training.

Logbooks facilitate communication between the trainee and clinical teacher. Logbooks help to structure and standardize learning in clinical settings. In contrast to portfolios, which focus on students' documentation and self-reflection of their learning activities, logbooks set clear learning objectives and help to structure the learning process in clinical settings and to ease communication between trainee and clinical teacher. To implement logbooks in clinical training successfully, logbooks have to be an integrated part of the curriculum and the daily routine on the ward. Continuous measures of quality management are necessary.

Reference

Brauns KS, Narciss E, Schneyinck C, Böhme K, Brüstle P, Holzmann UM, et al. Twelve tips for successfully implementing logbooks in clinical training. Med Teach. 2016 Jun 2; 38(6): 564–569.

INDEX: LOG OF

- 1. MORNING REPORT PRESENTATION/CASE PRESENTATION (LONG AND SHORT CASES)**
- 2. TOPIC PRESENTATION/SEMINAR**
- 3. DIDACTIC LECTURES/INTERACTIVE LECTURES**
- 4. JOURNAL CLUB**
- 5. PROBLEM CASE DISCUSSION**
- 6. EMERGENCY CASES**
- 7. INDOOR PATIENTS**
- 8. OPD AND CLINICS**
- 9. PROCEDURES (OBSERVED, ASSISTED, PERFORMED UNDER SUPERVISION & PERFORMED INDEPENDENTLY)**
- 10. MULTIDISCIPLINARY MEETINGS**
- 11. CLINICOPATHOLOGICAL CONFERENCE**
- 12. MORBIDITY/MORTALITY MEETINGS**
- 13. HANDS ON TRAINING/WORKSHOPS**
- 14. PUBLICATIONS**
- 15. MAJOR RESEARCH PROJECT DURING MD TRAINING/ANY OTHER MAJOR RESEARCH PROJECT**
- 16. WRITTEN ASSESMENT RECORD**
- 17. CLINICAL ASSESMENT RECORD**
- 18. EVALUATION RECORD**

SECTION-1

MORNING REPORT PRESENTATION/ CASE PRESENTATION (LONG AND SHORT CASES)

SR#	DATE	REG# OF PATIENT	DIAGNOSIS & BRIEF DESCRIPTION	SIGNATURES OF THE SUPERVISOR

SECTION-2**TOPIC PRESENTATION/SEMINAR**

SR#	DATE	NAME OF THE TOPIC & BRIEF DETAILS OF THE ASPECTS COVERED	SIGNATURES OF THE SUPERVISOR

SECTION-4		PROBLEM CASE DISCUSSION			

SR #	DATE	REG.# OF THE PATIENT DISCUSSED	DIAGNOSIS	BRIEF DESCRIPTION OF THE CASE	SIGNATURES OF THE SUPERVISOR

SECTION-5

DIDACTIC LECTURE/INTERACTIVE LECTURES

SR #	DATE	TOPIC & BRIEF DESCRIPTION	NAME OF THE TEACHER	SIGNATURES OF THE SUPERVISOR

SECTION-6

RECORD OF TOTAL EMERGENCY CASES SEEN ON EMERGENCY CALL DAYS

SR.#	DATE	TOTAL NUMBER OF CASES ATTENDED	SIGNATURES OF THE SUPERVISOR
1			
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27			

SECTION-6

EMERGENCY CASES (repetition of cases should be avoided)

SR#	DATE	REG # OF THE PATIENT	DIAGNOSIS	MANAGEMENT	PROCEDURES PERFORMED	SIGNATURES OF THE SUPERVISOR

SECTION-7

RECORD OF TOTAL INDOOR CASES SEEN ON CALL DAYS IN THE WARD

SR.#	DATE	TOTAL NUMBER OF CASES ATTENDED	SIGNATURES OF THE SUPERVISOR
1			
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4			

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28			

SECTION-7

INDOOR PATIENTS (repetition of cases should be avoided)

SR#	DATE	REG # OF THE PATIENT	DIAGNOSIS	MANAGEMENT	PROCEDURES PERFORMED	SIGNATURES OF THE SUPERVISOR

SECTION-8

RECORD OF TOTAL OPD/CLINIC CASES SEEN ON OPD CALL DAYS

SR.#	DATE	TOTAL NUMBER OF CASES ATTENDED	SIGNATURES OF THE SUPERVISOR
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SECTION-8

OPD AND CLINICS (repetition of cases should be avoided)

SR#	DATE	REG # OF THE PATIENT	DIAGNOSIS	MANAGEMENT	SIGNATURES OF THE SUPERVISOR

SECTION-9

PROCEDURES

SR.#	DATE	REG NO. OF PATIENT	NAME OF PROCEDURE	OBSERVED/ASSISTED/PERFORMED UNDER SUPERVISION/PERFORMED INDEPENDENTLY	PLACE OF PROCEDURE	SIGNATURES OF THE SUPERVISOR

SECTION-10

MULTI DICIPLINARY MEETINGS

SR#	DATE	BRIEF DESCRIPTION	SIGNATURES OF THE SUPERVISOR

SECTION-

CLINICOPATHOLOGICAL CONFERENCE (CPC)

SR#	DATE	BRIEF DESCRIPTION OF THE TOPIC/CASE DISCUSSED	SIGNATURES OF THE SUPERVISOR

SECTION-14**PUBLICATIONS**

SNO.	NAME OF PUBLICATION	TYPE OF PUBLICATION ORIGINAL ARTICLE/EDITORIAL/CASE REPORT ETC	NAME OF JOURANL	DATE OF PUBLICATION	PAGE NO.	SIGNATURES OF THE SUPERVISOR

--	--	--	--	--	--	--

SECTION-15

**MAJOR RESEARCH PROJECT DURING MD TRAINING/ANY OTHER
MAJOR RESEARCH PROJECT**

SNO.	RESEARCH TOPIC	PLACE OF RESEARCH	NAME AND DESIGNATION OF SUPERVISOR OTHER THAN MD SUPERVISOR UNDER WHOM RESEARCH WAS CONDUCTED	BRIEF DETAILS	SIGNATURES OF THE SUPERVISOR

--	--	--	--	--	--

SECTION-16

WRITTEN ASSESSMENT RECORD

SNO	TOPIC OF WRITTEN TEST/EXAMINATION	TYPE OF THE TEST MCQS OR SEQs OR BOTH	TOTAL MARKS	MARKS OBTAINED	SIGNATURES OF THE SUPERVISOR

SECTION-17

CLINICAL ASSESSMENT RECORD

SR.#	TOPIC OF CLINICAL TEST/ EXAMINATION	TYPE OF THE TEST & VENUE OSPE, MINICEX, CHART STIMULATED RECALL, DOPS, SIMULATED PATIENT, SKILL LAB e.t.c	TOTAL MARKS	MARKS OBTAINED	SIGNATURES OF THE SUPERVISOR
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SECTION-18

EVALUATION RECORDS

(Photocopy of consolidated evaluation record at the end of each block should be pasted here)

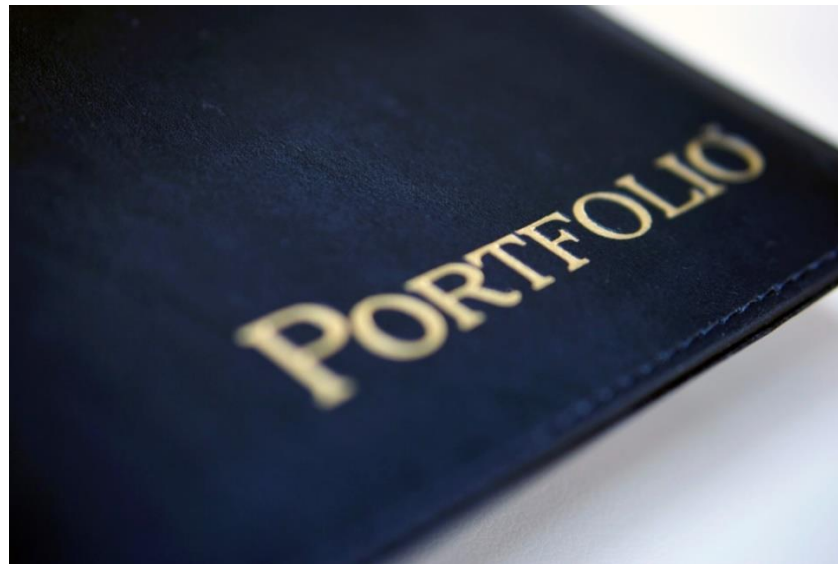
Portfolio Templates



MD GASTROENTEROLOGY

RAWALPINDI MEDICAL UNIVERSITY

RAWALPINDI



ENROLMENT DETAILS

Program of Admission _____

Session _____

Registration / Training Number _____

Name of Candidate _____

Father's Name _____

Date of Birth ____ / ____ / ____ CNIC No. _____

Present Address _____

Permanent Address _____

E-mail Address _____

Cell Phone _____

Date of Start of Training _____

Date of Completion of Training _____

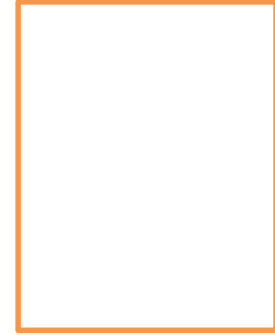
Name of Supervisor _____

Designation of Supervisor _____

Qualification of Supervisor _____

Title of department / Unit _____

Name of Training Institute / Hospital _____



Introduction of portfolio

What is a portfolio?

A collection of a learner's various documents and assessments throughout residency that reflect their professional development over time. May include referral letters and procedure logs (Rider et al., 2007). Portfolios also frequently include self-assessments, learning plans, and reflective essays (Epstein, 2007).

What should be included in a portfolio?

resident may include the following components in his or her portfolio:

- Curriculum Vitae (CV)
- Personal Publications
- Research abstracts presented at professional conferences
- Presentations at teaching units/departmental meetings and teaching sessions
- Patient (case) presentations
- Log of clinical procedures
- Copies of written feedback received (direct observations, field notes, daily evaluations)
- Quality improvement project plan and report of results
- Summaries of ethical dilemmas (and how they were handled)
- Chart notes of particular interest
- Photographs and logs of medical procedures performed
- Consult/referral letters of particular interest
- Monthly faculty evaluations
- 360-degree evaluations
- Copies of written instructions for patients and families
- Case presentations, lectures, logs of medical students mentored
- Learning plans

- Writing assignments, or case-based exercises assigned by program director
- List of hospital/university committees served on
- Documentation of managerial skills (e.g., schedules or minutes completed by resident)
- Copies of billing sheets with explanations
- Copies of written exams taken with answer sheets
- In-training Evaluation Report (ITER) results
- Format can be as simple as material collected in a three-ringed binder or as sophisticated as information stored in a handheld Pocket PC (PPC).
- Patient confidentiality should be assured when any clinical material is included in the portfolio.
- Should be resident-driven and include a space for residents to reflect on their learning experiences.

Why portfolio is required?

Can be used as a:

- Formative learning tool: To help develop self-assessment and reflection skills.
- Summative evaluation tool: To determine if a competency has been achieved.
- Useful for evaluating competencies that are difficult to evaluate in more traditional ways such as:
 - Practice-based improvement
 - Use of scientific evidence in patient care
 - Professional behaviors (Rider et al., 2007)
- Purpose is to highlight for the resident the need for ongoing learning and reflection to achieve and maintain competencies.
- Enormous flexibility in using the portfolio as a learning tool: Portfolio may focus on one area (e.g., assessments pertaining to professionalism in a learner with attitudinal issues) without losing its effectiveness for the broader scope of competencies.
- Number and frequency of entries may vary. Expectations, including minimum standards, should be defined with the resident from the outset.
- Portfolios can be powerful tools for guided self-assessment and reflection (Holmboe & Carraccio, 2008).

Evidence:

- Evidence suggests that an assessment of skills is most valid when the tool used places the learner in an environment and/or situation that closely mimics that in which the learner will later practice the mastered skill (Wiggins et al., 1998). In that way, portfolios have the advantage of reflecting not just what residents can do in a controlled examination situation but what they actually do at work with real patients (Jackson et al., 2007).
- As an evaluation tool, the reliability and validity of a portfolio are dependent on the psychometric characteristics of the assessment and judging methods used in the portfolio process (Holmboe & Carracio, 2008).
- Research is still needed to determine whether portfolios can be a catalyst for self-directed, lifelong learning (O'Sullivan et al., 2002).

Practicality/Feasibility:

Portfolios can be time consuming for the resident to assemble and for the preceptor to assess.

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- 3. TOPIC PRESENTATION**
- 4. JOURNAL CLUB**
- 5. EMERGENCY**
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- 7. OPD AND CLINICS**
- 8. PROCEDURAL SKILLS/DIRECTLY OBSERVED PROCEDURES**
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- 10. MORBIDITY/MORTALITY MEETINGS**
- 11. HANDS ON TRAINING**
- 12. RESEARCH PUBLICATIONS/MAJOR RESEARCH PROJECT/
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- 15. ANY OTHER SPECIFIC ACHIEVEMENTS**
- 16. FUTURE AIMS & OBJECTIVES**

SECTION-1

CURRICULUM VITÆ (CV)

Brief curriculum vitae encompassing all academic achievements & work experiences should be written or pasted here

SECTION-2

CASE PRESENTATION

Interesting and unique case presentations should be written in this section with your own opinion and comments of the supervisor

SECTION-3

TOPIC PRESENTATION

Details of the topic presentations with the comments of the supervisor should be written here

SECTION-4

JOURNAL CLUB

Details of the selected critical appraisals of research articles discussed in journal club meetings should be written here

SECTION-5

EMERGENCY

Details of complicated and interesting emergency cases along with comments of the supervisor should written in this section

SECTION-6

INDOOR

Memorable cases seen in and managed in the medical ward along with comments of the supervisor should be mentioned in this section

SECTION-7

OPD AND CLINICS

Outpatient experiences along with supervisor's comments should be written here

SECTION-8

**PROCEDURAL SKILLS/DIRECTLY OBSERVED
PROCEDURES**

Experiences during learning of procedures and details of directly observed procedures should be written here along with comments of the supervisor

SECTION-9

MULTI DICIPINARY MEETINGS

Details of Multidisciplinary meetings attended should be written here with comments of the supervisor

SECTION-10

MORBIDITY/MORTALITY MEETINGS

Details morbidity/mortality meetings attended should be written here with comments of the supervisor

SECTION-11

HANDS ON TRAINING

Brief description of learning outcomes achieved by workshops attended should be written here along with the reason of need to have a specific workshop and also get endorsed the comments of the supervisor for each workshop separately

SECTION-12

RESEARCH PUBLICATIONS/ MAJOR RESEARCH PROJECT/ ABSTRACT/SYNOPSIS/DISSERTATION/PAPER PRESENTATION IN A CONFERENCE

All research experiences should be mentioned in this section along with comments of the supervisor

SECTION-13

ASSESSMENT RECORDS/EVALUATION PROFORMAS

Evidence of all available result cards and end of block (four months) evaluation record should mentioned in this section to have a reflection about resident's Medical knowledge, patient care, Interpersonal and Communication Skills, system based learning, practice based learning and professionalism.

SECTION-14

AWARDS/TESTIMONIALS/ APPRECIATION LETTERS

Evidence of awards, testimonials and appreciation letters if any should be given in this section with comments of the supervisor

SECTION-15

ANY OTHER SPECIFIC ACHIEVEMENT

Evidence of any other specific achievement done under forceful circumstances as a compulsion or done by chance without any previous plan or done as a passion should be mentioned in this section along with comments of supervisor

SECTION-16

FUTURE AIMS & OBJECTIVES

Brief overview of the future aims and objectives should mentioned in this section

SECTION –VIII

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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.ttuhs.c.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>
- https://med.uth.edu/internalmedicine/files/2015/10/internal_medicine_curriculum_acgme.pdf
- <http://www.uhs.edu.pk/downloads/MD%20Internal%20Medicine.pdf>

Assessment methods

- Center for Creative Leadership, Greensboro, North Carolina (<http://www.ccl.org>).
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- Winckel CP, Reznick RK, Cohen R, Taylor B. Reliability and construct validity of a structured technical skills assessment form. *Am J Surg*. 1994; 167: 423-27.

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- Kaplan SH, Ware JE. The patient's role in health care and quality assessment. In: Goldfield N and Nash D (eds). *Providing quality care (2nd ed): Future Challenge*. Ann Arbor, MI: Health Administration Press, 1995: 25-52.
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References of Mile stones

4. <https://www.acgme.org/Portals/0/PDFs/Milestones/InternalMedicineMilestones.pdf>
5. <http://education.med.ufl.edu/files/2010/10/InternalMedicineMilestones.pdf>
6. <http://www.upstate.edu/medresidency/current/competencies.php>

SECTION – IX

List of Appendices

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2. Proforma for feedback by Nurse for core competencies of the resident -----“Appendix B”
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5. Supervisor’s Annual Review Report----- Appendix “ E”
6. Supervisors evaluation Proforma for continuous internal assessments-----Appendix “ F”
7. Evaluation of resident by the faculty----- Appendix “ G”
8. Evaluation of faculty by the resident----- Appendix “ H”
9. Evaluation of program by the faculty----- Appendix “ I”
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11. Guidelines for program evaluation----- Appendix “ K”
12. Evaluation of Project Director by the residents----- Appendix “ L”

Workplace Based Assessments-Multi Source Feedback profoma- 360° Evaluation Appendix "A"



Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (by Senior)

PGT, MO, HO Proforma

Reviewer

Evaluation for

Name:

Name:

Designation:

Designation:

Performance ratings

Assessment Date: _____

The following guidelines are to be used in selecting the appropriate rating:

- | | | |
|---------------|-----------|-------------------|
| 1=Never | 2= Rarely | 3= Occasionally |
| 4= Frequently | 5= Always | 6= Not Applicable |

1. Patients Care

Implements the highest standards of practice in the effective and timely treatment of all patients regardless of gender, ethnicity, location, or socioeconomic status.

1 2 3 4 5 6

2. Medical Knowledge

Keeps current with research and medical knowledge in order to provide evidence-based care.

1 2 3 4 5 6

3. Interpersonal and Communication Skills

Works vigorously and efficiently with all involved parties as patient advocate and/or consultant.

1 2 3 4 5 6

4. Practice based Learning and Improvement

Assesses medical knowledge and new technology and implements best practices in clinical setting.

1 2 3 4 5 6

5. Professionalism

Displays personal characteristics consistent with high moral and ethical behaviour.

1 2 3 4 5 6

6. Systems Based Practice

Efficiently utilizes health-care resources and community systems of care in the treatment of patients.

1 2 3 4 5 6

Reference: Competencies identified by ACGME & ABMS
ACGME Accreditation Council for graduate medical education
ABMS American Board of Medical Specialties



Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (by Colleague)

PGT, MO, HO Proforma

Reviewer

Evaluation for

Name:

Name:

Designation:

Designation:

Performance ratings

Assessment Date: _____

The following guidelines are to be used in selecting the appropriate rating:

1=Never

2= Rarely

3= Occasionally

4= Frequently

5= Always

6= Not Applicable

1. He/she is often late to work?

1

2

3

4

5

6

2. He/she meets his deadlines oftenly?

1

2

3

4

5

6

3. He/she is willing to admit the mistakes?

1

2

3

4

5

6

4. He/she communicates well with others?

1

2

3

4

5

6

5. He/she adjusts quickly to changing Priorities?

1

2

3

4

5

6

6. He/she is hardworking?

1 2 3 4 5 6

7. He/she works well with the other colleague?

1 2 3 4 5 6

8. He/she co-worker behave professionally?

1 2 3 4 5 6

9. He/she co-worker treat you, respect fully?

1 2 3 4 5 6

10. He/she co-worker handles criticism of his work well?

1 2 3 4 5 6

11. He/she follow up the patient's condition quickly?

1 2 3 4 5 6

Reference: <http://www.surveymonkey.com/r/360-Degree-Employee-Evaluation-Template>



Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (Self-Assessment)

PGT, MO, HO Proforma

Reviewer

Evaluation for

Name:

Name:

Designation:

Designation:

Performance ratings

Assessment Date: _____

The following guidelines are to be used in selecting the appropriate rating:

1= Poor

2= Less than Satisfactory

3= Satisfactory

4= Good

5= Very Good

6= Don't know

1. Clinical knowledge

1

2

3

4

5

6

2. Diagnosis

1

2

3

4

5

6

3. Clinical decision making

1

2

3

4

5

6

4. Treatment (including practical procedures)

1

2

3

4

5

6

5. Prescribing

1

2

3

4

5

6

6. Medical record keeping

1

2

3

4

5

6

7. Recognizing and working within limitations

1 2 3 4 5 6

8. Keeping knowledge and skills up to date

1 2 3 4 5 6

9. Reviewing and reflecting on own performance

1 2 3 4 5 6

10. Teaching (student, trainees, others)

1 2 3 4 5 6

11. Supervising colleagues

1 2 3 4 5 6

12. Commitment to care and wellbeing of patients

1 2 3 4 5 6

13. Communication with patients and relatives

1 2 3 4 5 6

14. Working effectively with colleagues

1 2 3 4 5 6

15. Effective time management

1 2 3 4 5 6

Reference: www.gmc-uk.org



Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (by Paramedical Staff)

PGT, MO, HO Proforma

Reviewer

Evaluation for

Name:

Name:

Designation:

Designation:

Performance ratings

Assessment Date: _____

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں

1- مریض کی تشخیص بالکل ٹھیک کرتا / کرتی ہے۔

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں

2- دستاویزات وقت پر تیار ہوتے ہے اور اس پر عمل کرنے میں آسانی ہوتی ہے۔

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں

3- ٹیم ورک کو اہمیت دیتا / دیتی ہے۔

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں

4- موقع ملنے پر عملہ اور طالب علم کو تعلیم دیتا / دیتی ہے۔

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں

5- عملہ کی بات پر جلدی جواب دیتا / دیتی ہے۔

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں



Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (by Attendant)

PGT, MO, HO Proforma

Reviewer

Evaluation for

Name:

Name:

Designation:

Designation:

Performance ratings

Assessment Date: _____

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں

1- ڈاکٹر نے مریض کی صورتحال تشخیص و تفصیل سے بتائی ہے۔

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں

2- ڈاکٹر نے اپنی پریشانی بتانے کے لئے مجھے حوصلہ دیا۔

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں

3- ڈاکٹر نے عزت سے میرا علاج کیا۔

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں

4- ڈاکٹر نے مجھے جو تفصیلات بتائیں وہ آسانی سے سمجھ آ گئی۔

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں

5- ڈاکٹر نے میرے احساسات کا خیال رکھا۔

کبھی نہیں کم سے کم کبھی کبھار اکثر ہمیشہ لاگو نہیں



Rawalpindi Medical University

Quality Enhancement Cell

360 Degree Evaluation Proforma (by Patient)

PGT, MO, HO Proforma

Reviewer

Evaluation for

Name:

Name:

Designation:

Designation:

Performance ratings

Assessment Date: _____

کبھی نہیں کم سے کم کبھی بھار اکثر ہمیشہ لاگو نہیں

1- ڈاکٹر نے آپ کا معائنہ عزت اور احترام سے کیا ہے۔

کبھی نہیں کم سے کم کبھی بھار اکثر ہمیشہ لاگو نہیں

2- ڈاکٹر نے آپ کی بیماری کے متعلق آپ کو روکے ٹوکے بغیر تسلی سے سنا۔

کبھی نہیں کم سے کم کبھی بھار اکثر ہمیشہ لاگو نہیں

3- ڈاکٹر نے آپ کی بات بہت توجہ سے سنی۔

کبھی نہیں کم سے کم کبھی بھار اکثر ہمیشہ لاگو نہیں

4- ڈاکٹر نے آپ کی زندگی کے متعلق تفصیل سے سوالات کیے۔

کبھی نہیں کم سے کم کبھی بھار اکثر ہمیشہ لاگو نہیں

5- ڈاکٹر نے آپ کے حادثات کو اچھی طرح سمجھا ہے۔

کبھی نہیں کم سے کم کبھی بھار اکثر ہمیشہ لاگو نہیں

6- ڈاکٹر نے مجھے بیماری سے متعلق تفصیل اور وضاحت سے آگاہ کیا ہے۔

کبھی نہیں کم سے کم کبھی بھار اکثر ہمیشہ لاگو نہیں

7- ڈاکٹر نے مجھے بیماری سے متعلق صحیح فیصلہ کرنے میں مدد کی۔

کبھی نہیں کم سے کم کبھی بھار اکثر ہمیشہ لاگو نہیں

8- ڈاکٹر نے بیماری کے علاج کا لائحہ عمل بنانے میں مجھے شامل کیا۔

کبھی نہیں کم سے کم کبھی بھار اکثر ہمیشہ لاگو نہیں

Resident Evaluation by Nurse/ Staff for core competencies

Appendix "B"

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 _____

(For example OPD/Ward/Emergency/Endoscopy Department)

Your position (for example: nurse, ward servant, endoscopy attendant) _____

S #	Professionalism	Poor	Fair	Good	V.Good	Excellent	Insufficient Contact
1	Resident is Honest and trustworthy						
2	Resident treats patients and families with courtesy, compassion and respect						
3	Resident treats me and other member of the team with courtesy and respect						
4	Resident shows regard for my opinions						
5	Resident maintains a professional manner and appearance						
Interpersonal and communication skills							

6	Resident communicates well with patients, families, and members of the healthcare team						
7	Resident provides legible and timely documentation						
8	Resident respect differences in religion, culture, age, gender, sexual orientation and disability						
System based practice							
9	Resident works effectively with nurses and other professionals to improve patient care						
Patient Care							
10	Resident respects patient preferences						
11	Resident take care of patient comfort and dignity during procedures						
Practice based learning and improvement							
12	Resident facilitates the learning of students and other professionals						

Comments							
13	Please describe any praises or concerns or information about specific incidents						
Thanks you for your time and thoughtful input. You play a vital role in the education and training of the Gastroenterology resident							

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

Total Score _____/52

Evaluation of Patient Medical Record/ Chart Evaluation Proforma Appendix "C"

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	O	O	O	O	O
2.	Presenting Complaints written in chronological order	O	O	O	O	O
3.	Presenting Complaints Evaluation Done	O	O	O	O	O
4.	Systemic review Documented	O	O	O	O	O
5.	All Components of History Documented	O	O	O	O	O
6.	Complete General Physical Examination done	O	O	O	O	O
7.	Examination of all systems documented	O	O	O	O	O
8.	Differential Diagnosis framed	O	O	O	O	O
9.	Relevant and required investigations documented	O	O	O	O	O
10.	Management Plan framed	O	O	O	O	O
11.	Notes are properly written and eligible	O	O	O	O	O
12.	Progress notes written in organized manner	O	O	O	O	O

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

TOTAL SCORE _____/80

Appendix "D"

Workplace Based Assessments - Guidelines for Supervisors for Assessment of Generic & Specialty Specific Competency

The Candidates of all MD programs will be trained and assessed in the following five generic competencies and also specialty specific competencies.

A. Generic Competencies:

i. Patient Care.

- a. Patient Care competency will include skills of history taking, examination, diagnosis, counseling Plan care through ward teaching departmental conferences, morbidity and mortality meetings core curriculum lectures and training in procedures and operations.
- b. The candidate shall learn patient care through ward teaching departmental conferences, morbidity and mortality meetings, care curriculum lectures and training in procedures and operations.
- c. The Candidate will be assessed by the supervisor during presentation of cases on clinical ward rounds, scenario based discussions on patients management multisource feedback evaluation, Direct observation of Procedures (DOPS) and operating room assessments
- d. These methods of assessments will have equal weightage.

ii. Medical knowledge and Research

- a. The candidate will learn basic factual knowledge of illnesses relevant to the specialty through lectures/discussions on topics selected from the syllabus, small group tutorials and bed side rounds
- b. The medical knowledge/skill will be assessed by the teacher during
- c. The candidate will be trained in designing research project, data collection data analysis and presentation of results by the supervisor.
- d. The acquisition of research skill will be assessed as per regulations governing thesis evaluation and its acceptance.

iii. Practice and System Based Learning

- a. This competency will be learnt from journal clubs, review of literature policies and guidelines, audit projects medical error investigation, root cause analysis and awareness of health care facilities,.
- b. The assessment methods will include case studies, personation in morbidity and mortality review meetings and presentation of audit projects if any.
- c. These methods of assessment shall have equal weight-age

iv. Communication Skills

- a. These will be learn it from role models, supervisor and workshops.
 - b. They will be assessed by direct observation of the candidate whilst interacting with the patients, relatives, colleagues and with multisource feedback evaluation.
- v. **Professionalism as per Hippocratic oath**
- a. This competency is learnt from supervisor acting as a role model ethical case conferences and lectures on ethical issues such as confidentially informed consent end of life decisions, conflict of interest, harassment and use of human subjects in research.
 - b. The assessment of residents will be through multisource feedback evaluation according to preforms of evaluation and its scoring method.

B. Specialty Specific Competences.

- i. The candidates will be trained in operative and procedural skills according to a quarterly based schedule.
 - ii. The level of procedural Competency will be according to a competency table to be developed by each specialty
 - iii. The following key will be used for assessing operative and procedural competencies:
 - a. **Level 1 Observer status**
 - b. The candidate physically present and observing the supervisor and senior colleagues
 - c. **Level 2 Assistant status** The candidate assisting procedures and operations
 - d. **Level 3 Performed under supervision** The candidate operating or performing a procedure under direct supervision
 - e. **Level 4 Performed independently** The candidate operating or performing a procedure without any supervision
- vi. **Procedure Based Assessments (PBA)**
- a. Procedural competency will assess the skill of consent taking, preoperative preparation and planning, intraoperative general and specific tasks and postoperative management
 - b. Procedure Based assessments will be carried out during teaching and training of each procedure.
 - c. The assessors may be supervisors, consultant colleagues and senior residents.
 - d. The standardized forms will be filled in by the assessor after direct observation.
 - e. The resident’s evaluation will be graded as satisfactory, deficient requiring further training and not assessed at all.
 - f. Assessment report will be submitted
 - g. A satisfactory score will be required to be eligible for taking final examination.

Appendix “E”

Supervisor’s Annual Review Report.

This report will consist of the following components: -

- I. Verification and validation of Log Book 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 relationship with colleagues, patients.
- VII. Supervisor will produce an annual report based on assessments as per proforma in appendix-G and submit it to the Examination Department.
- VIII. 75% score will be required to pass the Continuous Internal Assessment on annual review.

Resident's Name: _____

Evaluator's Name(s): _____

Hospital Name: _____

Date of Evaluation: _____

1	
2	Below Average
3	Average
4	Good
5	Superior

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

Patient Care		Scale				
1. Demonstrates sound clinical judgment	1	2	3	4	5	
2. Presents patient information case concisely without significant omissions or digressions	1	2	3	4	5	
3. Able to integrate the history and physical findings with the clinical data and identify all of the patient's major problems using a logical thought process	1	2	3	4	5	
4. Develops a logical sequence in planning for diagnostic tests and procedures and Formulates an appropriate treatment plan to deal with the patient's major problems	1	2	3	4	5	
5. Able to perform commonly used office procedures	1	2	3	4	5	
6. Follows age appropriate preventative medicine guidelines in patient care	1	2	3	4	5	
Medical Knowledge		Scale				
1. Uses current terminology	1	2	3	4	5	
2. Understands the meaning of the patient's abnormal findings	1	2	3	4	5	
3. Utilizes the appropriate techniques of physical examination	1	2	3	4	5	

4. Develops a pertinent and appropriate differential diagnosis for each patient	1	2	3	4	5
5. Demonstrates a solid base of knowledge of ambulatory medicine	1	2	3	4	5
6. Can discuss and apply the applicable basic and clinically supportive sciences	1	2	3	4	5
Professionalism					
Scale					
1. Demonstrates consideration for the patient's comfort and modesty	1	2	3	4	5
2. Arrives to clinic on time and follows clinic policies and procedures	1	2	3	4	5
3. Works effectively with clinic staff and other health professionals	1	2	3	4	5
4. Able to gain the patient's cooperation and respect	1	2	3	4	5
5. Demonstrates compassion and empathy for the patient	1	2	3	4	5
6. Demonstrates sensitivity to patient's culture, age, gender, and disabilities	1	2	3	4	5
7. Discusses end-of-life issues (DPOA, advanced directives, etc.) when appropriate	1	2	3	4	5
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
Osteopathic Concepts					
					Scale
1. Demonstrates ability to utilize and document structural examination findings	1	2	3	4	5
2. Integrates findings of osteopathic examination in the diagnosis and treatment plan	1	2	3	4	5
3. Successfully uses osteopathic manipulation for treatment where appropriate	1	2	3	4	5
4. Practices Patient Centered Care with a "whole person" approach to medicine.	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					

[Empty rectangular box for signature or date]

Resident's Signature _____

Date _____

Supervisor's Signature _____

Date _____

Abbreviations for six Core Competencies

- PC = Patient Care
- MK = Medical Knowledge
- ICS = Interpersonal / Communication Skills
- PBL = Practice-Based Learning and Improvement
- P = Professionalism
- SBP = Systems-Based Practice

Interpersonal and Communication Skills

Note content is appropriate and complete (ICS) (Question 1 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Interpersonal skills with patients, families and staff is appropriate and skilled (ICS) (Question 2 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Presents cases in clear, concise manner (ICS) (Question 3 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Medical Knowledge

Demonstrates understanding of clinical problems and their pathophysiology (MK) (Question 4 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Develops appropriate differential diagnosis (MK) (Question 5 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Evaluates scientific basis of diagnostic tests used (MK) (Question 6 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Reads service specific literature (MK) (Question 7 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Patient Care

Obtains accurate clinical history (PC) (Question 8 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Demonstrates appropriate physical exam (PC) (Question 9 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Identifies and reviews relevant existing patient data (PC) (Question 10 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Prioritizes problems and treatment plans appropriately (PC) (Question 11 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Effectively uses consultation services (PC) (Question 12 of 24)

0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
---	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

Professionalism

Displays a professional attitude and demeanor (P) (Question 16 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Attends rounds on time. Handles criticism of self in pro-active way (P) (Question 17 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Cross-covers colleagues when necessary (P) (Question 18 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

System-Based Practices

Understands the different types of medical practice and delivery systems, and alternative methods of controlling health care costs and allocating resources (SBP) (Question 19 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
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0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
---	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------	----------------------------

Effectively Utilizes ancillary services SBP (Questions 20 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Uses Patient care venues appropriately SBP (Questions 21 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Advocates for quality patient care and assists patients in dealing with system complexities SBP (Questions 22 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Overall / Summary

Did resident meet course objectives? (Questions 23 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

Comments (Please provide Strengths, Weaknesses and Areas for Improvement) (Question 24 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>

RESIDENT EVALUATION OF FACULTY TEACHING SKILLS

Appendix "H"

Faculty Member _____

Department: _____

Period of Evaluation _____

Location _____

Direction: please take a moment to assess the clinical faculty members teaching skills using this scale

1= Poor

2=Fair

3= Very Good

4= Excellent

A. Leadership

Discussed expectations, duties and assignments for each team member and reviewed learning objectives and evaluation process 1 2 3 4 N/A

Treated each tea, member in a cutout and peaceful manner 1 2 3 4 N/A

Was usually prompt for teaching assignments and was always Available and accessible as a supervisor 1 2 3 4 N/A

Showed respect for the physician in other specialties / Subspecialties as well as for other health care professionals 1 2 3 4 N/A

Comments

B. Role of modeling

Demonstrated positive in interpersonal communication skills with patients, family members and staff 1 2 3 4 N/A

Enthusiasm and interest in teaching residents 1 2 3 4 N/A

Recognized own limitations and used these
Situation as opportunities to demonstrate how he / she learn 1 2 3 4 N/A

Used Medical / scientific literature to support clinical decisions 1 2 3 4 N/A

Comments

C. Patient Care /Teaching and & Feedback

Demonstrate how to handle “difficult” patients encounters 1 2 3 4 N/A

Demonstrated how to perform special physical exam
techniques and / or procedures and observed me
during my initials attempt 1 2 3 4 N/A

Asked thought provoking questions to help me develop my
critical thinking skills and clinical judgment 1 2 3 4 N/A

Share his/her own thought process when discussing patient
workups and patients care decisions with the team 1 2 3 4 N/A

Highlighted important aspects of a patient case and often
generalized to boarder medical concepts and principles 1 2 3 4 N/A

Integrated social / ethical aspects of medical 1 2 3 4 N/A

(cost containment, patents right , humanism) into discussion of patient care

Provided guidance and specific “instructive feedback to help me correct mistakes and / or increase my knowledge base

1 2 3 4 N/A

Comments:

D. Didactic (Classroom) Instructions

Was usually prompt for teaching sessions, kept interruptions to minimum and kept discussion focused on case or topic

1 2 3 4 N/A

Gave lecture presentations that were well organized and “Interactive” () i.e., and review pertinent topics

1 2 3 4 N/A

Provided references or other materials that stimulated me to read, research and review pertinent topics

1 2 3 4 N/A

Comments

E. Evaluation

Reviewed my overall clinical performance at the end of the rotation pointed out my strengths and areas for improvement 1 2 3 4 N/A

Demonstrated "fairness" by adhering to established criteria, explaining reasons for the scores and following me to respond 1 2 3 4 N/A

Comments

Overall, I would rate this faculty member's clinical teaching skills as

POOR FAIR VERY GOOD EXCELLENT

Would you recommend that faculty member continue to teach in this program? Yes NO

COMMENTS, COMMENDATIONS OR CONCERNS

RESIDENT EVALUATION OF FACULTY (FOR CORE COMPETENCIES)

Appendix "I"

A. Interpersonal and Communication Skills

Interpersonal and Communication Skills (Question 1 of 22)

Asks question in a non-threatening manner

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Interpersonal and Communication Skills (Question 2 of 22)

Emphasizes problem-solving (thought processes leading to decisions)

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Interpersonal and Communication Skills (Question 4 of 22)

Effectively communicates knowledge

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

B. Medical Knowledge

Medical Knowledge (Question 5 of 22)

Knowledge of specialty

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Medical Knowledge (Question 6 of 22)

Applies knowledge of specialty to patient problems

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Patient Care (Question 7 of 22)

Applies comprehensive high quality care

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

C. Patient Care

Patient Care (Question 8 of 22)

Explains diagnostic decisions

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Patient Care (Question 9 of 22)

Clinical Judgment

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Patient Care (Question 10 of 22)

Clinical Skills

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

D. Practice-Based Learning and Improvement

Practice-Based Learning and Improvement (Question 11 of 22)

Encourages self-education

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Practice-Based Learning and Improvement (Question 12 of 22)

Encourages evidence-based approaches to care

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

E. Professionalism

Professionalism (Question 13 of 22)

Sensitive caring respectful attitude towards patients

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Professionalism (Question 14 of 22)

Uses time with patients and residents effectively

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Professionalism (Question 15 of 22)

Sufficient resident teaching on rounds/clinics

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Professionalism (Question 16 of 22)

Respects all members of the health care team

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Professionalism (Question 17 of 22)

Demonstrates Integrity

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Professionalism (Question 18 of 22)

Attains credibility and rapport with patients and their family

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

F. Systems- Based Practice

Systems- Based Practice (Question 19 of 22)

Provides useful feedback including constructive criticism to team members

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

System Base Practice (Question 20 of 22)

Discusses availability cost and utility of system resources in providing medical care.

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Overall/Summary (Question 21 of 22)

Overall contributions to your training

Cannot Evaluate	Unsatisfactory (Comment Required)	Marginal (Comment Required)	Satisfactory	Very Good	Excellent
0	1	2	3	4	5

Comments: (Question 22 of 22)

Faculty Evaluation of the Residency / Fellowship Program

Appendix "J"

Please use this scale to answer question1-10:

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

-
1. **PATIENT/CASE VOLUME:** There are a sufficient number and variety of patients/cases to facilitate high quality resident/fellow education.
 2. **CURRICULUM:** The residency/fellowship program curriculum provides the appropriate education experiences for residents/fellows to analyze investigate and improve patient care practices.
 3. **PROGRAM DIRECTOR:** The program director effectively communicates with program faculty members to understand their role in resident/fellow education and development.
 4. **ADMINISTRATIVE SUPPORT:** There is adequate administrative support service to facilitate faculty participation in resident/fellow education.
 5. **SUPERVISION:** The Program resident/fellow supervision policy has been clearly communicated to program faculty and is used by the program.
 6. **TRANSITION OF CARE:** The program transition of care/hand-off policy and tools have been distributed to program faculty and they are used.
 7. **EVALUATION:** Program faculty receives regular and timely feedback about their teaching and supervisors skills.
 8. **FACULTY DEVELOPMENT:** There are beneficial resources available for program faculty to improve their teaching and supervision skills.

- 9. **SCHOLARLY ACTIVITY:** Program faculties have the adequate resources to participate in scholarly activates.
- 10. **FACULTY:** The program faculty provides the diversity of experience and expertise to accomplish the goals and objectives of the program.

RESIDENT EVALUATION OF RESIDENCY PROGRAM

Appendix “K

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

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

Cannot Evaluate	Unsatisfactory	Marginal	Satisfactory	Very Good	Excellent
	(Comment	(Comment			

	Required)	Required)			
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
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0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
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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 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

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
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	Required)	Required)			
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

E. 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"/>

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"/>

Facilities (Question 10 of 35)

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

	Required)	Required)			
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. 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"/>

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"/>

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"/>

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"/>

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"/>

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"/>

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"/>

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"/>

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"/>

G. Training (Question 20 of 35)

Faculty adequately supervises residents' care of patients.

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

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"/>

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"/>

Training (Question 23 of 35)

Residents are given sufficient responsibility for decision-making and direct 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"/>

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"/>

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"/>

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"/>

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"/>

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"/>

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"/>

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
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	Required)	Required)			
0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

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"/>

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"/>

Training (Question 33 of 35)

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

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"/>

Recommendations (Question 34 of 35)

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

Additional Comments (Question 35 of 35)

Guidelines for program Evaluation

Appendix “L”

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:

. **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 of 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 faculty b. overall program educational goals c. up-to-date competency-based G&O for each assignment d. up-to-date competency-based G&O for each level of training e. 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 		
<p>6. Clinical Curriculum – the effectiveness of in-patient and ambulatory teaching experience (structure, case mix, meets resident’s needs)</p>		
<p>7. Volume and variety of patients and procedures (case log data) meets requirements and residents’ needs</p>		
<p>8. Summary of written program evaluations completed by both faculty and residents</p>		
<p>9. Resident supervision complies with Program Requirement</p>		
<p>10. Recruiting results</p>		
<p>11. Duty hour monitoring results</p>		
<p>12. Track all research and scholarly activities of faculty and residents/fellows</p>		
<p>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.</p>		

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)		
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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)

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 were reviewed and approved.

Academic Year reviewed:

Faculty Members of the PEC in attendance

Other Members of the PEC in attendance:

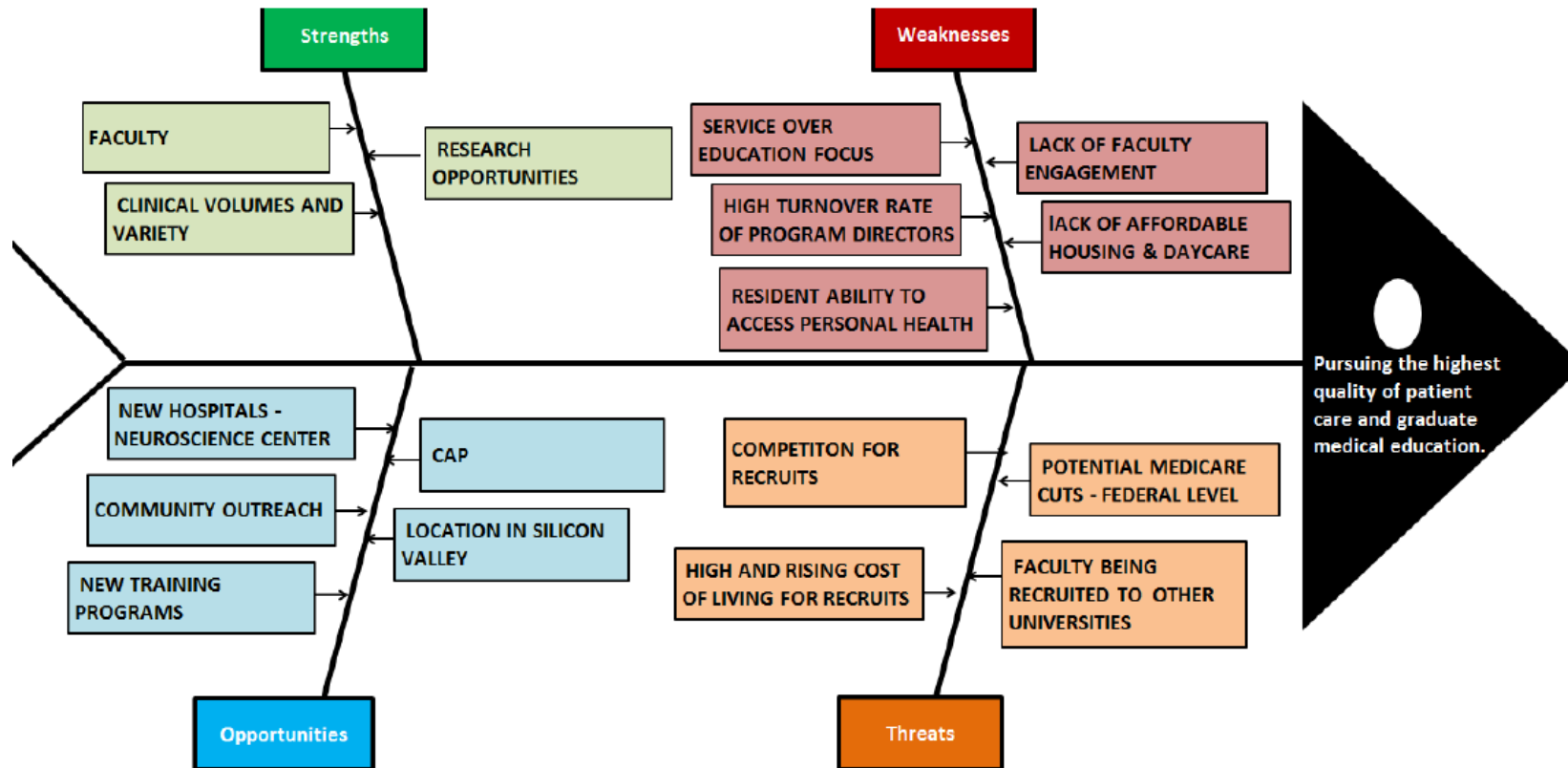
Areas reviewed:

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

- S: Strengths
- W: Weaknesses
- O: Opportunities
- T: Threats

SWOT Analysis (Fishbone – Ishikawa Diagram)



Action Plan

Item	Strategy	Resources	Timeline	Evaluation
Preservation Goals (Strengths)				
Elimination Goals (Weaknesses)				
Achievement Goals (Opportunities)				
Avoidance Goals (Threats)				

SECTION -X

Miscellaneous attached documents

