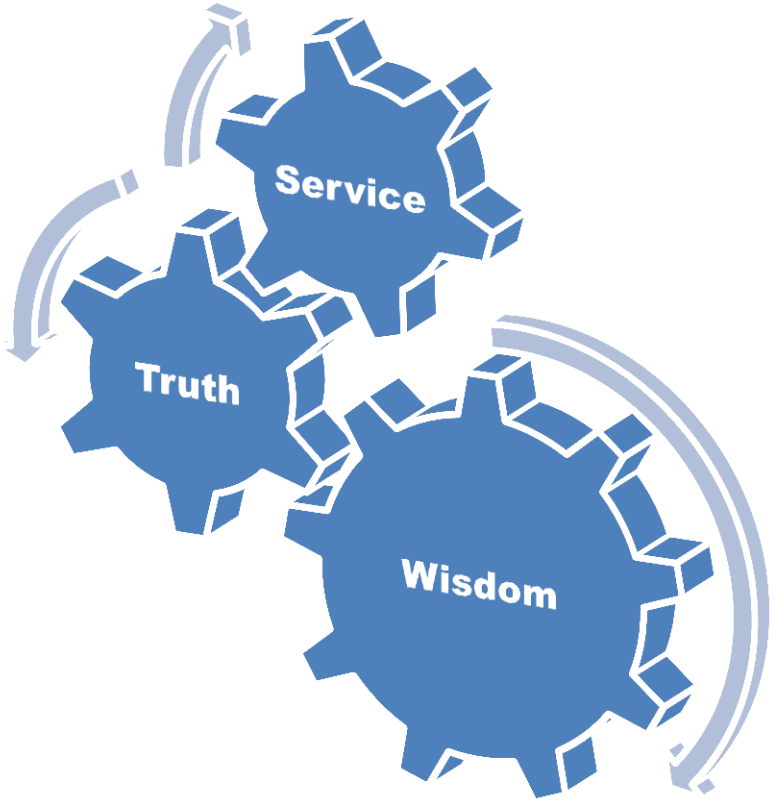
University Residency MD Gastroenterology Program

Rawalpindi Medical University

2021

Motto of Rawalpindi Medical University



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.

Summary

The program is designed to develop academically oriented gastroenterologists who would serve as specialists in area independently. After completion of training, the trainee will be able to diagnose and treat commonly encountered gastrointestinal disorders in a cost-effective manner. H/she will be experienced in history taking, physical examination and judicious use of laboratory investigations and their interpretation. H/she will have knowledge of applied basic sciences (pathophysiology, pharmacology, molecular biology, etc.), pertinent to gastroenterology as well as clinical gastroenterology, Hepatology and nutrition. The resident will be on-call in rotation with other residents to attend to hospitalised patients, GI emergencies, endoscopies and outpatients. After completing the training, h/she is expected to be able to function as an independent consultant in gastroenterology in Pakistan. H/she will have adequate experience in applied basic sciences, clinical gastroenterology and research. H/she will be able to teach gastroenterology to medical students, residents, subspecialty trainees and practicing physicians in the community.

This will be three year program to expose the trainee to inpatients, outpatients and emergency department to manage patients with different level of severity in illness. Trainee will also be rotated to endoscopy department to learn diagnostic and therapeutic endoscopic procedures, radiology, pathology, surgery/transplant and oncology departmrnt. During these rotation candidate will be under constant supervision of senior faculty.

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 GraduateMedical Education* for a larger, national group of colleagues in all specialties and at all stages of their personal professional development. If wewere 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. Aperfect 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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SR.NO	NAME & DESIGNATION	CONTRIBUTIONS IN FORMULATION OF LOG BOOK OF MEDICINE & ALLIED
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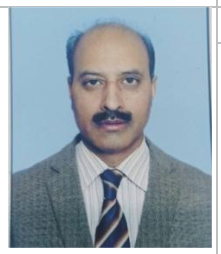
2.	 **DR BUSHRA KHAAR, MBBS.FCPS** Ex-Professor of Medicine Head Department of Gastroenterology Holy Family Hospital Rawalpindi	Guidance regarding technical matters of Log Book of MD Gastroenterology & also Log Book for MD Gastroenterology rotations. Provision of required number of clinical procedures and educational activities for each year separately for Log Book of MD gastroenterology and log book MD gastroenterology rotations.
3.	 **DR. TANVEER HUSSAIN, MBBS.FCPS** Assistant Professor Gastroenterology Holy Family Hospital Rawalpindi	Write up of Curriculum of MD Gastroenterology, Log Book of MD Gastroenterology and also Log Book for MD Gastroenterology rotations
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SECTION – I

Statutes

1. ***Nomenclature:***

   Nomenclature of the Proposed Course The name of degree program 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 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 Program 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.

   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 write two articles or statistical report of two diseases.

   At the end of 2 years, the candidate will take up Mid Term Assessment

   During the 3rd 4th and 5th years of the program, 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 five 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:

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

Certificate of one year House Job experience in institution 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.

. Valid certificate of permanent or provisional registration with Pakistan Medical & Dental Council.

. **MD** **Medicine or equivalent diploma (e.g. MRCP or Diplomate ABIM)**

OR

Two year training in MD(internal medicine) from recognized institution.

Registration and Enrolment

- As per policy of Pakistan Medical & Dental Council, the number of PG Trainees/ Students per supervisor shall be maximum O5 per annum for all PG programs.
- 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 Program

Aim

The aim of five years MD program 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 speciality 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 Advance **Training 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 hepatology 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 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. Understanding of basic 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**(pertinent to GI & Hepatology 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 investigations and special diagnostic & therapeutic 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 gastroenterology 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 Gastroenterology 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, trainees 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 handing 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. Skills in performing important bedside diagnostic and therapeutic procedures and understanding of their indications. Trainees should acquire competence through supervised performance of the required number of each of the following procedures during the 18 months training period and should record them in the Trainee's Log Book

At least 5 times during the one and half year training period:

a. **Cardiopulmonary resuscitation**
b. **Central venous cannulation**
c. **Abdominal paracentesis**
d. **Pleural tapping**
e. **Endotracheal intubation**
f. **Lumbar puncture**
g. **Marrow aspiration and trephine biopsies.**
h. **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 cardio respiratory problems, stroke, organ failures, infection and shock, gastrointestinal bleeding, metabolic disorders and poisoning.

17. Diagnostic skills to effectively manage complex cases with unusual presentations.

18. Ability to implement strategies for preventive care and early detection of diseases in collaboration with primary and community care doctors.

19. 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 program should lead to publications and/or presentation in seminars or conferences.

20. Practice evidence—based learning with reference to research and scientific knowledge pertaining to their discipline through comprehensive training in Research Methodology

21. Ability to recognize and appreciate the importance of cost-effectiveness of treatment modalities.

22. 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) <u>Attitudes</u>

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, Gastroenterology 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:

- **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.

- **<u>Practice-Based Learning and Improvement</u>**
- 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.

Methods of Teaching & Learning during course conduction

1.Inpatient Services: GI residents will have rotations in intensive care, coronary care,**Dermatology,Nephrology** 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: ***GI r***esidents 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, 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 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 variousspecialty 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 specialtymedicine 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 groupdiscussions 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 atnoon 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 Medicine 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 Internal Medicine 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-basedmedicaleducation/computer-assistedinstruction:** 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.

Electives/Rotations

A significant amount of time during **Internal Medicine residency** is devoted to electives, which allows our residents the flexibility to gain a concentrated experience in an area of interest. Residents can choose electives from any subspecialty within the Department of Internal Medicine or other departments to enhance a particular primary care interest, academic pathway. The following is a brief overview of some of the available electives:

Cardiology

Residents will work with a cardiology fellow to initially evaluate patients with a variety of cardiovascular disorders, including acute and chronic manifestations of coronary artery disease, myocardial infarction, congestive heart failure, arrhythmias, valvular disorders and pericardial diseases. Resident will also participate in the workup of patients with chest pain and syncope. Resident responsibilities will include:

- assessing preoperative cardiac risk in patients undergoing non-cardiac surgery
- managing cardiac issues in medical, surgical and neurologic patients, including those in the ICU
- evaluation observation unit patients, including following up on abnormal cardiac testing

Emergency Medicine

Elective training in emergency medicine gives resident opportunities to work with a wide variety of undifferentiated patients in a fast-paced acute care setting. Resident will evaluate acute complaints, generate differential diagnoses, and

initiate appropriate management for these patients under the supervision of emergency medicine faculty. You will hone resident's diagnostic skills, develop triage skills, identify appropriate levels of care for these patients, and coordinate with the larger system of care to ensure each patient receives optimal care and follow-up.

Endocrinology, Diabetes and Metabolism

This elective trainsresident in recognizing, diagnosing and formulating treatment plans for endocrinology disorders. Resident will work in both inpatient and outpatient settings, obtaining focused medical histories and conducting physical exams. Resident will learn to interpret common endocrine lab tests, use fine needle thyroid aspiration appropriately, use a full range of imaging studies, and recognize the rationale for therapy modalities such as diabetic diets, exercise programs, glucose monitoring and insulin delivery devices.

Evidence-Based Medicine

Resident will join a floor team as the designated "EBM resident," working closely with an "EBM attending," usually the floor team attending. During morning rounds, team members identify one or more patient management issues and formulate structured clinical questions, with resident's support and feedback. Resident will search the medical literature to identify relevant publications, and assess their validity and results using the User's Guide to the Medical Literature's critical appraisal sheets. During the next rounds meeting (usually that afternoon), resident will report his findings to the floor team, discuss them together, and assist in evidence-based clinical decision-making, integrating the evidence from resident's research with patients' values, clinical states, and circumstances.

In addition, resident will be responsible for conducting two to four interactive small-group sessions. These may be critical appraisal sessions, using the format from the User's Guide to Medical Literature, or didactic sessions to clarify specific concepts.

Oncology

This elective gives resident an opportunity to evaluate and treat inpatients and outpatients as part of a

combined hematology/oncology service. You will also care for patients with malignant hematologic diseases, including lymphomas, myelomas, and acute and chronic leukemias. Resident will review laboratory data, flow cytometry and peripheral smears with fellows and faculty. Resident may have opportunities to perform bone marrow biopsies under supervision and to review pathology specimens with the hematopathologist.

Infectious Diseases

Resident will care for a wide variety of patients, with particular attention to evaluating those with possible infections, then diagnosing and treating them. Resident will also learn to diagnose cases that don't easily fit into evidence-based guidelines. Our residency elective will help resident develop a core understanding of the clinical manifestations, pathophysiology and management of infectious diseases and systemic diseases. Through resident's training resident will develop expertise in relevant basic and clinical science topics. This elective emphasizes rigorous data accumulation when taking histories and conducting physical examinations, and interpreting a wide variety of laboratory data, including cultures, imaging and other tests.

Nephrology

Resident will learn about the pathogenesis, clinical presentation, treatment modalities and prognosis of the full range of nephrologic diseases in both didactic and clinical settings, including end-stage renal disease, acute and chronic renal failure, tubulointerstitial diseases and glomerulonephritides. Resident will also gain proficiency with diagnostic testing and monitoring methods key to the discipline of nephrology.

Neurology

An elective in neurology helps resident develop core neurological evaluation skills, including taking histories, conducting physical examinations, and performing accurate and thorough neurologic exams. Resident will see patients with a variety of conditions, including acute ischemic stroke, acute hemorrhagic stroke, status epilepticus and brain tumors, for new admissions and follow-up care, including post-discharge follow-up planning where appropriate. When necessary, resident will anticipate patients' needs in a complex health

system and guide them appropriately by collabroating with professionals in occupational therapy, physical therapy, speech therapy, acute rehabilitation, long- term care placement facilities, and so on

Nuclear Medicine The program exposes resident to clinical and research aspects of nuclear medicine. Resident will cover the diagnostic, therapeutic, and investigational uses of radionuclides, and gain an understanding of important aspects of radiochemistry, computer science, and modeling. Through this elective rotation, resident will learn the key techniques and methodology of the major nuclear medicine diagnostic and therapeutic applications. It includes an active clinical and research experience in positron emission tomography (PET).

Palliative Medicine

In this elective, you learn to propose and defend comfort care for patients when cure is no longer a rational goal in settings including hospital consultation services and hospice home care. Resident will evaluate and treat symptoms common in terminally ill patients, focusing on how physical, psychological, social and spiritual factors affect suffering. In addition, resident will gain an understanding of the neuroanatomy and physiology of different pain mechanisms and how to honor medical decisions that are guided by patients' philosophies and values.

Pulmonary

In this elective, resident will work with patients who have lung disease problems common to the inpatient setting and resident will learn about additional pulmonary diseases and problems pulmonary specialists see. Resident will learn to perform physical examinations and take orderly histories focused on the signs and symptoms of lung diseases, including

extra pulmonary signs and symptoms, and resident will plan and provide treatment for inpatients with a wide variety of lung diseases.

Rheumatology

This elective familiarizes resident with diagnosing and treating the core rheumatic diseases through direct patient contact in the rheumatology attendings' offices. Resident will conduct all new patient evaluations, obtaining complete histories, conducting examinations, reviewing relevant medical records, and developing appropriate differential diagnoses and treatment plans. Where appropriate, resident will also see patients for follow-up appointments. The attending rheumatologist will review the clinic's long-term patients daily, selecting individual additional cases to give resident the broadest experience possible.

Resident will become proficient at the musculoskeletal exam, learn to obtain a relevant rheumatic history and review of systems, understand appropriate medication and non-drug therapies for rheumatic disease, use diagnostic laboratory and X-ray testing appropriately, learn to distinguish inflammatory from degenerative or metabolic musculoskeletal diseases, develop reasonable differential diagnoses for common rheumatic symptoms, and gain experience in joint and bursa/tendon injection.

Geriatric Medicine

Under the supervision of the geriatrics faculty, residents participate in a multidisciplinary clinic evaluation of the elderly, engage in inpatient consultations, and care for patients in the geriatrics inpatient unit and nursing home. Outpatient clinics provide residents with training on the management of frail elderly, osteoporosis and older patients with multiple comorbidities. Residents may also participate in the Division of Gerontology's active research in exercise physiology, obesity, menopause, metabolism and cardiovascular disease prevention. transplant biology, the evaluation of patients for transplantation, and the prevention and management of post- transplant complications. Residents work on an interdisciplinary team along with transplant nephrologists, infectious disease experts and surgeons.

Neuro/Psychiatry

Residents will learn to diagnose and treat a variety of primary psychiatric ailments, as well as the psychiatric manifestations of medical disorders. On the Neurology half of the Neuro/Psychiatry elective, residents will learn the natural history, diagnosis, and treatment of cerebral vascular disease, migraines, multiple sclerosis, movement disorders, disc disease, neuromuscular disease, and seizure disorders, as well as dementia and memory disorders.

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.

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**

  Procedures or case logs document each patient encounter by medical conditions seen or procedures performed. The logs may or may not include counts of cases or procedures. Patient case logs currently in use involve recording of some number of consecutive cases in a designated time

frame.

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.

SECTION – II

Two Year Internal Medicine Curriculum of

MD Gastroenterology Residency Program

Rawalpindi Medical University

Table of Contents of First Two year Medicine Clinical Component

Clinical Curriculum For First Two Year Internal Medicine

Topics To Be Taught	Learning Objectives Student should be able to know:	Teaching Methods	Assessment
1. History Taking (Knowledge)	• 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 • 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, investigation and management	Bedside teaching in wards and outpatient departments	**mini-CEX** **MCQs**
2. History Taking (Skills)	• Identify and overcome possible barriers (eg cognitive impairment) to effective communication • Manage time and draw consultation to a close	Bedside teaching in wards and outpatient	**mini-CEX**

	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	Departments	
3. History Taking **(**Attitude)	• Show respect and behave in accordance with Good Medical Practice	Bedside teaching in wards and outpatient departments	**ACAT** **mini-CEX**
4.Clinical examination (knowledge)	• To progressively develop the ability to perform focussed and accurate clinical examination in increasingly complex patients and challenging circumstances • 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	Bedside teaching in wards and outpatient departments	**CbD** **mini-CEX** **ACAT**
5. Clinical examination	• Perform an examination relevant to the presentation	Bedside teaching in	**CbD**

(skills)	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 • 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)	wards and outpatient departme nts	**mini-CEX** **ACAT**
6. Clinical examination (Attitude)	• Show respect and behaves in accordance with Good Medical Practice	Bedside teaching in wards and outpatient departments	**CbD,** **miniCEX** **MSF**
7.Time management and decision making	• 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	• 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 • To be able to communicate the diagnostic and therapeutic plan appropriately	Bedside teaching in wards	**ACAT** **CbD** **mini-CEX**

Details Of Course Contents

A. Internal Medicine (First Two Years)

Educational Purpose

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

Content of required knowledge:

1. ***Human Growth, Development, and Aging:*** adolescent medicine, aging and introduction to geriatric medicine, management of common problems in the elderly.
2. ***Preventive Medicine*****:** principles of preventive medicine, immunization.
3. ***Principle of Diagnosis and Management*****:** clinical approach to the patient, clinical decision-making, interpretation of laboratory data.
4. ***Cardiovascular Diseases*****:** Congestive heart failure, cardiac arrhythmias, hypertension, coronary heart disease, interpretation of EKG, interpretation of echocardiogram.
5. ***Respiratory Diseases:*** Respiratory failure, COPD, asthma, pulmonary embolism, pleural effusion, interpretation of pulmonary function tests.
6. ***Renal Diseases*****:** disorders of electrolytes and acid-base, acute renal failure, chronic renal failure, glomerulonephritis, tubulointerstitial diseases.

7. ***Gastrointestinal Diseases*:** gastrointestinal bleeding, cirrhosis and portal hypertension, ischemic bowel diseases, jaundice and diarrhea.
8. ***Hematologic Diseases*:** Anemias, interpretation of the peripheral blood smear, transfusion of blood and blood products, neutropenia, disorders of the platelets, disorders of blood coagulation.
9. ***Oncology*:** Acute leukemias, oncologic emergencies, lymphomas.
10. ***Endocrine Diseases*:** Diabetes mellitus, diabetic keto-acidosis, adrenal disorders, thyroid diseases, osteoporosis.
11. ***Musculo skeletal and Connective Tissue Diseases:*** Arthritis, SLE, vasculitic syndromes.
12. ***Infectious Diseases*:** Septic shock, principles of antimicrobial therapy, UTI, soft tissue infections, osteomyelitis, infective endocarditis, bacterial meningitis, enteric infections, tuberculosis, fungal infections, HIV infection, treatment of AIDS and related disorders.
13. ***Neurology*:** The neurologic examination, radiologic imaging, cerebrovascular accident, seizures.

Teaching Strategy:

- Bedside teaching during grand ward rounds
- Seminars
- Small group discussions
- Problem based learning
- Didactic lectures
- Case Based Discussion (CBD)
- Self-directed learning
- Follow up clinics
- Skill teaching in ward settings
- Clinicopathological Conference

Assessment:

- OSCE
- MCQs
- SEQs
- Long case
- Short case

Evaluation/Feedback

- 360 degree evaluation to judge the professionalism, ethics.
- A formal evaluation and verbal discussion with the PGT is to be done at the end of the rotation / PGTs are encouraged to discuss with the supervisor, co- supervisor and program director/Dean their learning experiences, difficulties or conflicts.
- Evaluation of training program by trainees pertinent to effectiveness and efficiency of program to equip trainees with necessary skills

Attributes Required Other Than Knowledge

Patient Care	Evaluation of Patient Care	Professionalism	Interpersonal and Communication Skills	Practice Based Learning Improvement	Evaluation of Medical Knowledge
• Obtain a complete history and recognize common abnormal physical findings. • Construct a master problem list, a working diagnosis, and a group of differential diagnoses. • Be familiar with different diagnostic tools such as the electronic thermometer, sphygmomanometer, ophthalmoscope, EKG machine, pulse oximetry, and defibrillator. • Become familiar with the concept of pre-test and post-test probabilities of disease. • Be able to perform various clinical procedures such as venipuncture, thoracentesis, paracentesis, lumbar puncture, arthrocentesis, skin punch-biopsy, endotracheal intubation, and central line placement. Residents should know indications of potential complications of each of these procedures. • Understand how to improve patient/physician relationships in a professional way. Residents should be compassionate, but humble and honest, not only with their patients, but also with their co-workers. • Residents are encouraged to develop	. Completeness and accuracy of medical interviews and physical examinations. . Thoroughness of the review of the available medical data on each patient. .Performance of appropriate maneuvers and procedures on patients. . Accuracy and thoroughness of patient assessments . Appropriatene ss of diagnostic and therapeutic decisions. . Soundness of medical judgment. . Consideration of patient preferences in making therapeutic decisions	. The resident should continue todevelop his/her ethical behavior, and must show the humanisticqualities of respect, compassion, integrity and honesty. . The resident must be willing to acknowledge errors and determine how to avoid future similar mistakes. . The resident must be responsible and reliable at all times.	• The resident should learn when to call a sub-specialist for evaluation and manageme n t of a patient. • The resident should be able to clearly present a case to the attending staff in an organized and thorough manner. • The resident must be able to establish rapport with a patient and listen to the patient's	• The resident should use feedbac k and self-evaluati on in order to improve perform ance. • The resident should read pertine nt require d materia l and articles provide d to enhanc e learnin g. • The resident should use the medical	• The resident's ability to answer directed questions and to participate in attending rounds. • The resident's presentation of patient history and physical exam, wher e attention is given to differential diagnosis and pathophysiol o gy. • When time permits, residents may be assigned short topics to present at attending grounds. These will be

leadership in teaching and supervising interns and medical students. • Actively participate in all phases			complaints to promote the patient's welfare.	literature search tools in the	examined for completeness, accuracy, organization and the residents

of patient care. Residents are encouraged to read on related topics,to share new learning with their colleagues and to keep their fund of knowledge up-to-date. • Learn to use the computer for literature searches, to read and analyze scientific articles.	. Completeness of medical charting.	. The resident must always consider the needs of patients, families, colleagues and support staff. . The resident must maintain a professional appearance at all times.	• The resident should provide effective education and counseling for patients. • The resident must write organized legible notes. • The resident must communicate any patient problems to the attending staff in a timely fashion.	library to find appropriate articles related to interesting cases. • The resident should use information provided by senior residents and attendings from rounds and consultations to improve performance and enhance learning	understanding of the topic. • The resident's ability to apply the information learned from attending round sessions to the patient care setting. • The residents interest level in learning.

Suggested Readings:

1. Appropriate sections in Harrison's Principles of Internal Medicine , McGraw Hill Publisher. PGTs should focus reading in particular sections that directly relate to the problems of their patients.
2. Appropriate sections in Cecil's Textbook of Medicine, W.B. Saunders Publisher. PGTs should focus reading in particular to sections that directly relate to the problems of their patients.
3. Pertinent sections of MKSAP booklets.

4. Principles of Geriatric Medicine and Gerontology.
5. The PGT is encouraged to read current medical literature particularly articles that pertain to current patient problems. Examples of appropriate current medical literature are the New England Journal of Medicine, Annals of Internal Medicine, Archives of Internal Medicine and Journal of the American Medical Association[58]

CARDIOLOGY

Educational Purpose

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

Content of required knowledge:

1. The GI resident should be able to provide primary and secondary preventive care and initially manage the common cardiovascular disorders.

Common Clinical Disorders:

- Coronary Artery Diseases
- Chronic stable angina.
- Unstable angina.
- Myocardial infarction (covered mainly in the coronary care unit rotation).
- Care of post myocardial infarction patients.
- Congestive heart failure:
- Chronic heart failure.
- Systolic heart failure from various etiologies (ischemic/ non ischemic).
- Diastolic heart failure.
- Pulmonary edema.
- Valvular heart disease.
- Infective endocarditis.
- Arrhythmias
- Atrial fibrillation, atrial flutter and other common supraventricular arrhythmias.
- Ventricular arrhythmias, sudden cardiac death and indications for AICD implantation.
- Bradyarrhythmias
- Adult congenital heart disease.
- Cardiomyopathies and myocarditis.

- Assessing cardiac risk in patients undergoing non-cardiac surgeries.
- Interventions to minimize cardiac risk in patients undergoing non-cardiac procedures.
- Hypertension:
- Hypertensive urgencies and emergencies.
- Management of chronic hypertension, especially patients with difficult to control hypertension.
- Secondary hypertension.
- Aortic disease (aortic aneurysm).
- Venous thromboembolic disease / pulmonary embolism, pulmonary vascular disease, and chronic venous stasis.
- Arterial insufficiency
- Pericardial disease
- Dyslipidemia
- Common Clinical Presentations
- Chest pain
- Dyspnea
- Leg swelling
- Peripheral vascular disease
- Risk factor modification
- Shock, cardiovascular collapse
- Syncope, lightheadedness

Procedure Skills

- Advanced cardiac life support

Interpretation of clinical and laboratory Tests

- Ambulatory ECG monitoring
- Echocardiography
- Cardiac markers

Teaching Strategies:

- Didactic lectures
- Outpatient evaluation at cardiology clinic
- bedside teaching rounds
- learning through monitoring of the stress tests
- Exposure to Echocardiograms
- Exposure to Nuclear cardiology studies
- coach-and-pupil method for daily interpretation of ECGs
- Didactic lectures
- Seminars
- Problem based learning
- Case based learning
- Clinic pathological conferences
- Teaching skills in ward settings and skill laboratory

Assessment:

- OSCE
- MCQs
- SEQs
- Long case
- Short case

Evaluation/Feedback

- 360 degree evaluation to judge the professionalism, ethics
- A formal evaluation and verbal discussion with the PGT is to be done at the end of the rotation / PGTs are encouraged to discuss with the supervisor, co- supervisor and program director/Dean their learning experiences, difficulties or conflicts.
- Evaluation of training program by trainees pertinent to effectiveness and efficiency of program to equip trainees with necessary skills

Attributes required other than knowledge

Practice and Procedural Skills	**Attitudes, Values and Habits**	**Professionalism**	**Interpersonal and Communication Skills**	**Practice Based Learning Improvement**	**Evaluation of Medical Knowledge**
• Development of proficiency in examination of the cardiovascular system, in general and cardiac auscultation, in particular • Preoperative evaluation of cardiac risk in-patients undergoing non-cardiac surgery • Preoperative evaluation of cardiac risk in-patients undergoing non-cardiac surgery • The appropriate way to answer cardiac consultations • The appropriate follow-up, including use of substantive progress notes, of	• Keeping the patient and family informed on the clinical status of the patient, results of tests, etc. • Frequent, direct communication with the physician who requested the consultation. • Review of previous medical records and extraction of information relevant to the patient's cardiovascular status. Other sources of information may be used, when pertinent • Understanding that patients have the right to either accepts or decline recommendations made by the physician • Education of the patient	• The PGT should continue to develop his/her ethical behavior and the humanistic qualities of respect, compassion, integrity, and honesty. • The PGT must be willing to acknowledge errors and determine how to avoid future similar mistakes. • The PGT must be responsible and reliable at all times. • The PGT must always consider the needs of patients, families,	• The PGT should learn when to call a subspecialist for evaluation and management of a patient with a cardiovascular disease. • The PGT should be able to clearly present the consultation cases to the staff in an organized and thorough manner • The PGT must be able to establish a rapport with the patients and listens to the patient's complaints to promote the patient's welfare. • The PGT should provide effective education and counseling for patients. • The PGT must	• The PGT should use feedback and self-evaluation in order to improve performanc e • The PGT should read the required material and articles provided to enhance learning • The PGT should use the medical literature search tools in the library to find appropriate articles related to interesting cases.	• The PGT's ability to answer directed questions and to participate in the didactic sessions. • The PGT's presentation of assigned short topics. These will be examined for their completenes s, accuracy, organization, and the PGTs' understandin g of the topic. • The PGT's ability to apply the information learned in the didactic

patients who have been seen in consultation. • Out-patient cardiac care. • Differential diagnosis of chest pain		colleagues, and support staff. • The PGT must maintain a professional appearance at all times	write organized and legible notes • The PGT must communicate any patient problems to the staff in a timely fashion		sessions to the patient care setting. • The PGT's interest level in learning.

Suggested Readings:

1. Section on cardiovascular disease in Harrison's Principles of Internal Medicine , McGraw-Hill publisher
2. Section on cardiovascular disease in Cecil's Textbook of Medicine, WB Saunders Publisher.
3. MKSAP booklet on Cardiology
4. A collection of updated review articles references will also be provided which address basic areas of cardiology. The PGT is strongly encouraged to read as many of these articles as possible.

INFECTIOUS DISEASES

Educational Purpose

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

Content of required Knowledge

1. PGT should Identify sign and symptoms and management of patients presenting with common infectious diseases
2. PGT should recognize and interpret the importance of certain life styles and life events in the risk for specific infections, including intravenous drug abuse, sexual orientation or behavior, socioeconomic status, travel, animal exposure and environmental exposure
3. PGT should recognize the role of advanced age, diabetes mellitus, renal failure, malnutrition, alcoholism, COPD and cardiovascular disease in development of infections
4. PGT should be able to recommend appropriate antimicrobial therapy in a variety of infectious entities both in community acquired or nosocomial infections.
5. PGT must recognize and understand the natural and pathogenesis of sepsis associated with infections at specific organ system
6. PGT should be aware of microbial virulence factors, host defense mechanisms, epidemiology of infectious diseases and anti-infective therapy principles

Basic Concepts of Clinical Microbiology

1. Appropriate collection and transport of specimen
2. Sterilization and disinfection
3. Microscopy
4. Staining (Gram, AFB and others)

5. Culture media and basic preparation
6. Culture techniques (standard & automated)
7. Bacterial and mycobacterial microbiology
8. Sensitivity testing
9. Parasitology
10. Mycology
11. Molecular diagnostics
12. Virology
13. Safety
14. Quality assurance

Management of Major Infectious Clinical syndromes

1. Fever evaluation
2. Respiratory tract infections
3. Cardiovascular infections
4. CNS infections
5. Skin and soft tissue infections
6. Gastrointestinal infections, food poisoning and hepatitis
7. Diseases of reproductive organs and STDs & AIDS
8. Infections in immune-compromised hosts and burns
11. Transplant infections
12. Nosocomial infections
13. Infections in special hosts

15. Zoonoses
16. Viral, bacterial, chlamydial, rickettsial, protozoal and fungal infections

Special Topics

1. Immunization
2. Infection control
3. Risk reduction
4. Outbreak investigation
5. Travel medicine
6. Biological warfare

Procedural Skills

A. Bacteriology
- Perform gram stain
- Inoculation of culture plates

B. Mycobacteriology
- Perform AFB smear

C. Urine Analysis
- Perform urine dipstick

D. Mycology
- Identification of molds and yeasts

E. Serology
- Perform RPR
- Perform MP ICT

Interpretation of clinical and laboratory procedures

- Interpret gram stains of blood, sterile fluids and sputum
- Interpret culture plates
- Interpret antimicrobial susceptibility testing (disc diffusion, MIC)
- Interpret API
- Interpret AFB smear
- Interpret AFB cultures
- Interpret serologies
- Interpret RPR
- Interpret MP ICT

Teaching strategies

- Didactic lectures
- Bed side teaching
- Case based discussion
- Problem based learning
- Seminars
- Conferences
- Symposiums
- Outpatient evaluation in clinical settings
- Interactive sessions

Assessment

- OSCE
- MCQs
- SEQs
- Long case
- Short case

*Assessment of the trainees will be followed by constructive feedback for improvement of attitude, performance and ability of the trainees

Evaluation / Feedback

- 360 degree evaluation of the trainees to judge the professionalism, ethics, counseling & interpersonal communication skills.
- Mid-rotation evaluation session between the resident and the infectious diseases staff will also be conducted
- Evaluation by formal discussion of trainees with supervisor, co-supervisor and program director by the end of rotation to rule out conflicts of interest and difficulties faced by trainees. The faculty will complete a standard written evaluation form used by the department.
- Evaluation of training program pertinent to effectiveness and efficiency of program in equipping trainees with necessary skills will also be carried out.
- Trainees will frequently be provided with feedback for improvement of their performance.

Attributes requiredother than knowledge, attitude and skills

Systems Based Learning	Attitudes, Values and Habits	Professionalism	Interpersonal and Communication Skills	Practice Based Learning Improvement	Evaluation of Medical Knowledge
• PGT recommend drugs easily available in hospital setting • PGT should understand the issues implicated with the transmission of an infectious agent and the responsibility of the physician to protect uninfected individuals • PGT should apply evidence-based, cost-effective strategies for prevention, diagnosis and disease management	• Keeping the patient and family informed on the clinical status of the patient, results of tests, etc. • Frequent, direct communication with the physician who requested the consultation • Review of previous medical records and extraction of information relevant to the patient's infectious status. Other sources of information may be used, when pertinent • Understanding that patients	• PGT should develop ethical behavior • Should reflect humanistic qualities of respect, compassion, integrity, and honesty • PGT should admit his errors and must learn how to avoid them in future • PGT should be responsible & reliable at all times • PGT should consider the needs of patients, families, colleagues, and support staff	• PGT should communicate with lab staff to obtain relevant microbiologic data of patients' samples • PGT should appropriately call a subspecialist for evaluation and management of a patient with infectious disease • PGT should ask precise questions from infectious diseases consultants • PGT should arrange the elements of patient's	• PGT should identify parameters to monitor care • PGT should maintain currency with patient's clinical progress • PGT should keep up to date with medical literature related to interesting cases seen in consult service	• PGT should be able to perform procedures and consult adequately the plan of care • PGT should be able to participate in didactic infectious diseases sessions • PGT should apply the information learnt in didactic sessions in patient care setting

	have the right to either accepts or decline recommendations made by the physician • Education of the patient	• PGT should maintain a professional appearance at all times • PGT should understand how personal and cultural characteristics impact the efforts to control spread of communicable diseases	report in a systematic manner to be useful for both patients and consultant • PGT should establish rapport with patients • PGT should be able to health educate and counsel the patients • PGT should write legible and organized consultation notes • PGT should clearly present problem to the consultants & infectious diseases conferences		

Suggested Readings

1. Mandell, Douglas, and Bennett's Principles and Practice of Infectious Diseases: Expert Consult Premium Edition. Two Volumes, 7th Edition.
2. Baron's Medical Microbiology / 4th ed.; 2000
3. Best Practices in Infection Prevention and Control: An International Perspective, 2nd ed.; 2012.
4. The Blue Book – Guidelines for the Control of Infectious Diseases / 2nd ed.; 2011.
5. Cohen & Powderly: Infectious Diseases, 3rd ed.; 2010. --- Clinical Key
6. Infectious Diseases section: The Merck Manual of Diagnosis and Therapy, 19th ed., 2011.
7. Microbial Threats to Health: Emergence, Detection, and Response / edited by Mark S. Smolinski, Margaret A. Hamburg, and Joshua Lederberg, Board on Global Health; 2003.

EMERGENCY MEDICINE

Educational Purpose

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

Content of Required Knowledge

1. PGT should be able to obtain pertinent historical data and correctly do physical examination and assessment in acute illness
2. PGT should be competent enough to develop an appropriate diagnosis & care plan for Emergency patients
3. PGT should be adequately skilled to resuscitate a critically ill patient

Medical & Surgical Emergencies

- Knowledge of pathological abnormalities, clinical manifestations and principles of management of medical and surgical emergencies
- Understanding of routine investigations for proper management of patients
- Ability to take decision regarding hospitalization or timely referral to other consultants / subspecialty
- Competency in selecting correct drug combinations for different clinical problems keeping in view their pharmacological effect, side effects, interaction with other drugs

General skills to be achieved for managing Emergencies

- History taking
- Planning initial management
- Simple airway maneuvers
- Bag mask ventilation
- LMA & multi-lumen esophageal airway insertion
- Oropharyngeal and nasopharyngeal airway
- Apply nasal prongs
- Administer nebulizer
- Arterial puncture
- Inline immobilization
- Application of cervical collar
- Oxygen therapy
- Cardio-pulmonary resuscitation
- Basics of ECG
- Rhythm recognition
- Defibrillation and cardio version
- Peripheral I/V access
- NG tube insertion
- Urinary catheter insertion
- Decompression of pneumothorax

- Wound care
- Suturing
- P/V and P/R examination
- Lumbar puncture
- Basics of radiology

❖ **Desired medical and surgical procedures which should be demonstrated after trainees have been imparted competencies**

Medical Skills

- Advanced airway management
- Ventilator support
- Non-invasive ventilation
- Central vascular access
- CVP monitoring
- Invasive hemodynamic monitoring
- Pain relief
- Naso-jejunal tube placement
- Abdominal paracentesis

Surgical Skills

- Percutaneous tracheostomy
- Cricothyroidotomy
- Surgical tracheostomy
- Burr hole
- ICP measurement
- Venous cut down
- Thoracentesis
- ICD tube placement
- External fixation of pelvis
- Fasciotomy
- Escharotomy
- Embolization of bleeding vessels
- Retrograde urethrogram
- IVU

Hands on Training in Trauma Management & Assessment

1. Needle thoracentesis
2. Cricothyroidectomy
3. Needle cricothyroidotomy
4. Supra pubic catheterization
5. Inter osseous nailing
6. Central venous access
7. Spine immobilization

8. Splinting
9. POP casting
10. Compartment pressure measurement
11. Invasive pressure monitoring
12. Suturing technique
13. ABG sampling
14. Anterior and posterior nasal packing
15. Foreign body removal
16. Reducing dislocated joints
17. Debridement
18. Endotracheal insertion
19. Insertion of Foley's catheter
20. Umbilical vein catheterization
21. Emergency ultrasonography
22. Nail bed hematoma removal
23. Reducing paraphymosis
24. External fixator for pelvis
25. Auto transfusion technique
26. Incision and Drainage
27. Nerve blocks
28. Abdominal compartment pressure monitoring

Interpretations of clinical and laboratory procedures

- Reading trauma and surgical related CT
- Reading trauma and surgical related MRI

- Reading trauma and surgical related X-ray
- Interpret results of specialized investigations like:
    - Ultrasonography
    - Biochemical, hemodynamic, electro-cardiographic, electro-physiological, pulmonary functional, hematological, immunological and ABG analysis results

Teaching strategies

- Hands on training in trauma management workshops
- Didactic lectures
- Bed side teaching
- Case based discussion
- Problem based learning
- Seminars
- Conferences
- Symposiums
- Outpatient evaluation in clinical settings
- Interactive sessions

Assessment

- OSCE
- MCQs
- SEQs
- Long case
- Short case

*Assessment of the trainees will be followed by constructive feedback for improvement of their attitude, performance and competencies.

Evaluation / Feedback

- 360 degree evaluation of the trainees to judge the professionalism, ethics, counseling & interpersonal communication skills
- Evaluation by formal discussion of trainees with supervisor, co-supervisor and program director by the end of rotation to rule out conflicts of interest and difficulties faced by trainees
- Evaluation of training program pertinent to effectiveness and efficiency of program in equipping trainees with necessary skills
- Trainees will frequently be provided with feedback for improvement of their performance.

Attributes required other than knowledge

Systems Based Learning	Attitudes, Values and Habits	Professionalism	Interpersonal and Communication Skills	Practice Based Learning Improvement	Evaluation of Medical Knowledge
• PGT should improve in the utilization of and communication with many health services and professionals such as the radiologist, surgeon, and pathologist • PGT should advise the use of cost effective medicine • PGT should assist in determining the root cause of any error which is identified and methods for avoiding such problems in the future • PGT must assist in development of systems' improvement if problems are identified	• Keeping the patient and family informed on the clinical status of the patient, results of tests, etc. • Frequent, direct communication with the physician who requested the consultation • Review of previous medical records and extraction of information relevant to the patient's hematologic status. Other sources of information may be used, when pertinent	• PGT should understand the ethical conflict between care of an individual and welfare of the community • PGT should understand the ethical conflicts pertinent to antimicrobial therapy, vaccination and preventive measures • PGT should acknowledge medical errors and should learn how to avoid mistakes in future • PGT should be responsible and timely in consulting with staff & patients • PGT should have	• PGT should learn when to call a subspecialist to manage patient with medical / surgical emergencies • PGT should clearly present the cases to staff in organized way • PGT should be able to establish rapport with patients • PGT should listen to the patient's complaints for patient's welfare • PGT should effectively educate & counsel	• PGT should use feedback and self-evaluation in order to improve performance. • PGT should read the required material and articles provided to enhance learning. • PGT should use the medical literature search tools in the library to find appropriate articles related to interesting cases	• PGT should be able to answer directed questions & participate in case management • PGT presentations on assigned short topics will be assessed for completeness, accuracy, organization & understanding of topic • Ability of PGT to apply the information to the patient care setting • interest level of PGT in learning

• PGT should recommend medicines easily available from hospital pharmacy • PGT should recommend lab tests that could easily be done in hospital • For bed issue, bed bureau should be informed	• Understanding that patients have the right to either accepts or decline recommendations made by the physician • Education of the patient	professional appearance at all times • PGT should	patients • PGT should not down all complaints of patients in organized manner • PGT should timely communicate pt's problem to the staff		

Suggested Readings

1. Basic Life Support (BLS) Provider Manual by American Heart Association. 2016.
2. Emergency Care and Transportation of the Sick and Injured (Book & Navigate 2 Essentials Access). 11th Edition. American Academy of Orthopaedic Surgeons (AAOS)
3. Responding to Emergency: Comprehensive First Aid / CPR / AED.American Red Cross.1st Edition.
4. John Tardiff, Paula Derr, Mike McEvoy. Emergency & Critical Care Pocket Guide 8th Edition. 2016.

CRITICAL CARE UNIT (INTENSIVE CARE UNIT – ICU)

Educational Purpose:

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

Content of required knowledge:

1. Understand blood gases results and respond appropriately.
2. Understand cardiovascular hemodynamics in a wide range of disease states.
3. Management of congestive heart failure and cardiogenic shock.
4. Basics of conventional mechanical ventilation.
5. Initial Management of acute myocardial ischemia.
6. Acute renal failure - diagnosis and treatment.
7. Acute endocrinologic emergencies.
8. Acute lung injury.

9. Sepsis and the sepsis syndrome.
10. Acute treatment of cardiac arrhythmias.
11. Management of acute gastrointestinal bleeding.
12. Management of common neurologic emergencies.
13. Management of common toxicologic emergencies

Skills and Procedures:

- Evaluation of chest pain
- Evaluation of shortness of breath
- Airway management/tracheostomy Barotrauma
- Mechanical ventilation: indications, initial set-up.
- Oxygen transport: physiology, alterations in the critically-ill
- Arterial blood gases: approach to analysis, common alterations
- Critical care pharmacology: pressors / inotropes, antibiotic dosing, drug dosing in ARF
- Shock: pathophysiology, approach to resuscitation
- Fluid and electrolyte disturbances: sodium, potassium, magnesium, calcium
- Acute renal failure: approach differential diagnosis, management
- Coma: pathophysiology, neurological exam, differential diagnosis
- Multiple organ dysfunction syndrome
- Acute CHF
- Ethical issues in the ICU

- Management of environmental emergencies
- Basic toxicology principles
- Sepsis prevention in the ICU
- Arterial line insertion
- Central venous catheterization
- Assistance in endotracheal intubation
- Cardiopulmonary resuscitation

Attributes required other than knowledge

Patient Care	**Practice Based Learning Improvement**	**Professionalism**
• Trainees will learn to obtain a logical, chronological history from critically ill patients and their families and to do an effective physical examination in this challenging milieu. Use of information from old charts and private physicians is stressed. • Residents will learn to integrate physiological parameters and laboratory data with the clinical history and physical exam to make clinical diagnostic and management decisions. • Residents will learn the	• The resident should use feedback and self-evaluation in order to improve performance. • The resident should read the required material and articles provided to enhance learning. • The resident should use the medical literature search tools in the library to find appropriate articles related to interesting cases.	• The resident should continue to develop his/her ethical behavior and the humanistic qualities of respect, compassion, integrity, and honesty. In the ICU, these goals are met in several ways: • Sensitive handling of a do-not resuscitate order. • Respect and compassion for the depersonalized, intubated, non-communicative patient. • Appropriate use of consultants and paramedical personnel. • Compassionate handling of families and development of rapport with them. • Residents should learn to ask permission for an autopsy in a forthright, non-threatening way and should be available to family members to discuss autopsy findings.

appropriate use of daily progress notes in patient follow-up, and the need for frequent reevaluation of the unstable patient.		• The resident must be willing to acknowledge errors and determine how to avoid future similar mistakes. • The resident must be responsible and reliable at all times. • The resident must always consider the needs of patients, families, colleagues, and support staff. • The resident must maintain a professional appearance at all times.

Teaching Strategies

A. Formal presentation of the new admissions.
B. ICU Rounds
C. Diagnostic and treatment strategies are discussed at the bedside.
D. Didactic Lectures
E. Reading assignments
F. literature searches
G. Noon conferences
H. Skill teaching in ICU & emergency settings
I. Skill teaching in skill laboratory

Evaluation/Feedback

- At the midway point of the rotation, residents are given feedback (informally) on their performance to date. Areas and methods of improvement are suggested. A formal evaluation and verbal discussion with the resident is to be done at the end of the rotation.
- 360 degree evaluation to judge the professionalism, ethics

- A formal evaluation and verbal discussion with the PGT is to be done at the end of the rotation / PGTs are encouraged to discuss with the supervisor, co- supervisor and program director/Dean their learning experiences, difficulties or conflicts.
- Evaluation of training program by trainees pertinent to effectiveness and efficiency of program to equip trainees with necessary skills

Suggested Readings:

- Paul L. Marino, The ICU Book, 3rd edition.
- Marin H. Kollef, The Washington Manual of Critical Care.
- ATS website http://www.thoracic.org/education/career-development/residents/ats-reading-list/
- Antonelli M *et.al*. "Year in review in Intensive Care Medicine 2009: 1. Pneumonia and infections, sepsis, outcome, acute renal failure and acid base, nutrition, and glycaemic control" Intensive Care Medicine 2010; 36:196-209 (available through UNM HSC library ejournal)

CORONARY CARE UNIT

Educational Purpose:

The goal of the Coronary Care faculty is to train the GI resident to evaluate and treat critically ill cardiac patients, use consultants and paramedical personnel effectively, and stress sensitive, compassionate management of patients and their families.

Content of required knowledge:

1. Understand blood gases results and respond appropriately.
2. Understand cardiovascular hemodynamics in a wide range of disease states.
3. Management of congestive heart failure and cardiogenic shock.
4. Basics of conventional mechanical ventilation.

5. Management of acute myocardial ischemia.
6. Acute renal failure-diagnosis and treatment.
7. Acute treatment of cardiac arrhythmias.

Procedural Skills:

- Cardiopulmonary resuscitation
- Endotracheal intubation
- Central venous access
- Thoracentesis
- Arterial cannulation

Attributes required other than knowledge

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

Teaching Strategies

- CCU resident will attend EKG readings
- Formal presentation of the new admissions
- Diagnostic and treatment strategies are discussed at the bedside.
- Didactic lectures
- Reading assignments
- literature searches
- interactive seminars
- grand rounds
- problem based learning
- case based learning
- skill teaching in ICU settings
- journal club meetings
- clinic pathological conferences
- skill teaching in skill laboratory

Evaluation/Feedback

- Monthly evaluations by faculty of residents and by residents of faculty are submitted. Resident evaluations are written with input from the nursing staff, patients or families as regards specific attitudes towards the critically ill patients.
- Faculty supervises most of the daytime procedures done in the CCU and evaluation and feedback here is immediate and ongoing
- At the midway point of the rotation, residents are given feedback (informally) on their performance to date. Areas and methods of improvement are suggested
- A formal evaluation and verbal discussion with the resident is to be done at the end of the rotation.

Suggested readings:

1. Coronary Care Manual 2e – Review, February 11, 2011 by Edward Burns
2. Coronary Care Manual 2nd Edition by Peter Thompson, Churchill Livingstone Australia 2010
3. Management of the Patient in the Coronary Care Unit 1st Edition by Mehdi H. Shishehbor DO MPH (Editor), Thomas H. Wang MD (Editor), Arman T. Askari MD (Editor), Marc S. Penn MD PhD (Editor), Eric J. Topol MD (Editor), lippincott, williams & wilkans

PULMONARY MEDICINE

Educational Purpose

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

Content of Required Knowledge

1. PGT should be able to recognize signs and symptoms, diagnose and manage common pulmonary infections, TB, COPD.
2. PGT should be proficient enough to diagnose respiratory failure.
3. PGT should seek pertinent physical exam, laboratory information, and radiographic studies to rule out malignancies of pleura and mediastinum including pneumothorax and empyema.

Pulmonary Disorders

- Pulmonary infections, including fungal infections, and those in the immuno-compromised host
- Tuberculosis
- Obstructive lung diseases including asthma, bronchitis, emphysema and bronchiectasis

- Malignant diseases of the lung, pleura and mediastinum, both primary and metastatic
- Pulmonary vascular diseases (Pulmonary embolism)
- Pleuro-pulmonary manifestations of systemic diseases
- Respiratory failure (Respiratory Distress Syndrome)
- Occupational and environmental lung disease
- Diffuse interstitial lung disease
- Disorders of the pleura and mediastinum, including pneumothorax and empyema

Procedural Skills

- Thoracentesis

Interpretation of clinical and laboratory procedures

- Pulmonary Function Tests
- Thoracentesis
- Needle biopsy of pleura
- Bronchoscopy
- Chest intubation

Teaching strategies

- Didactic lectures
- Bed side teaching
- Case based discussion
- Problem based learning
- Seminars
- Conferences
- Symposiums
- Outpatient evaluation in pulmonary outpatient clinic / TB clinic
- Interactive sessions

Assessment

- OSCE
- MCQs
- SEQs
- Long case
- Short case

*Assessment of the trainees will be followed by constructive feedback for improvement of their attitude, performance and competencies.

Evaluation / Feedback

- 360 degree evaluation of the trainees to judge the professionalism, ethics, counseling & interpersonal communication skills

- Evaluation by formal discussion of trainees with supervisor, co-supervisor and program director by the end of rotation to rule out conflicts of interest and difficulties faced by trainees
- Evaluation of training program pertinent to effectiveness and efficiency of program in equipping trainees with necessary skills
- Trainees will frequently be provided with feedback for improvement of their performance.

Attributes required other than knowledge

Systems Based Learning	Attitudes, Values and Habits	Professionalism	Interpersonal and Communication Skills	Practice Based Learning Improvement	Evaluation of Medical Knowledge
• PGT should improve in the utilization of and communication with many health services and professionals such as the radiologist, surgeon, and pathologist • PGT should improve in the use of cost effective medicine • PGT should recommend drugs available in hospital setting • PGT should assist in determining the root cause of any error which is identified and methods for	• Keeping the patient and family informed on the clinical status of the patient, results of tests, etc. • Frequent, direct communication with the physician who requested the consultation • Review of previous medical records and extraction of information	• PGT should understand the ethical conflict between care of an individual and welfare of the community • PGT should understand the ethical conflicts pertinent to antimicrobial therapy, vaccination and preventive measures	• PGT should learn when to call a subspecialist to manage patient with endocrine disease. • PGT should clearly present the cases to staff in organized way • PGT should be able to establish rapport with patients • PGT should listen to the	• PGT should use feedback and self-evaluation in order to improve performance. • PGT should read the required material and articles provided to enhance learning. • PGT should use the medical literature search tools in the library to find appropriate	• PGT should be able to answer directed questions & participate in case management • PGT presentations on assigned short topics will be assessed for completeness, accuracy, organization & understanding of topic • Ability of

avoiding such problems in the future • PGT must assist in development of systems' improvement if problems are identified	relevant to the patient's pulmonary status. Other sources of information may be used, when pertinent • Understanding that patients have the right to either accepts or decline recommendations made by the physician • Familiar with how to deal with difficulties of disease management within different age groups, socio-economic status, educational & cultural backgrounds • Education of the patient	• PGT should acknowledge medical errors and should learn how to avoid mistakes in future • PGT should be responsible and timely in consulting with staff & patients • PGT should have professional appearance at all times • PGT should	patient's complaints for patient's welfare • PGT should effectively educate & counsel patients • PGT should not down all complaints of patients in organized manner • PGT should timely communicate pt's problem to the staff	articles related to interesting cases	PGT to apply the information to the patient care setting • interest level of PGT in learning

Suggested Readings

1. John B. West, Andrew M. Luks. West's respiratory physiology: The Essentials. 10th Edition. Wolters Kluver.
2. Dinah Bradley. Foreword by Dr. Mike Thomas. Hyperventilation syndrome. Breathing Pattern Disorder. 2012. London. United Kingdom.
3. Lynelle N.B. Pierce. Management of Mechanically Ventilated Patient. 2nd Edition. 2006. Elsevier.

AMBULATORY MEDICINE

Educational Purpose

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

Content of required knowledge:

- **Diabetes** Classification, pathogenesis, diagnosis, management, comprehensive preventive care, management and identification of complications in accordance with American Diabetes Association ADA guidelines.
- **Anticoagulation management** Pathogenesis, INR goal achievement, indications, length of treatment, complications of anticoagulation therapy in accordance with the most recent ACCP Consensus Conference on

Antithrombotic Therapy (CHEST guidelines).

- **Hypertension** Diagnosis, classification. Identification of screening interventions for secondary hypertension, management and pathogenesis. Understand the metabolic syndrome and causes of resistant hypertension in accordance with JNC 7 guidelines.
- **Congestive heart failure** Pathogenesis, classification, diagnosis, management and prognostication in accordance with ACC guidelines.

Headache Pathogenesis, diagnosis and management.

Attributes required other than knowledge

Professionalism	**Interpersonal and Communication Skills**	**Practice Based Learning Improvement**	**Evaluation of Medical Knowledge**
• The resident should continue to develop his/her ethical behavior and must show the humanistic qualities of respect, compassion, integrity, and honesty. • The resident must be willing to acknowledge errors and determine how to avoid future similar mistakes. • The resident must be responsible and reliable at all times. • The resident must always consider the needs of patients, families, colleagues, and support staff. • The resident must maintain a professional appearance at all times.	• The resident should learn when to call a subspecialist for evaluation and management of a patient. • The resident should be able to clearly present the consultation cases to the staff in an organized and thorough manner. • The resident must be able to establish a rapport with the patients and listen to the patient's complaints to promote the patient's welfare. • The resident should provide effective education and counseling for patients. • The resident must write organized and legible notes. • The resident must communicate any patient problems to the staff in a timely fashion. • The resident will demonstrate empathy, compassion, patience and concern for the patient in relation to their medical complaints. • The resident will learn how to deal with psychosocial issues including depression, poverty and family abuse on an outpatient basis. • The resident will learn how to communicate in a clear, concise and polite manner with physicians, patients, nurses and other healthcare providers. • The resident will listen carefully to patient complaints and determine the appropriate course of action for those complaints which occasionally may require no more than reassurance and understanding. • The resident will build on the attitudes developed in the ambulatory clinic to foster the belief in working cooperatively with physicians from other fields as well as other health professionals for the benefit of the patient. • The resident will gain an appreciation for multifaceted differences in approach that various healthcare practitioners have in the outpatient setting. They will learn to respect these differences and work with other healthcare professionals for the common good of the patient.	• The resident should use feedback and self-evaluation in order to improve performance. • The resident should read the required material and articles provided to enhance learning	• The resident's ability to answer directed questions and participate in didactic sessions. • The resident's ability to apply the information learned in the resources to the patient care setting. • The residents' performance on multiple choice examinations by the end of the rotation. .

Teaching Strategies:

- Most of the teaching is done through experience of the PGTs at General Care Clinic, Urgent Care Clinics and Subspecialty clinics.
- The Urgent Care clinics consist of patients that are referred for evaluation from the Emergency department, walk-in patients with various complaints and existing patients who need timely attention. Occasionally, patients are referred to these clinics for outpatient preoperative evaluation.
- The Subspecialty clinics that the residents will participate in include Pulmonary clinic, Hematology clinic, GI clinic, Diabetes and Endocrine clinics, Nephrology clinic, Cardiology clinic and Rheumatology clinic. The resident in these clinics are supervised by faculty.
- General and Urgent Care clinics are supervised by the General Medicine faculty. This faculty will review and discuss each case with the clinic residents.
- General Medicine staff will provide didactic guidance during case reviews that is in accordance with international guidelines for the management of hypertension, diabetes, and congestive heart failure and anticoagulation.
- Bedside teaching
- Resident will be provided with website resources for self-directed learning.

Evaluation/Feedback:

- 360 ^{o} evaluation of the resident to judge professionalism and ethics
- The faculty will fill out the standard evaluation forms for workplace based evaluation of the resident.
- The residents will fill out an evaluation of the clinic rotation at the end of the month.
- Any constructive criticism, improvements, or suggestions to further enhance the training in general internal medicine is welcome at any time.
- The resident should receive frequent (generally daily) feedback in regards to his or her performance during the ambulatory medicine rotation.

- The faculty is encouraged to use the “early concern” and “praise card” throughout the rotation.
- A formal evaluation and verbal discussion with the resident is to be done at the end of the rotation.

Suggested readings:

1. Residents are encouraged to read appropriate textbook material that is germane to the types of medical problems that they see in clinic. Residents that rotate in the subspecialty clinics may be given additional readings by the respective subspecialist in that clinic.
2. MKSAP booklet on Primary Care
3. Primary Care Medicine. Noble, Greene, et at 2001 latest edition
4. ACP teaching series videos (skin biopsy, effective communication, arthrocentesis technique).
5. U.S. Preventive Task Force
6. **Medical Literature:** A collection of updated review articles will be available which address basic areas of general ambulatory medicine. The resident is encouraged to read as many of these articles as possible.
7. **Pathology:** Abnormal hematologic peripheral smears should be reviewed by the resident and staff generalist with a pathologist when the review is germane to clinical decision making and the establishment of a clear diagnosis.

ENDOCRINOLOGY

Educational Purpose:

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

Content of required knowledge:

These objectives will be taught through the didactic sessions and at bedside teaching as they relate to specific patients in the clinic and on the consult service.

1. The principal endocrine problems handled by the gastroenterologist include thyroid dysfunction, diabetes mellitus, hyper- and hypocalcemia, adrenal cortex hyper- and hypofunction, endocrine hypertension, hyper- and hyponatremia, certain manifestations of pituitary tumors, disorders of mineral metabolism, and hyperlipidemias.
2. Recognize Type 1 from Type 2 DM
3. Plan dietary therapy, oral hypoglycemic agents and insulin therapy for all diabetics, especially Type 2 DM patients
4. Understand the concept of tight control, standards of care and targets of control for both Type 1 and Type 2 DM patients
5. Learn the management of acute decompensation of diabetes, i.e. DKA, hyperosmolar state.
6. Learn how to use a multidisciplinary team approach to diabetes management (including role of cardiology, nephrology, ophthalmology and Podiatry).
7. Learn to interpret thyroid function tests, thyroid imaging and to initiate and follow patients on thyroid hormone replacement therapy.
8. Diagnosis, evaluation, differential diagnosis and management of overt and subclinical hyperthyroidism and hypothyroidism, thyroid storm and low uptake versus high uptake thyrotoxicosis.
9. Evaluate and develop treatment strategies for Pituitary disorders – pituitary tumors and hypopituitarism, diagnosis, difference between the various etiologies and replacement hormonal therapies.
10. Learn to approach adrenal diseases including Cushing's syndrome and adrenal insufficiency focus on acute and chronic adrenal insufficiency – diagnosis and management.
11. Evaluation, D/D and management of Hypercalcemia (focus on primary hyperparathyroidism) and Hypocalcemia.

12. Endocrine causes of secondary hypertension- Cost efficient evaluation and management.
13. 15.Learn to recognize and treat Poly endocrine autoimmune syndromes.
16. Approach to endocrine incidentalomas – (pituitary, adrenal and thyroid with a focus on adrenal incidentalomas).
17. The gastroenterologist must be able to evaluate and manage common endocrine disorders and refer appropriately. He or she must also be able to evaluate and identify the endocrinologic implications of abnormal serum electrolytes, hypertension, fatigue, and other nonspecific presentations.

Common Clinical Disorders

- Pathophysiology of Type 1 & 2 diabetes
- Diagnostic criteria for Diabetes, Differentiate Type I vs. Type II
- Standards of care for a patient with Diabetes
- Targets of care for a patient with Diabetes
- Metabolic syndromes
- Importance & treatment of Metabolic syndrome
- Life style modifications in metabolic syndrome and diabetes
- Classes of oral anti hypoglycemic agents used and their mechanism of action. indications and contraindications for each class and side effects Insulin management in Type 1 and 2 DM
- Types of insulin available today (Rapid, Short, Intermediate, Basal, Premixed insulin preparations)
- Indications, contraindications, complications associated with insulin use
- Acute diabetes complications, diagnosis and management
- Thyroid function tests in diagnosing various thyroid dysfunction states.
- Interpretation of TSH, FT4, T3, T7, FTI, T3RU, Thyroglobulin
- Role of thyroid scan and radioactive iodine uptake – indications and contraindications for use
- Hyperthyroidism; etiology, pathophysiology, clinical features, diagnosis and management
- Differentiate hyperthyroidism from thyrotoxicosis
- Differential diagnosis of hyperthyroidism (graves' disease vs toxic MNG, single hot nodule, thyroiditis etc)
- Thyroid hormone therapy
- Hypothyroidism: primary vs secondary hypothyroidism
- Diagnosis and management
- Thyrotoxic storm and myxedema coma

- Euthyroid sick syndrome
- Phaeochromocytoma:
- Approach to adrenal diseases
- Adrenal insufficiency
- Cushing's disease
- Hypocalcaemia and hypercalcaemia
- Osteoporosis, osteopenia, vitamin D deficiency
- Incidentalomas:
- Hypopituitarism including pituitary tumors:
- Prolactinomas and Acromegaly
- Hirsutism
- Polyendocrine autoimmune syndromes

Common Clinical Presentations

- Asthenia
- Blood lipid disorders
- Disorders of pigmentation
- Goiter (diffuse, nodular)
- Hirsutism
- Hypertension refractory to primary therapy
- Hypotension
- Incidentally discovered abnormalities in serum electrolytes, calcium, phosphate, or glucose
- Mental status changes
- Osteopenia
- Polyuria, polydipsia
- Signs and symptoms of osteopenia
- Symptoms of hyper- and hypoglycemia
- Weight gain, obesity Procedure Skills
- Dexamethasone suppression test (overnight)
- Home blood glucose monitoring
- ACTH stimulation test

Ordering and Understanding Tests

- Bone mineral analysis (densitometry)
- Fasting and standardized postprandial serum glucose concentrations
- Glycohemoglobin or serum fructosamine concentration
- Imaging studies of the sella turcica
- Microalbuminuria
- Serum and urine ketone concentrations (quantitative or qualitative)
- Serum and urine osmolalities
- Serum lipid profile
- Serum thyroid function tests
- Thyroid scanning and ultrasound
- Urinary calcium, phosphate, uric acid excretion
- Urinary sodium, potassium excretion
- Urine metanephrine, VMA (vanillylmandelic acid), and total catecholamine levels

Attributes required other than knowledge:

Patient care	**Evaluation of Patient Care**	**Professionalism**	**Interpersonal and Communication Skills**	**Practice Based Learning Improvement**	**Evaluation of Medical Knowledge**
• Recognize symptoms of hyperglycemia and hypoglycemia. Seek pertinent physical exam and laboratory information to identify systemic complications that occur as a result of diabetes such as diabetic retinopathy, neuropathy, nephropathy, CAD, or gastroparesis. • Become familiar with the nutritional treatment of diabetes, aspects of home glucose monitoring, and the adjustments of hypoglycemic therapy required in association with abnormal glucose levels, exercise, concurrent illness, surgical procedures, etc. • The resident will be taught to do an appropriate and thorough foot exam of diabetic patients, including the use of the mono filament for neuropathy testing. • Identify signs and symptoms of thyrotoxicoses and	• Completeness and accuracy of medical interviews and physical examinations. • Thoroughness of the review of the available medical data on each patient. • Performance of appropriate maneuvers and procedures on patients. • Accuracy and thoroughness of patient assessments. • Appropriateness of diagnostic and therapeutic decisions. • Soundness of medical judgment. • Consideration of patient preferences in making therapeutic decisions. • Completeness of medical charting.	• The resident should continue to develop his/her ethical behavior and the humanistic qualities of respect, compassion, integrity, and honesty. • The resident must be willing to acknowledge errors and determine how to avoid future similar mistakes. • The resident must be responsible and reliable at all times. • The resident must always	• The resident should learn when to call a subspecialist for evaluation and management of a patient with an endocrine disease. • The resident should be able to clearly present the consultation cases to the staff in an organized and thorough manner. • The resident must be able to establish a rapport with the patients and listens to the	The resident should use feedback and self-evaluation in order to improve performance. The resident should read the required material and articles provided to enhance learning. The resident should use the medical literature search tools in the library to find appropriate articles related to interesting cases.	• The resident's ability to answer directed questions and to participate in the didactic sessions. • The resident's presentation of assigned short topics. These will be examined for their completeness, accuracy, organization, and the resident's understanding of the topic.

hypothyroidism. The resident will be taught perform an adequate examination of the thyroid gland and this will be specifically demonstrated during this rotation. • The resident may observe or have the technique of fine needle aspiration for sampling thyroid nodules explained if none are done during the month. • Identify signs and symptoms of lipid disorders and their management, including the use of the National Cholesterol Education Program guidelines for treatment. • Identify signs and symptoms of adrenal disorders and their management, including the use of the cosyntropin stimulation test. • Identify signs and symptoms of pituitary disorders and their management. • Identify signs and symptoms of bone and calcium disorders and their management including interpretation of bone density tests. • Identify signs and symptoms of gonadal disorders and their management.		consider the needs of patients, families, colleagues, and support staff. • The resident must maintain a professional appearance at all times.	patient's complaints to promote the patient's welfare. • The resident should provide effective education and counseling for patients. • The resident must write organized and legible notes. • The resident must communicate any patient problems to the staff in a timely fashion.		• The resident's ability to apply the information learned in the didactic sessions to the patient care setting. • The resident's interest level in learning.

Teaching Strategies:

- The resident will receive individual instruction by the endocrine specialist through seeing patients in the endocrine outpatient clinics, the consult service and didactic teaching sessions
- The resident will see patients referred from the general medicine clinics and this will allow the resident to see a wide variety of patients from various ages, socioeconomic, educational, and cultural backgrounds.
- Each outpatient will be evaluated by the resident, and then discussed and seen with the staff endocrinologist.
- The resident must complete a thorough progress note on every outpatient and this must be countersigned by the staff endocrinologist.
- All endocrinology inpatient consults will be seen and consultation notes completed by the resident, the cases must be discussed with the endocrinology faculty who will then see the patient with the resident, do bedside teaching rounds, and complete the consultation note.
- Didactic teaching lectures
- The residents will be responsible for reviewing 2-3 general endocrine topics for the month and giving short presentations on these topics
- Clinico pathological conferences
- Journal club meetings
- Problem based learning
- Case based learning
- Interactive seminars

Assessment:

- OSCE
- MCQs
- SEQs
- Long case
- Short case

Evaluation/Feedback:

- 360 degree evaluation to judge the professionalism, ethics
- The faculty will fill out the standard evaluation form using the criteria for evaluations as delineated above to grade the resident in the required competencies as related to endocrinology.
- The residents will fill out an evaluation of the endocrine rotation at the end of the month.
- Any constructive criticism, improvements, or suggestions to further enhance the training in endocrinology are welcome at any time.
- The resident should receive frequent (generally daily) feedback in regards to his or her performance during the endocrinology rotation. The resident will be informed about the results of the evaluation process, and input will be requested from the resident in regards to his or her evaluation of the endocrinology rotation.
- The faculty is encouraged to use the "early concern" and "praise card" throughout the rotation.
- A formal evaluation and verbal discussion with the resident is to be done at the end of the rotation.

Suggested readings:

1. Section on endocrine-metabolic disease in Harrison's Principles ofInternal Medicine, McGraw-Hill publisher
2. Section on endocrine-metabolic disease in Cecil's Textbook ofMedicine, WB Saunders Publisher
3. MKSAP booklet on Endocrinology
4. **Medical literature:**A collection of updated review articles will also be provided which address basic areas of endocrinology. The resident is strongly encouraged to read as many of these articles as possible.
5. **Pathology :**All FNA's and surgical specimens will be reviewed by the resident and staff endocrinologist with a pathologist.

DERMATOLOGY

Educational Purpose:

To give the GI residents formal intensive instruction, clinical experience, and the opportunity to acquire

expertise in the evaluation and management of common cutaneous disorders.

Content of required knowledge:

1. Understanding the morphology, differential diagnosis and management of disorders of the skin, mucous membranes, and adnexal structures, including inflammatory, infectious, neoplastic, metabolic, congenital, and structural disorders (pertinent to gastrointestinal diseases).

2. The GI resident should have a general knowledge of the major diseases and tumors of the skin (pertinent to gastrointestinal diseases). He or she should be proficient at examining the skin; describing findings; and recognizing skin, signs of systemic diseases, normal findings (including benign growths of the skin), and common skin malignancies.
3. These objectives will be taught through the didactic sessions and at bedside teaching as they relate to specific patients in the clinic and on the consult service:

The resident should learn the pathogenesis, diagnosis, and treatment of: Acne, Rosacea, Contact dermatitis, Atopic Dermatitis, Psoriasis, Seborrheic dermatitis, Pityriasis Rosea, Warts, Molluscum contagiosum, Herpes Simplex, Herpes Zoster, Impetigo, Folliculitis, Furuncles, Erythrasma, Tinea infections, Candida infections, Pityriasis Versicolor, Scabies, Cutaneous reaction to flea bites, Seborrheic keratosis, Keratoacanthoma, Moles, Blue nevus, Cherry angioma, Spider angioma, Pyogenic granuloma, Epidermoid cysts, Trichilemmal cysts, alopecia areata, Androgenic alopecia, Lichen Planus, Granuloma annulare, Infectious exanthema, Rocky Mountain Spotted Fever, Rubella, Measles, Scarlet fever, Varicella, Sporotrichosis, Leprosy, Tuberculosis, Leishmaniasis, Lyme disease, Cellulitis, Gonorrhea, Syphilis, Chancroid, Genital warts, Genital Herpes, Kaposi's Sarcoma, Erythroderma, Urticaria, Erythema multiforme, Erythema Nodosum, Lupus, Vasculitis, Sarcoidosis, Xanthelasma, Exanthematous Drug eruptions, Fixed drug eruptions, Vitiligo, Melasma, Melanoma, Basal Cell Carcinoma, Squamous Cell Carcinoma, Paget's disease.

Common Clinical Presentations

- Abnormalities of pigmentation
- Eruptions (eczematous, follicular, papulovesicular, vesicular, vesiculobullous)
- Hair loss
- Hirsutism
- Leg ulcer
- Mucous membrane ulceration

- Nail infections and deformities
- Pigmented lesion
- Pruritus
- Purpura
- Skin papule or nodule
- Verrucous lesion

Procedure Skills

- Scraping of skin (for potassium hydroxide, mite examination)
- Primary Interpretation of Tests
- Microscopic examination for scabies, nits, etc.
- Ordering and Understanding Tests
- Dark-field microscopy
- Fungal culture

Attributes required other than knowledge:

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

Teaching Strategies:

- Resident will see a wide variety of patients from various ages, socioeconomic, educational, and cultural backgrounds at dermatology clinic.
- Outpatients will be evaluated by the resident, and then discussed and seen with the dermatologist.
- All dermatology inpatient consults will be seen and discussed with the dermatologist.
- Weekly didactic teaching lectures
- The residents will be responsible for reviewing a current journal review article on a dermatology topic.
- Short presentations on the given dermatology topics.
- Clinico pathological conferences
- Skill teaching in ward settings and procedure rooms
- Journal club meeting'
- Case based learning
- Problem based learning

Assessment:

- OSCE
- MCQs
- SEQs
- Long case
- Short case

Evaluation/Feedback:

- 360 degree evaluation to judge the professionalism, ethics
- The faculty will fill out the standard evaluation form using the criteria for evaluations of the resident in the required competencies related to dermatology.
- The residents will fill out an evaluation of the dermatology rotation at the end of the month. Any constructive criticism, improvements, or suggestions to further enhance the training in dermatology are welcome at any time.
- The resident should receive frequent (generally daily) feedback in regards to his or her performance during the

dermatology rotation.

- The resident will be informed about the results of the evaluation process, and input will be requested from the resident in regards to his or her evaluation of the dermatology rotation.
- The faculty is encouraged to use the "early concern" and "praise card" throughout the rotation.
- A formal evaluation and verbal discussion with the resident is to be done at the end of the rotation.

Suggested readings:

2. Mandatory Reading: Fitzpatrick T. *Color Atlas and Synopsis of Clinical Dermatology*
3. MKSAP booklet on Dermatology
4. Medical Literature: A collection of updated review articles will also be provided which address basic areas of dermatology. The resident is strongly encouraged to read as many of these articles as possible.

GASTROENTEROLOGY

Educational Purpose:

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

Content of required knowledge: the major objectives are as following

1. To provide Residents with opportunities to evaluate and manage patients with a wide variety of digestive disorders in an inpatient and outpatient setting. The Resident will act, under the supervision of the attending gastroenterologist, as a consultant to other clinical services.
2. To give Residents opportunities to learn about various aspects of a broad range of GI, liver disorders, with emphasis on the more common disorders.
3. To provide Residents with opportunities to learn the indications, contraindications, complications, limitations and alternatives for GI procedures.

Common Clinical Disorders

- Malabsorptive disorders

- Inflammatory Bowel Disease
- Peptic Ulcer Diseases
- Malignancies of the Digestive System
- Indications/complications of GI procedures
- Viral hepatitis
- Chronic liver disease and Cirrhosis
- Common Clinical Presentations
- Abdominal distention
- Abdominal pain
- Abnormal liver function test
- Anorectal discomfort, bleeding, or pruritus
- Anorexia, weight loss
- Ascites
- Constipation
- Diarrhea
- Fecal incontinence
- Food intolerance
- Gastrointestinal bleeding
- Iron-deficiency anemia
- Jaundice
- Liver failure
- Nausea, vomiting
- Swallowing dysfunction
- **Procedure Skills**
- Paracentesis
- Placement of nasogastric tube
- **Primary Interpretation of Tests**
- Fecal leukocytes
- Test for occult blood
- **Ordering and Understanding tests**
- Assays for Helicobacter pylori

- Biopsy of the gastrointestinal mucosa
- Blood tests for autoimmune, cholestatic, genetic liver diseases
- Upper endoscopy
- Colonoscopy
- Computed tomography, magnetic resonance imaging, ultrasound of the abdomen
- Contrast studies (including upper gastrointestinal series, small-bowel follow through, barium enema)
- Culture of stool for ova, parasites
- Examination for stool for ova, parasites
- Fecal electrolytes
- Fecal osmolality
- Interpretation of fecal occult blood tests.
- Gastric acid analysis, serum gastrin level, secretin stimulation test
- Viral hepatitis serology
- Paracentesis and interpretation of ascitic fluid analysis
- Qualitative and quantitative stool fat
- Serum B12 and Schilling tests

Attributes required other than knowledge:

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

Teaching Strategies:

- Patients with gastrointestinal disorders and clinical problems are seen by residents during their internal medicine ward rotations and in the outpatient clinics.
- Gastroenterology faculty provides didactic teaching.

- Grand teaching rounds.
- Residents become familiar with diagnostic and therapeutic upper endoscopy, colonoscopy.
- Teaching skills in the procedure rooms and skill laboratory
- Didactic lectures
- Interactive Seminars
- Problem based learning
- Case based learning
- Clinic pathological conferences

Assessment:

- OSCE
- MCQs
- SEQs
- Long case
- Short case

Evaluation/Feedback:

1. **Resident Evaluation:** The faculty will fill out the standard evaluation form using the criteria for required competencies as related to gastroenterology.
2. **Program Evaluation**
    i. The residents will fill out an evaluation of the gastroenterology rotation at the end of the month.
    ii. Any constructive criticism, improvements, or suggestions to further enhance the training in gastroenterology are welcome at any time.
3. Residents will receive feedback with respect to achieving the desired level of proficiency and working out ways in which they can enhance their performance when the desired level of proficiency has not been

achieved.

4. The faculty is encouraged to use the “early concern” and “praise card” throughout the rotation.
5. A formal evaluation and verbal discussion with the resident is to be done at the end of the rotation.

Suggested readings:

1. Allied hospitals of Rawalpindi Medical University have large patient populations with a broad spectrum of gastrointestinal and liver diseases.
2. Pathology and Radiology department of Allied hospitals of Rawalpindi Medical University have excellent diagnostic testing services available.
3. Medical Literature: Articles related to major topics will also be made available.
4. The resident will be oriented to the major textbooks and journals in gastroenterology and hepatology available in Rawalpindi Medical University.

NEPHROLOGY

Educational Purpose

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

Content of Required Knowledge

1. PGT should be able to classify renal failure and stage chronic kidney diseases
2. PGT should understand etiology, pathogenesis and competent to diagnose the cases of glomerulopathies, tubule-interstitial disorders
3. PGT must be proficient in managing acid-base disorders and fluid / electrolyte imbalances
4. PGT should know principles of dialysis procedure and its complications

Renal Disorders

- Acute renal failure
- Chronic renal failure
- Primary & secondary glomerulopathies
- Tubulo-interstitial disorders
- Obstructive nephropathy (acute & chronic)
- Hereditary nephropathy (Polycystic kidney disease, Alport's syndrome)
- Diabetic nephropathy
- Primary and secondary hypertension
- Lupus nephritis
- Nephritic syndrome
- Acid base disorders
- Fluid & electrolytes imbalances
- Kidney biopsy indications
- Acute and chronic dialysis
- Kidney transplantation

Procedural Skills

- ultrasonography
- hemodialysis access interventions

Interpretation of clinical and laboratory procedures

- Renal Function Tests (RFTs)
- Renal biopsy
- Renal ultrasonography

Teaching strategies

- Didactic lectures
- Bed side teaching
- Case based discussion
- Problem based learning
- Seminars
- Conferences
- Symposiums
- Outpatient evaluation in clinical settings / dialysis clinic
- Interactive sessions

Assessment

- OSCE
- MCQs
- SEQs
- Long case
- Short case

*Assessment of the trainees will be followed by constructive feedback for improvement of their attitude, performance and competencies.

Evaluation / Feedback

- 360 degree evaluation of the trainees to judge the professionalism, ethics, counseling & interpersonal communication skills
- Evaluation by formal discussion of trainees with supervisor, co-supervisor and program director by the end of rotation to rule out conflicts of interest and difficulties faced by trainees
- Evaluation of training program pertinent to effectiveness and efficiency of program in equipping trainees with necessary skills will also be done.
- Trainees will frequently be provided with feedback for improvement of their performance.

Attributes required other than knowledge

Systems Based Learning	Attitudes, Values and Habits	Professionalism	Interpersonal and Communication Skills	Practice Based Learning Improvement	Evaluation of Medical Knowledge
• PGT should improve in the utilization of and communication with many health services and professionals such as nutritionists, nurses, therapists, surgeons and administrative staff. • PGT should improve in the	• Keeping the patient and family informed on the clinical status of the patient, results of tests, etc. • Frequent, direct communication with the physician who requested the consultation • Review of	• PGT should understand the ethical conflict between care of an individual and welfare of the community • PGT should understand the ethical conflicts pertinent to antimicrobial	• PGT should learn when to call a subspecialist to manage patient with renal disease • PGT should clearly present the cases to staff in organized way • PGT should be able to establish	• PGT should use feedback and self-evaluation in order to improve Performance. • PGT should read the required material and articles provided to enhance learning. • PGT should use the medical	• PGT should be able to answer directed questions & participate in case management • PGT presentations on assigned short topics will be assessed for completeness, accuracy,

use of cost effective medicine • PGT should recommend drugs available in hospital setting • PGT should assist in determining the root cause of any error which is identified and methods for avoiding such problems in the future • PGT must assist in development of systems' improvement if problems are identified	previous medical records and extraction of information relevant to the patient's renal status. Other sources of information may be used, when pertinent • Understanding that patients have the right to either accepts or decline recommendations made by the physician • Education of the patient	therapy, vaccination and preventive measures • PGT should acknowledge medical errors and should learn how to avoid mistakes in future • PGT should be responsible and timely in consulting with staff & patients • PGT should have professional appearance at all times	rapport with patients • PGT should listen to the patient's complaints for patient's welfare • PGT should effectively educate & counsel patients • PGT should not down all complaints of patients in organized manner • PGT should timely communicate pt's problem to the staff	literature search tools in the library to find appropriate articles related to interesting cases	organization & understanding of topic • Ability of PGT to apply the information to the patient care setting • interest level of PGT in learning

Suggested Readings

1. Murray Longmore. Oxford Handbook of Clinical Medicine and Oxford Assess and Progress: Clinical Medicine Pack. 2014.
2. Douglas C.Eaton. John Pooler. Vanders Renal Physioloyg, 8th Edition. Lange.
3. Michael J. Field, Carol Pollock, David Harris. The Renal System: Systems of the body series. 2nd Edition. Churchill Livingstone.
4. Richard A. Preston. Acid Base, fluids and electrolytes made ridiculously simple. 2nd Edition. 2010.

NEUROLOGY

Educational Purpose:

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

General objectives of Neurology course:

At the end of the Neurology course the resident should have achieved the following objectives:

1. The GI resident should possess a basic range of competency in neurology and the knowledge should encompass the prevention and management of disorders of the central and peripheral nervous systems.
2. Knowledge of primary and secondary prevention of neurologic diseases and should be familiar with the presenting features, diagnosis, and treatment of common neurologic disorders and other conditions, such as headache, caused by non-neural dysfunction
3. Interpreting the significance of neurological symptoms.
4. He or she should be able to perform and interpret a detailed neurologic examination.
5. Interpreting the signs obtained in the examination
6. Integration of symptoms and signs into neurological syndromes and recognizing neurological illnesses
7. Making a differential diagnosis
8. Learning the basis of neuroimaging (CT scan, MRI), and electrodiagnostic studies (EEG's and EMG's)

9. Utilizing laboratory data to complete topographic and etiologic diagnoses
11. Defining pathophysiologic mechanisms of disease processes
12. Formulating plan for investigation and management
13. Understanding main neurological manifestations of systemic diseases
15. Identifying emergencies and need for expert assistance

Content of required knowledge*:*

Common Clinical Disorders:

- Headache
- Inflammatory meningeal and encephalitic lesions
- Epilepsy
- Syncope
- Sensory Disturbances
- Weakness and Paralysis
- Transient Ischemic Attacks
- Stroke
- Intracranial and Spinal Space-Occupying Lesions.
- Pseudotumor Cerebri
- Selected Neurocutaneous Diseases
- Movement Disorders

- Dementia
- Multiple Sclerosis
- Spasticity
- Myelopathies in AIDS
- Subacute Combined Degeneration of the Spinal Cord.
- Wernicke's Encephalopathy
- Stupor and Coma
- Syringomyelia
- Motor Neuron Diseases
- Peripheral Neuropathies
- Brachial and Lumbar Plexus Lesions
- Disorders of Neuromuscular Transmission
- Myopathic Disorders
- Periodic Paralysis Syndrome

Common Clinical Presentations

- Abnormal speech
- Abnormal vision
- Altered sensation
- Confusion
- Disturbed gait or coordination
- Dizziness, vertigo
- Headache
- Localized pain syndromes: Facial pain, radiculopathy

- Loss of consciousnes
- Seizure
- Sleep disorder
- Tremor
- Weakness/paresis (generalized, localized)

Procedure Skills

- Tensilon (edrophonium chloride) test (optional)
- Lumbar Puncture

Ordering and Understanding Tests

- Anticonvulsant drug levels
- Carotid Doppler echo scans
- Computed tomography, magnetic resonance imaging of central nervous system
- Electroencephalography, evoked potentials (visual, auditory, sensory)
- Electromyography, nerve conduction studies
- Muscle biopsy
- Myelography
- Screen for toxins, heavy metals

Attributes required other than knowledge:

System based learning	Professionalism	Interpersonal and Communication Skills	Practice Based Learning Improvement	Evaluation of Medical Knowledge
• Residents should gain insight into and appreciation of the psychosocial effects of chronic illness. • Residents should enhance their utilization of communication with many health services and professionals such as nutritionists, nurse clinicians, physician assistants, social workers podiatrist, ophthalmologist, physical therapist, surgeon, radiologist and nuclear medicine specialist. • Residents should learn the importance of preventive medicine in routine health care and specifically in the area of neurological disease management. • Residents should be	• Development of ethical behavior and humanistic qualities of respect, compassion, integrity, and honesty • Willing to acknowledge errors and determine how to prevent them in the future • Responsibility and reliability at all times • Consideration of needs from patients, families, colleagues and support staff • Professional appearance at all	• Residents should be able to decide when to call another specialist for evaluation and management on a patient with a neurological disease. • Residents should be able to clearly present the problem to the consultant and ask a precise question to the consultant. • Residents should continue to develop their ethical behavior and the humanistic qualities of respect, compassion, empathy, and rapport with patients and family to promote the patient's welfare. • Residents should provide effective education and counseling to patients.	• Use feedback and self-evaluation to improve performance • Read the required material from textbook, journals and handouts • Use medical literature search tools at the library and through on-line to find appropriate articles that apply to interesting cases.	• Answer specific questions and to participate in didactic sessions • Properly present assigned topics (these will be examined for completeness, accuracy, organization, and resident's understanding of the subject) • Apply the learned information on patients care setting • Give

knowledgeable on the use of cost effective medicine • Residents will assist in development of systems of improvements to correct identified problems.	Times	• Residents must write organized and legible notes. • Residents must communicate to the staff in a timely fashion any problem or conflict that arouse during interaction with the patients.		more than their share and demonstrate interest, and enthusiasm in learning

Teaching Strategies:

- Residents will evaluate outpatients and will discuss findings with neurologists. Residents must complete a thorough progress note on every outpatient and this must be countersigned by the neurology faculty or professor in charge.
- Residents will see the inpatient consults, and gather information from chart, radiology and laboratory reports. Residents then will discuss all this information with the staff neurologists as part of the bedside teaching round.
- Residents will follow their assignedadmitted patients as their own until patients are released.
- Didactic lectures
- Case based learning
- Problem based learning
- Interactive seminars
- Small group discussion
- Clinico- pathological conference
- Neurology Grand Round given by visiting professors.

- Shortpresentation by the residents on one general Neurology topic per week.
- Follow up clinics

Assessment:

- OSCE
- MCQs
- SEQs
- Long case
- Short case

Evaluation/Feedback:

A. **Residents Evaluation:**
   - 360 degree evaluation to judge the professionalism and ethics
   - The Faculty will fill out the standard Evaluation Form using the criteria for evaluations to grade the residents' performance in required competencies.

B. **Program Evaluation:** The residents will fill out an evaluation of the Neurology rotation at the end of the month. This will include constructive criticism for improvement; or suggestions to further enhance training.

Suggested readings:

i. Gilmans, Newman SW: Maner and Gatz's Essentials of clinical neuroanatomy and neurophysiology. Philadelphia FA Davis Co. 1994.
ii. Adams RD, Victor M: Principles of Neurology, current edition. McGraw-Hill Publisher.

iii. Section on Neurology in Harrison's Principles of Internal Medicine; McGrew–Hill, Publisher.
iv. Section on Neurology in Cecil's Textbook of Medicine, WB Saunders, Publisher.
v. The Neurologic Examination. Russell De Yong, current edition.
vi. Patten J. Neurological differential diagnosis. Springer, Publisher, 1995
vii. Patten and Posner, Stupor and coma. Current edition.
viii. Medical Literature: A collection of updated review articles will also be provided which address all basic areas of Neurology. Residents are strongly encouraged to read as many of these articles as possible. In addition residents are encouraged to read basic neurological journals such as Neurology, Archives of Neurology and Annals of Neurology.
ix. Neuroimaging: There shall a formal instruction to interpret of neuroimaging techniques

HAEM-ONCOLOGY

Educational Purpose

To equip the GI trainees with sufficient knowledge, clinical skills and proficiency for evaluating haematologic disorders, emergencies and malignancies.

Content of Required Knowledge

1. PGT should be able to recognize signs and symptoms of common haematologic disorders.
2. PGT should seek pertinent physical exam, laboratory information, and radiographic studies to rule out metastatic disease and oncologic emergencies

Haem-Onclogic Diseases

A. Common Haematologic Disorders
1. Anaemias
    - Iron deficiency anaemia
    - Thalassemias

- Aplastic anaemia
- Haemolytic anaemia
- Sickle cell anaemia
- Pernicious anaemia

2. Thrombocytopenia
3. Leukocytosis
4. Coagulopathies

B. Oncologic Emergencies

- fever and neutropenia
- tumor lysis syndrome
- superior vena cava syndrome

C. Haematologic Malignancies

- Leukemias
- non-Hodgkin's lymphomas
- Hodgkin's disease
- multiple myeloma

D. Common Solid Tumors

- CA breast
- CA colon
- CA lung
- CA prostate

E. Common Para-neoplastic Syndromes

- Hypercalcemia
- SiADH
- Eaton Lambert
- ectopic ACTH

F. **Metatstatic Diseases**

Procedural Skills

- Bone marrow aspiration
- Lumbar puncture
- Peripheral blood smears
- Paracenteses
- thoracenteses

Interpretation of clinical and laboratory procedures

- Bone marrow biopsy
- Lumbar puncture
- Paracenteses
- Peripheral blood smears

Teaching strategies

- Didactic lectures
- Bed side teaching
- Case based discussion
- Problem based learning
- Seminars
- Conferences

- Symposiums
- Outpatient evaluation in clinical settings
- Interactive sessions

Assessment

- OSCE
- MCQs
- SEQs
- Long case
- Short case

*Assessment of the trainees will be followed by constructive feedback for improvement of their attitude, performance and competencies.

Evaluation / Feedback

- 360 degree evaluation of the trainees to judge the professionalism, ethics, counseling & interpersonal communication skills
- Evaluation by formal discussion of trainees with supervisor, co-supervisor and program director by the end of rotation to rule out conflicts of interest and difficulties faced by trainees
- Evaluation of training program pertinent to effectiveness and efficiency of program in equipping trainees with necessary skills
- Trainees will frequently be provided with feedback for improvement of their performance.

Attributes required other than knowledge

Systems Based Learning	Attitudes, Values and Habits	Professionalism	Interpersonal and Communication Skills	Practice Based Learning Improvement	Evaluation of Medical Knowledge
• PGT should improve in the utilization of and communication with many health services and professionals such as the radiologist, surgeon, and pathologist • PGT should improve in the use of cost effective medicine • PGT should assist in determining the root cause of any error which is identified and methods for avoiding such problems in the future • PGT should recommend the drugs available in hospital pharmacy • Bed bureau should be informed for bed issue • PGT must assist in development of systems'	• Keeping the patient and family informed on the clinical status of the patient, results of tests, etc. • Frequent, direct communication with the physician who requested the consultation • Review of previous medical records and extraction of information relevant to the patient's hematologic status. Other sources of information may be used, when pertinent	• PGT should understand the ethical conflict between care of an individual and welfare of the community • PGT should understand the ethical conflicts pertinent to antimicrobial therapy, vaccination and preventive measures • PGT should acknowledge medical errors and should learn how to avoid mistakes in future • PGT should	• PGT should learn when to call a subspecialist to manage patient with heamatologic /oncologic problem • PGT should clearly present the cases to staff in organized way • PGT should be able to establish rapport with patients • PGT should listen to the patient's complaints for patient's welfare • PGT should effectively educate & counsel	• PGT should use feedback and self-evaluation in order to improve performance. • PGT should read the required material and articles provided to enhance learning. • PGT should use the medical literature search tools in the library to find appropriate articles related to interesting cases	• PGT should be able to answer directed questions & participate in case management • PGT presentations on assigned short topics will be assessed for completeness, accuracy, organization & understanding of topic • Ability of PGT to apply the information to the patient care setting • interest level of PGT in learning

improvement if problems are identified	• Understanding that patients have the right to either accepts or decline recommendations made by the physician • Education of the patient	be responsible and timely in consulting with staff & patients • PGT should have professional appearance at all times • PGT should	patients • PGT should not down all complaints of patients in organized manner • PGT should timely communicate pt's problem to the staff		

Suggested Readings

1. Hoffbrand's Essential Haematology, 7th Edition. October 2015, ©2016, Wiley-Blackwell.
2. Dacie and Lewis Practical Haematology, 12th Edition By Barbara J. Bain, Copyright 2017
3. Harrison's Principles of Internal Medicine, Latest Edition OR Cecil's Textbook of Internal Medicine, Latest Edition
4. Hematologic diseases, part XIV (pages 958 – 1106) and Oncology, latest Edition part XV (pages 1108 – 1256).
5. MKSAP latest edition – (Oncology & Hematology booklets).
6. New England Journal of Medicine (www.nejm.org)
7. Journal of Clinical Oncology (www.jco.org)
8. National Comprehensive Cancer Network (www.nccn.org)
9. Understanding the benefits of adjuvant chemotherapy in Breast, Colon and Lung cancer patients (www.adjuvantonline.com)

RHEUMATOLOGY

Educational Purpose

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

Content of Required Knowledge

1. PGT should be able to recognize clinical manifestations, diagnose cases of rheumatoid arthritis, SLE, scleroderma, other inflammatory and metabolic myopathies.

Rheumatologic Diseases

- Acute Monoarticular arthritis
- Rheumatoid arthritis
- Systemic lupus erythematosus (SLE)
- Scleroderma
- Anti-phospholipid syndrome
- Seronegative arthropathies
- Crystal induced arthritis (Gout)
- Vasculitis
- Fibromyalgia and soft tissue rheumatism (tennis elbow)

Interpretation of clinical and laboratory procedures

- X-ray and other imaging techniques
- Lab tests

- soft tissue and joint injections
- biopsy procedures such synovial or muscle biopsies
- musculoskeletal ultrasound
- synovial fluid aspirations
- synovial biopsy

Teaching strategies

- Didactic lectures
- Bed side teaching
- Case based discussion
- Problem based learning
- Seminars
- Conferences
- Symposiums
- Outpatient evaluation in clinical settings
- Interactive sessions

Assessment

- OSCE
- MCQs
- SEQs
- Long case
- Short case

*Assessment of the trainees will be followed by constructive feedback for improvement of their attitude, performance and competencies.

Evaluation / Feedback

- 360 degree evaluation of the trainees to grade the trainees in each of the six competencies as related to rheumatology.
- Evaluation by formal discussion of trainees with supervisor, co-supervisor and program director by the end of rotation to rule out conflicts of interest and difficulties faced by trainees
- Evaluation of training program pertinent to effectiveness and efficiency of program in equipping trainees with necessary skills
- Trainees will frequently be provided with feedback for improvement of their performance.

Attributes required other than knowledge

Systems Based Learning	Attitudes, Values and Habits	Professionalism	Interpersonal and Communication Skills	Practice Based Learning Improvement	Evaluation of Medical Knowledge
• PGT should improve in the utilization of and communication with many health services and professionals such as the radiologist, surgeon, and pathologist • PGT should recommend drugs available in hospital setting • Bed bureau should be informed for bed issues. • PGT should improve in the use of cost effective medicine	• Keeping the patient and family informed on the clinical status of the patient, results of tests, etc. • Frequent, direct communication with the physician who requested the consultation • Review of previous medical records and	• PGT should understand the ethical conflict between care of an individual and welfare of the community • PGT should understand the ethical conflicts pertinent to antimicrobial therapy, vaccination and preventive	• PGT should learn when to call a subspecialist to manage patient with rheumatologic disease • PGT should clearly present the cases to staff in organized way • PGT should be able to establish rapport with patients	• PGT should use feedback and self-evaluation in order to improve performance. • PGT should read the required material and articles provided to enhance learning. • PGT should use the medical literature search tools in the library to	• PGT should be able to answer directed questions & participate in case management • PGT presentations on assigned short topics will be assessed for completeness, accuracy, organization & understanding of topic

• PGT should assist in determining the root cause of any error which is identified and methods for avoiding such problems in the future • PGT must assist in development of systems' improvement if problems are identified	extraction of information relevant to the patient's rheumatologic status. Other sources of information may be used, when pertinent • Understanding that patients have the right to either accepts or decline recommendations made by the physician • Education of the patient	measures • PGT should acknowledge medical errors and should learn how to avoid mistakes in future • PGT should be responsible and timely in consulting with staff & patients • PGT should have professional appearance at all times • PGT should	• PGT should listen to the patient's complaints for patient's welfare • PGT should effectively educate & counsel patients • PGT should not down all complaints of patients in organized manner • PGT should timely communicate pt's problem to the staff	find appropriate articles related to interesting cases	• Ability of PGT to apply the information to the patient care setting • interest level of PGT in learning

Suggested Readings

1. Section on musculoskeletal disease in Harrison's Principles of Internal Medicine, McGraw-Hill publisher.
2. Section of Rheumatology in Cecil's Textbook of Medicine, latest Edition WB Sanders Publisher.
3. MKSAP booklet on Rheumatology.
4. The textbook Primer on the Rheumatic Disease will also be provided which address all basic areas of rheumatology.

RADIOLOGY

Educational Purpose:

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

General objectives for Radiology course:

1. The ability to understand the principles of radiological studies
2. Utilization of imaging techniques in the acutely injured or ill patient
3. Effective evaluation of acute chest and abdominal conditions
4. Therapeutic and diagnostic interventions with imaged guided procedures
5. Basics aspects of medical radiation exposure and protection
6. Newer neuroimaging techniques for cerebral diseases and conditions
7. Awareness and use of the data base that exists in radiology

Content of required knowledge:

1. Fundamentals of chest roentgenology
2. Basics of radiology of heart disease
3. Differential diagnoses in cardiac disease
4. Plain film of the abdomen
5. Differential Diagnoses in MSK Disease
6. Radiological findings of Chest diseases
7. Radiological findings of Liver diseases
8. Radiological findings of Trauma diseases
9. Basics of CT scan, interpretation & diagnosis of common diseases
10. Basics of MRI scan, interpretation & diagnosis of common diseases

Attributes required other than knowledge:

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

	improvement if problems are identified.	staff. • The resident must maintain a professional appearance at all times.	certain settings	radiogical studies.

Teaching Strategies:

1. The resident will observe the radiologist interpreting the morning images and/or performing the morning fluoroscopic procedures.
2. The resident is also expected to observe special procedures, diagnostic ultrasound and nuclear medicine procedures performed in the department.
3. The resident is encouraged to discuss with the radiologist any interesting cases.
4. The resident is provided with opportunities and appropriate materials to enhance his/her learning achievement.
5. Didactic lectures
6. Interactive Seminars
7. Workshops
8. Problem based learning
10. Case based learning
11. Journal club meeting
12. Self-directed learning
13. Clinic pathological conferences
14. Teaching skills in the department settings

Assessment:

- OSCE
- MCQs
- SEQs
- Long case
- Short case

Evaluation/Feedback

1. 360 degree evaluation to judge the professionalism and ethics
2. Attendance at the required morning X-ray film review
3. Assigned case presentations and conference presentations will be evaluated
4. Ability to interpret results of commonly used imaging studies
5. Mid-rotation evaluation session between the resident and the consult service attending for that month
6. Residents will receive feedback with respect to achieving the desired level of proficiency.
7. Ways in which they can enhance their performance will be discussed when the desired level of proficiency has not been achieved.
8. Evaluation and feedback will occur during the rotation.
9. A formal evaluation and verbal discussion with the resident is to be done at the end of the rotation.

- Should be able to interpret CT and MRI scans for common diseases

Suggested readings:

1. The Emergency Patient. Charles S. Langston, Lucy Frank Squire. Saunders, 1975
2. Emergency Radiology. T. Keats. Mosby, 1988 2nd Edition
3. Radiology of the Emergency Patient: An Atlas Approach. Edited by Edward I. Greenbaum. New York: Wiley, c1982.

4. Videodisc: Head and neck, GI, GU Ultrasound files
5. Learning Radiology.com

PSYCHIATRY

Educational Purpose:

To give residents formal instruction, clinical experience, and the opportunity to acquire expertise necessary to evaluate and manage some common psychiatric diseases and to know when to request consultation services.

General objectives of the psychiatry course:

1. Understanding of the prevention and treatment of mental disorders and associated emotional, behavioral and stress-related problems.
2. Given a patient with a chief complaint residents will: a) perform a focused history, b) request appropriate diagnostic tests, c) formulate a set of working diagnoses,
3. In gastroenterology practice, management of risk factors for mental disorders and early diagnosis and intervention for established disease (primary and secondary prevention) are important elements.
4. Patients hospitalized for medical problems and those in the intensive care unit may have significant psychiatric comorbidity that contributes to medical morbidity and length of stay. In these and all other settings, the gastroenterologist must be able to evaluate psychiatric co morbidity effectively with appropriate specialty consultation.
5. Demonstrate appropriate approaches to the execution of a psychiatric consultation.
6. Quickly develop a therapeutic alliance with medically ill patients.
7. Evaluate for psychopathologic processes in patients with concomitant medical conditions.
8. Demonstrate the use of the liaison process to increase awareness of the psychiatric issues of the medically ill among non-psychiatrist staff.
11. Understand the impact of illness, hospitalization and medical care on the psychological functioning of patients.
12. Understand the role of psychiatric, psychological and behavioral factors in the pathogenesis of medical disorders.
13. Develop a fund of knowledge about psychiatric issues pertaining to medical patients through didactic means including teaching rounds, selected readings and seminars.

14. Discuss the liaison process and its utility within the hospital setting.
15. Understand the use of non-organic treatments, including brief psychotherapy, behavioral management techniques, family interventions and psychoeducation.

Content of required knowledge:

Common Clinical Disorders

- Psychiatric assessment of common psychiatric disorders.
- Substance use disorders.
- Delirium, dementia and other cognitive disorders
- Geriatric psychiatric disorders
- Psychiatric problems associated with hospitalization and medical disorders
- Common Clinical Presentations
- Agitation or excitement
- Anxiety
- Confusion
- Delusions or bizarre beliefs
- Depressed or sad mood
- Hallucinations
- Insomnia
- Memory loss
- Suicide risk
- Suspiciousness or feelings of persecution
- Unexplained changes in personality or performance
- Unexplained physical symptoms suggesting somatization

Procedure Skills

- Depression inventory
- Mental status examination, including standardized cognitive examinations when indicated

- Ordering and Understanding Tests
- Electroencephalography

Attributes required other than knowledge:

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

Teaching Strategies:

1. Residents will provide indigent care and will examine patients referred to Psychiatry from other departments. This will allow the residents to see a wide variety of patients from various ages, social economic, educational, and cultural backgrounds.
2. Resident shall see the inpatient, and gather information from chart, radiology and laboratory reports. Residents then will discuss all this information with the staff psychiatrist as part of the bedside teaching rounds.
3. Residents must complete a thorough progress note on every patient, and this must be countersigned by the psychiatry staff member in charge of the rotation.
4. Residents will follow the assigned patients under supervision until the patients are released from the hospital.
5. Residents will be responsible for reviewing one general Psychiatry topic per week and giving a short presentation
6. Resident shall participate in outpatient psychiatric management
7. Grand teaching rounds
8. Didactic lectures
9. Seminars
10. Workshops
12. Problem based learning
12. Case based learning
13. Journal club meeting
14. Self-directed learning

Assessment:

- OSCE
- MCQs
- SEQs
- Long case
- Short case

Evaluation/Feedback:

- **Resident Evaluation:**
    - 360 degree evaluation to judge the professionalism and ethics
    - The Faculty will fill out the standard Evaluation Form using the criteria for evaluations as delineated above to grade the residents' performance in each category of competency.
- **Program Evaluation**: The resident will fill out an evaluation of the Psychiatry rotation at the end of the month. This will include constructive criticism for improvement; or suggestions to further enhance training.
- Residents should receive frequent (generally daily) feedback in regards to their performance during the rotation. Residents will be informed about the results of the evaluation process and input will be requested from residents in regards to their evaluation of the Psychiatry rotation.
- There will be a formal evaluation and verbal discussion with the resident at the end of the rotation

Suggested readings:

A. Mandatory Reading:
Wise, MG, Rundell, JR: Clinical Manual of Psychosomatic Medicine: A Guide to Consultation-Liaison Psychiatry. American Psychiatric Publishing, Washington, DC. 2005.

B. Suggested Reading:
Stern, TA, Herman, JB, and Slavin, PL: Massachusetts General Hospital Guide to Primary Care Psychiatry, 2nd ed. McGraw-Hill Companies, Inc. New York. 2004.

PSYCHIATRY					
LEARNING OBJECTIVES	**TOPICS TO BE TAUGHT**	**TIME ALLOCATION**	**TEACHING METHOD**	**DESIRED SOFT SKILLS ACQUISITION**	**ASSESSMENT**
• To discuss the community psychological aspect of health • To understand Bio-Psycho-Social Model • To enlist Psychological Aspect of Diseases • To illustrate pathophysiology of stress • To summarize methods of stress management • To state Psychological Aspects of Pain • To recognize & report Psychological Aspects of Aging	1. Community Psychological Aspect of Health & Bio-Psycho-Social Model	2 hrs session with 10 minutes ice breaker activity	Large class format (interactive lecture)	• Listening skills • Recording skills • enhancement of visual memory	MCQs SEQs
	2. Psychological Aspect of Disease , Stress and its Management	2 hrs session 10 minutes ice breaker activity	seminar in which students would make power point presentations on given topics	• Presentation skills • Computer skills • enhancement of visual memory	MCQs SEQs
	3. Psychological Aspects of Pain	2hrs session with 10 minutes ice breaker activity	Large class format (interactive lecture)	• Listening skills • Recording skills • enhancement of visual memory	MCQs SEQs
	4. Psychological Aspects of Aging	2hrs session with 15 minutes group discussion break and 10 minutes ice breaker Activity	Large class format (interactive lecture)	• Listening skills • Recording skills • enhancement of visual memory	MCQs SEQs

GERIATRIC MEDICINE

Educational Purpose

To learn the principles of aging, recognize geriatric syndromes and become expert in diagnosing and evaluating common geriatric disorders

Content of Required Knowledge

1. PGT should be able to recognize signs and symptoms of common haematologic disorders.
2. PGT should understand the principles of therapy for haematologic malignancies
3. PGT should seek pertinent physical exam, laboratory information, and radiographic studies to rule out metastatic disease and oncologic emergencies

Geriatric Diseases / Problems

Common Clinical Disorders

Prevention	Adult preventive visit
	Adultimmunization
	s Smoking
	Cessation

Respiratory

Acute bronchitis COPD/chronic bronchitis
Chronic cough Asthma/wheezing Pneumonia
Influenza

Cardiovascular

Hypertension, Coronary artery disease,Chest Pain, Post MI care, Atrial fibrillation, Deep vein thrombos

Gastrointestinal

GE reflux ,Gastroenteritis/acute
diarrhea Constipation Hemorrhoids

Renal & Urology UTI, Hematuria
Incontinence, Prostatism Prostatitis

Musculoskeletal

Low back pain Osteoporosis
Osteoarthritis, Other Knee pain Neck
Pain
tenosynovitis

Neurology

Delirium, Headache,Dementia,

Sleep disorder, Parkinson’s disease

Dizziness

	Multiple sclerosis
	Seizure disorder
Hematology/Oncology/	Anemia
Immunolog	
	Systemic Cancer care
Infectious Diseases	HIV
	Tuberculosis
	Malaria

Dermatology

Pressure Ulcer Actinic keratosis Seborrheic keratosis Dermatitis

	m Tinea
	Varicella zoster
	Hypothyroidism
	Hyperlipidemia
	Obesity
	Hyperthyroidis
	m
	Diabetes mellitus, type I
	Hormone replacement
	therapy
Constitutional	Fatigue
	Unintentional weight
	loss Fever
Abuse/neglect	Elder abuse/neglect

Procedural Skills

- Mini—Mental Status Exam (MMSE)
- Life Expectancy Estimate

- Geriatric Depression Scale (GDS)
- Nutritional Status Assessment
- Medication Review with Recommendations
- Pressure Ulcer Risk Assessment/Prevention
- Pressure Ulcer Staging/Treatment
- Urinary Incontinence Assessment/Management

- **Teaching strategies**

- Didactic lectures
- Bed side teaching
- Case based discussion
- Seminars
- Symposiums
- Outpatient evaluation in clinical settings

Assessment

- MCQs
- SEQs

Evaluation / Feedback

- 360 degree evaluation of the trainees to judge the professionalism, ethics, counseling & interpersonal communication skills
- Evaluation by formal discussion of trainees with supervisor, co-supervisor and program director by the end of rotation to rule out conflicts of interest and difficulties faced by trainees
- Evaluation of training program pertinent to effectiveness and efficiency of program in equipping trainees with necessary skills
- Trainees will frequently be provided with feedback for improvement of their performance.

Attributes required other than knowledge

Systems Based Learning	Attitudes, Values and Habits	Professionalism	Interpersonal and Communication Skills	Practice Based Learning Improvement	Evaluation of Medical Knowledge
• PGT should improve in the utilization of and communication with many health services and professionals such as the radiologist, surgeon, and pathologist etc. • PGT should advise the use of cost effective medicines • PGT should recommend medicine easily available from hospital pharmacy • PGT should suggest lab tests that could be conducted inside the treating hospital • PGT should assist in determining the root cause of any error which is identified and methods for avoiding such problems in the future • PGT must assist in	• Keeping the patient and family informed on the clinical status of the patient, results of tests, etc. • Frequent, direct communication with the physician who requested the consultation • Review of previous medical records and extraction of information relevant to the patient's hematologic status. Other sources of information may be used, when pertinent	• PGT should understand the ethical conflict between care of an individual and welfare of the community • PGT should understand the ethical conflicts pertinent to antimicrobial therapy, vaccination and preventive measures • PGT should acknowledge medical errors and should learn how to avoid mistakes in future • PGT should	• PGT should learn when to call a subspecialist to manage patient with geriatric disorders • PGT should learn the importance of staying abreast of the medical literature addressing the various diseases and problems of the elderly • PGT should clearly present the cases to staff in organized way • PGT should be able to establish rapport with	• PGT should use feedback and self-evaluation in order to improve performance. • PGT should read the required material and articles provided to enhance learning. • PGT should use the medical literature search tools in the library to find appropriate articles related to interesting cases	• PGT should be able to answer directed questions & participate in case management • PGT presentations on assigned short topics will be assessed for completeness, accuracy, organization & understanding of topic • Ability of PGT to apply the information to the patient care setting • interest level of PGT in learning

development of systems' improvement if problems are identified	• Understanding that patients have the right to either accepts or decline recommendations made by the physician • Education of the patient	be responsible and timely in consulting with staff & patients • PGT should have professional appearance at all times • PGT should	patients • PGT should listen to the patient's complaints for patient's welfare • PGT should effectively educate & counsel patients • PGT should not down all complaints of patients in organized manner • PGT should timely communicate pt's problem to the staff		

Suggested Readings

1. Section on Geriatric disease Chapter 9, pages 36-46 in Harrison's Principle of Internal Medicine, McGraw-Hill publisher.
2. Geriatric disease in Cecil's Textbook of Medicine, WB Saunders Publisher.
3. MKSAP booklet on Geriatrics

. General Management of poisoning

- What is poisoning , and its types
- General approach to poisoning (triage and resuscitation, clinical assessment and investigations, general, management, psychiatric evaluation)
- Gastrointestinal decontamination
- Commonly used antidotes and methods of poison removal
- Role of psychiatric evaluation

Teaching strategies

Large class format (interactive lecture

Assessment

MCQs

SEQs

Short case

Long case

MD Gastroenterology Training Program Curriculum and Objectives

- Total duration of the course consists of five calendar years
- Components of the course are divided into A & B
- Component “A” consists of training in internal medicine.
- Component “B” is taught in rest of the three years and is divided into R1, R2 & R3 for third year, forth year & fifth year respectively
- Pro gram would be evaluated throughout the course with continuos internal assessment as well as at the end of program

- Training in Gastroenterology MD program will provide opportunities for Residents to develop clinical competencein th field of gastroenterology, including GI endoscopy, exposure to hepatology, gastrointestinal oncology, radiology and pathology. While this is a subspecialty program, training will emphasize the trainee functioning as a total academic physician, internist and consultant gastroenterologist.

- The training program will be three years in duration and will provide the opportunity for the trainee to observe and
  manage Patients with a wide variety of digestive disorders in both the outpatient, inpatient and emergency setting.

- The training program will provide access to basic and clinical sciences necessary to develop the skills to practice gastroenterology.

- The training program will be designed to teach critical analysis and reasoning relative to clinical and investigative problems in Gastroenterology.

- The training program will be designed to teach both cognitive and technical aspects of gastrointestinal endoscopy.

- The training program will provid in-depth interaction with other disciplines such as radiology, pathology, surgery, and pediatrics.

- While this is primarily a clinical training program, it is recognized that research training is mandatory for all

residents in training and will receive appropriate emphasis

The residents in gastroenterology program will receive training at all facilities. Rotations at other facilities, which offer specialty training or expertise not available from parent institution, will be allowed and encouraged based on the residents interest.

At least 30 months will be devoted entirely to clinical gastroenterology, of which approximately 30 % of which will be related to liver diseases.

The third year of gastroenterology residency training will stress independent clinical and endoscopic work, advance therapeutics to ERCP training and research.

Training in liver transplantation and pediatric gastroenterology will also be encouraged.

Out Patient Clinic

The resident will examines and treats scheduled and unscheduled patients with a wide variety of common gastrointestinal conditions. Resident will also see more acute emergency patients with more complex problems, requiring interaction with surgical and radiology departments at all facilities. Each facility will have different patient populations , allowing the resident to learn how to manage inpatients in various settings patterns. Patients are followed for their active problems or referred back to the primary physician. When appropriate, longterm follow up will be continued through the resident continuity clinic. Residents will perform GI endoscopic procedures on such patients after a determination is made that such procedures are required.

The second year resident will begin to be exposed to motility as well as some advanced diagnostic and therapeutic procedures .

Third year resident will focus on assessment of patients requiring more advanced procedures and emphasis will be paced on following those patients into the procedure area. As with general outpatient clinic rotation, the resident will examines and treats scheduled and unscheduled patients with a wide variety of unusual gastrointestinal conditions.The residents are also supervised while seeing more acute emergency patients with their attending and triaging and determining acuity and level of care needs. They will see patients with more complex problems, requiring therapeutic intervention, such as

with ERCP, in order to experience the unique outpatient aspects of those types of patients. The resident clinic schedule will be structured so that they can participate in didactic discussions about these cases and so that they can perform or assist in performing all therapeutic and advanced diagnostic at all facilities, having their procedures at the outpatient center. The residents will be supervised in triage and management of outpatient issues, assess immediate and remote care issues and learn methods of interacting with clinical and administrative staff in outpatient.

GOALS: The outpatient rotation is designed to allow trainee to gain expertise in handling multitude of common gastrointestinal problems, not only from a scientific standpoint, but also psychosocial considerations. Experience at determining appropriate follow-up intervals and scheduling is also gained, thus develop clinical competence in the field of gastroenterology. As the residents progress, emphasis will allow involvement in complicated cases requiring advanced diagnostic and therapeutic modalities. All residents will be assessed for the six competencies evaluation Form, including patient care, medical knowledge , practice based learning, interpersonal and communication skills, professionalism and systems based learning. Overall all clinical acumen and competence will also be assessed. Ongoing assessment of progress will be included in the evaluation process at all levels.

The third year resident will be evaluated to develop a pertinent and coherent differential diagnosis based on a history and physical examination. The resident knowledge of indications and contraindications to medicines, therapeutic plans and endoscopy will be assessed for competency and to ensure adequate progression and maturation.

The fourth and fifth year residents will be expected to have mastered basic ability to develop a pertinent and coherent differential diagnosis based on a history and physical examination. They will be evaluated on being able to appropriately focus that evaluation on the gastrointestinal tract. The resident knowledge of indications and contraindications to medicines, therapeutic plans and endoscopy will be assessed for competency and to ensure adequate progression and maturation. The resident should be beginning to master integration of data to form a coherent assessment and plan.

The third year resident assigned to this rotation will have these same expectations and evaluations with an emphasis on complex patients and procedures.

To allow an on-site, focused, and truly didactic outpatient setting in which resident can be exposed to and learn from complicated cases requiring advanced diagnostic and therapeutic modalities.
To give resident greater responsibility in determining the best overall care plan for patients they are consulted on as well as to learn how to function in this manner in a true outpatient setting, which is most likely to reflect their ultimate practice.The third year resident will be expected to not only have mastered ability to develop a pertinent and coherent differential diagnosis based on a history and physical but also to be able to appropriately focus that evaluation on the gastrointestinal tract. The resident should be virtually competent in his / her knowledge of indications and contraindications to medicines, therapeutic plans and endoscopy will be expected to continue to progress toward being able to practice independently. The resident should be able to integrate data to form a coherent assessment and plan. At the same time the resident will be assessed for the six competencies as outlined on Resident evaluation Form, including patient care, medical knowledge base, practice-based learning, interpersonal and communication skills, professionalism and systems based learning.

In Patient Rotation

During these rotations the resident will consult on patients with gastrointestinal problems at Gastroenterology ward and all other sites inpatient wards including general medicine, surgical, pediatric wards, and various intensive care units throughout all institution. The resident will evaluates patients and advises primary care and specialty services physicians of his diagnostic impressions, recommended diagnostic tests and appropriate therapy. The trainee also performs endoscopic procedures or other GI procedures generated by such patient contacts, under supervision or independently.

GOALS:

To evaluate patients who are generally sicker than those seen in outpatient setting at an academic center. In addition, the trainee learns the art of consultative medicine in different clinical settings, which requires interaction specialty physicians

to influence the final diagnostic and therapeutic decisions. All residents will be assessed for the six competencies as outlined on Resident evaluation Form, including patient care, medical knowledge , practice-based learning, interpersonal and communication skills, professionalism and systems based learning. Overall all clinical acumen and competence will also be assessed. Ongoing assessment of progress will be included in the evaluation process at all levels and at each site. The third year resident will be evaluated to develop a pertinent and coherent differential diagnosis based on a history and physical examination. The resident will also be evaluated on their ability to adequately triaging of consults. The resident knowledge of indications and contraindications to medicines, therapeutic plans and endoscopy will be assessed for competency and to ensure adequate progression and maturation.

The fourth year resident will be expected to have mastered the ability to develop a pertinent and coherent differential diagnosis based on a history and physical examination and will also be evaluated on being able to appropriately focus that evaluation on the gastrointestinal tract. The resident will be assessed for their ability to appropriately triage consults and will be expected to be significantly more proficient than during the third year. The resident knowledge of indications and contraindications to medicines, therapeutic plans and endoscopy will be assessed for competency and to ensure adequate progression and maturation. The resident should be beginning to master integration of data to form a coherent assessment and plan.

The fifth year resident will be expected to not only have mastered the ability to develop a pertinent and coherent differential diagnosis based on a history and physicalexamination but also to be able to appropriately focus that evaluation on the gastrointestinal tract. The resident should be able to consistently make appropriate triage decisions. The resident should be virtually competent in his / her knowledge of indications and contraindications to medicines, therapeutic plans and endoscopy will be expected to continue to progress toward being able to practice independently. The inpatient staff will specifically assess the resident ability to integrate of data to form a coherent assessment and plan. This plan should include appropriate use of ancillary services and assessment of the most medically appropriate venue (i.e. outpatient versus inpatient.) The resident will be specifically assessed for the ability to transition to independent inpatient consultation.

Milestones

Third Year:

a. Esophagogastroduodenoscopy,minimum of 50 supervised studies.

b. Biopsy of the mucosa of the esophagus, stomach, small bowel and colon Minimum 5 supervised studies any site

c. Colonoscopy -Minimum of 25 supervised colonoscopies.

d. Esophageal dilations -Minimum 10 supervised studies.

e. Percutaneous endoscopic gastrostomy -Minimum of 3 supervised studies

f. Moderate sedation —Completion to competence

g. Summary of evaluations showing adequate perfonnance in each of the six core competencies

Fourth Year:

i. Esophagogastroduodenoscopy -Minimum of 100 (including variceal bleed hemostasis) supervised studies.

ii. Biopsy of the mucosa of the esophagus, stomach, small bowel and colon -Minimum 10 supervised studies each site.

iii. Colonoscopy with polypectomy -Minimum of 50 supervised colonoscopies and 5 supervised polypectomies.

iv. Esophageal dilations -Minimum 15 supervised studies.

v. Percutaneous endoscopic gastrostorny -Minimum of 5 supervised studies

vi. Non-variceal hemostasis -Minimum 5 supervised studies.

vii. Assist and observed advanced endoscopic procedures like ERCP, EUS. Minimum of 10.

viii. Summary of evaluations showing adequate performance in each of the six core competencies

Fifth Year:

a. Esophagogastroduodenoscopy - Minimum number to be performed 100 supervised studies and demonstrate competence.

b. Biopsy of the mucosa of the esophagus, stomach, small bowel and colon, demonstrate competence.

c. Colonoscopy with polypectomy -Minimum of 100 supervised colonoscopies and 5 supervised polypectomies studies and demonstrate competence.

d. Esophageal dilations -Minimum 15 supervised studies and demonstrate competence

e. Percutaneous endoscopic gastrostorny -Minimum of 5 supervised studies and demonstrate competence.

f. Non-variceal hemostasis -resident will perform 5 supervised cases and demonstrate competence.

g. Moderate sedation studies and demonstrate competence.

h. Assist and observed advanced endoscopic procedures like ERCP, EUS. Minimum of 20.

i. Summary of evaluations showing adequate performance in each of the six core competencies.

The advancement milestones in Gastroenterology for the general gastroenterologist in training are divided into three general areas: Inpatient Urgent, Routine Inpatient and Outpatient. These are listed here.

INPATIENT URGENT

By the end of third year, **Resident-1** will be able to assess and triage inpatient presenting with symptoms and signs typical of common urgent diagnoses including GI bleeding, acute abdomen,cholangitis, SBP, perforation, bowel obstruction, etc. The learner will be able to perform full abdominal examination to facilitate evaluation of their patient.

By the end of fourth year, **Resident-2** will be able to identify and prioritize appropriate testing to guide initial therapy decisions for common urgent diagnoses including GI bleeding,acute abdomin
cholangitis, perforation, bowel obstruction, SBP acute liver failure, etc. The learner will be able to initiation measures for routine stabilization and resuscitation.

By the end of fifth year, **Resident-3** will be able to initiate therapy for common and more unusual urgent diagnoses including but not limited to GI bleeding, acute abdomen, cholangitis, perforation, bowel
obstruction, SBP, IBD, ischemia, etc. After assessing and understanding the likelihood of response to standard medical therapy the Resident- 3 will be able to determine when subspecialty consultation is appropriate, thereby being able to fully practice independently.

INPATIENT ROUTINE

By the end of third year, **the Resident-l** will be able to assess and triage inpatient presenting with typical routine symptoms and conditions related to the gastrointestinal tract including loose stools, nausea, vomiting, abdominal pain, jaundice, dysphagia, ascites and abnormal labs / x-rays etc.The resident will be able to perform full abdominal examination to facilitate evaluation of their patient.

By the end of fourth year, **the Resident-2** will be able to synthesize and work through differential
diagnosis selecting appropriate testing and initial therapy for typical routine symptoms and conditions related to the gastrointestinal tract including but not limited to loose stools, nausea, vomiting,abdominal pain, jaundice, GI malignancies, dysphagia,ascites and abnormal labs / x-rays, cect etc. The resident will demonstrate ability to integrate patient information from multiple internal and external sources. The resident will be able to work with available systems to initiated disposition plans and will begin to apply these skills.

By the end of fifth year, **the Resident-3** will be able to independently chose therapy and testing for typical routine symptoms and conditions related to the gastrointestinal tract including but not limited to loose stools, nausea, vomiting,abdominal pain, jaundice, GI malignancies, dysphagia,ascites and abnormal labs / x-rays, cect etc. in an academic setting. After assessing and integrating all available data and understanding the likelihood of response to standard medical therapy, the Resident-3 will be able to determine when subspecialty consultation is appropriate based upon available skill sets at any level.

OUTPATIENT

By the end of the third year, **the Resident-l** will be able to assess and triage out patient presenting with typical routine symptoms and conditions including such conditions as reflux, abnormal liver functions, acid peptic disorder, functional abdominal syndromes,liver cirrhosis,diarrhea, dysphagia while understanding the standard preventative measures such as colorectal cancer screening and vaccinations. The resident will have the ability to perform a full abdominal examination to facilitate evaluation of their patient. The resident will be facile in routine initiation of symptom directed assessment and understand pharmacology of typical gastrointestinal medications.

By the end of the fourth year, **the Resident-2** will be able to synthesize and work through differential diagnosis selecting appropriate testing and initial therapy for out patient presenting with typical routine symptoms and conditions including such conditions as reflux, abnormal liver functions, acid peptic disorder, functional abdominal syndromes,liver cirrhosis,diarrhea, dysphagia while understanding the standard preventative measures such as colorectal cancer screening and vaccinations, enacting and making future follow up plans including subspecialty consultation. The resident will demonstrate ability to integrate patient information from multiple internal and external sources and determining pharmacologic interactions of existing medications with planned gastroenterological therapeutics. The resident will also be able to work with the available systems to initiated disposition plans.

By the end of the fifth year, **the Resident-3** will be able to independently choose therapy and testing for typical routine and more complicated than conditions such as reflux, abnormal liver functions, acid peptic disorder, functional abdominal

syndromes,liver cirrhosis,diarrhea, dysphagia while understanding the standard preventative measures such as colorectal cancer screening and vaccinations. The resident will be able to integrate and coordinate care of these conditions themselves as well as in interaction with other medical problems and therapeutics. After assessing and integrating all available data and understanding the likelihood of response to standard medical therapy using multiple sources (including when appropriate outside information) the graduating R-3 will be able to follow through and coordinate subspecialty consultation recommendations, thereby being able to fully practice independently, guiding and orchestrating their care so as to avoid polypharmacy, drug / drug interactions etc.

MD Gastroenterology Milestones

The Milestones are designed only for use in evaluation of residents in the context of their participation in MD residency programs. The Milestones provide a framework for the assessment of the development of the resident in key dimensions of the elements of physician competency in subspecialty. They neither represent the entirety of the dimensions of the six domains of physician competency, nor are they designed to be relevant in any other context

Understanding Milestone Levels

This document presents the Milestones, which MD programs use in a semi-annual review of resident performance. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME Competencies organized in a developmental framework. The narrative descriptions are targets for resident performance throughout their educational program.

Milestones are arranged into levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert resident in the subspecialty.

These levels do not correspond with post-graduate year of education. A junior resident may achieve higher levels early in his/her educational program just as a senior resident may be at a lower level later in his/her educational program. There is no predetermined timing for a resident to attain any particular level. Residents may also regress in achievement of their milestones. This may happen for many reasons, such as over scoring in a previous review, a disjointed experience in a particular procedure, or a significant act by the resident.

Level 4 is designed as a graduation *goal* but *does not* represent a graduation *requirement.* Level 5 is designed to represent an expert resident whose achievements in a subcompetency are greater than the expectation. Milestones are primarily designed for formative, developmental purposes to support continuous quality improvement for individual learners, education programs, and the specialty.

Patient Care 1: Data Gathering and Non-Procedural Diagnostic Testing				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Accesses data and gathers a history standard for general internal medicine	Gathers a symptom-specific history and data, with assistance	Gathers data from multiple sources and collects symptom-specific history, including psychosocial issues	Consistently synthesizes data from multiple sources	Role models gathering and synthesis of clinical Information
Performs a physical examination standard for general internal medicine	Performs a symptom- specific physical examination, with Assistance	Performs a symptom- specific physical examination, without Assistance	Consistently performs a symptom-specific physical examination	
Selects and interprets diagnostic tests, with significant assistance	Selects and interprets diagnostic tests, with moderate assistance	Selects and interprets diagnostic tests, with minimal assistance and general awareness of cost effectiveness and patient Preferences	Independently selects and interprets diagnostic tests, with adjustments based on cost effectiveness and patient preferences	Interprets subtleties of diagnostic test results to improve patient care

Patient Care 2: Patient Management in Gastrointestinal and Liver Disease				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Develops focused care plans, with moderate Assistance	Develops focused care plans, with minimal Assistance	Independently develops focused care plans	Modifies care plans based on a patient's clinical course, additional data, patient preferences, and cost- effectiveness principles	Develops customized, prioritized care plans for complex patients, incorporating diagnostic uncertainty and cost- effectiveness principles
Requires direct supervision to prioritize and deliver patient care	Manages patients with Straightforward diagnoses, with minimal Assistance	Independently manages patients with straightforward diagnoses	Independently manages patients with complex and undifferentiated syndromes and recognizes disease presentations that deviate from common patterns	Effectively manages unusual, rare, or complex Disorders
Recognizes situations requiring urgent or emergent care, with significant Assistance	Recognizes situations requiring urgent or emergent care with minimal assistance	Manages urgent and emergent situations, with minimal assistance	Independently manages urgent and emergent Situations	

Patient Care 3: Procedures Cognitive Components				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Selects clinically indicated procedure(s), with significant assistance	Selects clinically indicated procedure(s), with moderate assistance	Selects clinically indicated procedure(s), with minimal assistance	Independently selects clinically indicated procedure(s) based on assessment and indications, including capabilities and limitations of the procedure, resources, and risk/benefit ratio for the patient	Recognizes when a novel or innovative procedure should be considered and seeks out assistance
Recognizes normal and abnormal procedural Findings	Identifies and interprets abnormal procedural findings, with moderate Assistance	Identifies and interprets abnormal procedural findings, with minimal Assistance	Independently identifies and interprets abnormal procedural findings	Identifies and interprets atypical or rare variations during procedures
Identifies immediate interventions and subsequent plan of care, with significant assistance	Recognizes and selects immediate interventions and subsequent plan of care, with moderate Assistance	Selects appropriate immediate interventions and subsequent plan of care, with minimal Assistance	Independently selects appropriate immediate interventions and subsequent plan of care, with recognition of personal limitations	Suggests and implements innovative and alternative interventions for versatile care plans

Patient Care 4: Procedures: Technical Components				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Performs peri-procedural assessment, including required diagnostic evaluation and selection of equipment, with moderate assistance	Performs peri-procedural assessment, including required diagnostic evaluation and selection of equipment, with minimal assistance	Independently performs peri-procedural assessment, including required diagnostic evaluation and selection of equipment in standard cases	Independently performs peri-procedural assessment, including required diagnostic evaluation and selection of equipment in complex cases	
Performs portions of the procedure, with significant assistance	Performs significant portions of the procedure, with moderate assistance	Performs the complete procedure to intended extent, including thorough visualization/examination, with minimal assistance	Independently performs the complete procedure to intended extent, including thorough visualization/ examination	Efficiently performs the complete procedure to intended extent, including thorough examination/ visualization, in complex cases
	Performs portions of the therapeutic interventions, with significant assistance	Performs most standard therapeutic interventions, with minimal assistance	Independently performs standard therapeutic interventions	Efficiently performs complex therapeutic interventions

Medical Knowledge 1: Clinical Knowledge of Gastrointestinal and Liver Diseases (Non-Procedural)				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Demonstrates basic knowledge of specialty disorders	Demonstrates expanding knowledge of specialty disorders	Demonstrates broad knowledge of specialty disorders	Synthesizes advanced knowledge of specialty disorders to develop personalized interventions	Demonstrates expert knowledge within a focused area
Demonstrates basic knowledge of diagnostic, therapeutic/ pharmacologic categories for prevention and treatment of disease	Demonstrates expanding knowledge of diagnostic, therapeutic/ pharmacologic options for prevention and treatment of diseases, including indications, contraindications, limitations, complications, alternatives, and techniques	Demonstrates broad knowledge of diagnostic, therapeutic/ pharmacologic options for prevention and treatment of diseases	Synthesizes advanced knowledge to select diagnostic, therapeutic/ pharmacologic options for prevention and treatment of disease	

Medical Knowledge 2: Clinical Reasoning				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Creates a focused differential diagnosis with moderate assistance	Creates a focused differential diagnosis with minimal assistance	Independently creates a succinct, plausible, and prioritized differential diagnosis appropriate for the presentation of a patient with an uncomplicated presentation	Independently creates a succinct, plausible, and prioritized differential diagnosis appropriate for the presentation of a patient with complex and/or multiple problems	Recognizes rare presentations of common diagnoses and/or presentations of rare diagnoses
	Maintains a fixed differential diagnosis despite new information	Consistently incorporates new information to adjust differential diagnosis	Consistently evaluates and adjusts differential diagnosis, integrating available new information and recognizing the factors that lead to bias	Aware of cognitive biases and demonstrates behaviors to overcome them

Systems-Based Practice 1: Patient Safety and Quality Improvement				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Demonstrates knowledge of common patient safety events	Identifies system factors that lead to patient safety Events	Participates in analysis of patient safety events (simulated or actual)	Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual)	Actively engages teams and processes to modify systems to prevent patient safety events
Demonstrates knowledge of how to report patient safety Events	Reports patient safety events through institutional reporting Systems	Participates in disclosure of patient safety events to patients and families (simulated or actual)	Discloses patient safety events to patients and families (simulated or actual)	Role models or mentors others in the disclosure of patient safety events
Demonstrates knowledge of basic quality improvement methodologies and Metrics	Describes local quality improvement initiatives	Participates in local quality improvement initiatives	Demonstrates the skills required to identify, develop, implement, and analyze a quality improvement project	Creates, implements, and assesses quality improvement initiatives at the national, institutional or community level

Systems-Based Practice 2: System Navigation for Patient-Centered Care				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Demonstrates knowledge of care Coordination Identifies key elements for safe and effective transitions of care and hand-offs Demonstrates basic knowledge of population and community health needs and disparities	Coordinates care of patients in routine clinical situations effectively using the roles of the interprofessional teams Performs safe and effective transitions of care/hand-offs in routine clinical situations Identifies specific population and community health needs and inequities for the local Population	Coordinates care of patients in complex clinical situations, effectively using the roles of interprofessional teams Performs safe and effective transitions of care/hand-offs in complex clinical situations Uses local resources effectively to meet the needs of a patient population or community	Role models effective coordination of patient- centered care among different disciplines and specialties Role models and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems, including outpatient settings Tailors individual practice to provide for the needs of a specific population or community	Analyzes the process of care coordination and leads in the design and implementation of Improvements Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes Leads innovations and advocates for populations and communities with health care inequities

Systems-Based Practice 3: Physician Role in Health Care Systems				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Identifies key components of the complex health care system (e.g., hospital, skilled nursing facility, finance, personnel, technology) Describes basic elements of health payment systems (e.g., government, private, public, uninsured care) and practice models	Describes how components of a complex health care system are interrelated, and how this impacts patient care Distinguishes specialty-specific elements of health payment systems (e.g., office, endoscopy, inpatient)	Discusses how individual practice affects the broader system (e.g., length of stay, readmission rates, clinical efficiency) Engages with patients in shared decision making, informed by each patient's payment model(s)	Manages various components of the complex health care system to provide efficient and effective patient care and transitions of care Leads and advocates for practice and population with consideration of the limitations of each patient's payment model	Advocates for or leads systems change that enhances high-value, efficient, and effective patient care and transitions of care Leads health policy advocacy activities related to access and payment Reform

Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Demonstrates how to access and use available evidence and incorporate patient preferences and values to take care of a routine patient	Articulates clinical questions and elicits patient preferences and values to guide evidence-based care	Locates and applies the best available evidence, integrated with patient preference, to the care of complex patients	Critically appraises and applies evidence even in the face of uncertainty and conflicting evidence to guide care, tailored to the individual patient	Coaches others to critically appraise and apply evidence for complex patients, and/or participates in the development of guidelines

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Demonstrates openness to performance data (feedback and other input) to inform goals	Accepts responsibility for personal and professional development by establishing goals	Seeks performance data episodically, with adaptability and humility	Intentionally seeks performance data consistently with adaptability and humility	Role models consistently seeking performance data with adaptability and humility
Identifies the factors which contribute to gap(s) between expectations and actual performance	Analyzes and reflects on the factors that contribute to gap(s) between expectations and actual performance	Analyzes, reflects on, and institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance	Consistently evaluates and challenges one's own assumptions, and considers alternative strategies to narrow the gap(s) between expectations and actual performance	Coaches others on reflective practice
Actively seeks opportunities to improve	Designs and implements a learning plan, with prompting	Independently creates and implements a learning plan	Uses performance data to measure the effectiveness of the learning plan and when necessary, adjusts it	Facilitates the design and implementation of learning plans for others

Professionalism 1: Professional Behavior and Ethical Principles				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Demonstrates professional behavior in routine situations Demonstrates knowledge of the ethical principles underlying informed consent, confidentiality, and related topics	Demonstrates professional behavior in complex or stressful Situations Recognizes the need to seek help in managing and resolving straightforward ethical Situations	Identifies and demonstrates insight into potential triggers for lapses in professional behavior Recognizes the need to seek help in managing and resolving complex ethical situations	Acts to prevent lapses in professional behavior in themselves and in others Recognizes and uses appropriate resources for managing and resolving ethical situations as needed (e.g., ethics consultations, literature review, risk management/legal consultation)	Coaches others when their behavior fails to meet professional Expectations Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their Resolution

Professionalism 2: Accountability/Conscientiousness				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Takes responsibility for failure to complete tasks and responsibilities, identifies potential contributing factors, and describes strategies for ensuring timely task completion in the future	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations	Recognizes and acts on situations that may impact the team's ability to complete tasks and responsibilities in a timely manner	Takes ownership of system outcomes
Responds promptly to requests or reminders to complete tasks and Responsibilities	Recognizes situations that may impact one's own ability to complete tasks and responsibilities in a timely manner	Proactively implements strategies to ensure that the needs of patients, teams, and systems are Met		

Professionalism 3: Self-Awareness and Help-Seeking				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Recognizes status of personal and professional well-being, with assistance	Independently recognizes status of personal and professional well-being	With assistance, proposes a plan to optimize personal and professional well-being	Independently develops a plan to optimize personal and professional well-being	Coaches others when emotional responses or limitations in knowledge/skills do not meet professional expectations
Recognizes limits in the knowledge/skills of oneself or the team, with assistance	Independently recognizes limits in the knowledge/ skills of oneself or the team	With assistance, proposes a plan to remediate or improve limits in the knowledge/ skills of oneself or the team	Independently develops a plan to remediate or improve limits in the knowledge/skills of oneself or the team	

Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication				
Level 1	Level 2	Leve 3 l	Level 4	Level 5
Demonstrates respect and establishes rapport	Establishes a therapeutic relationship in Straightforward encounters using active listening and clear Language	Establishes a therapeutic relationship in challenging patient encounters using active listening and clear language	Easily establishes therapeutic relationships, with attention to patient/family concerns and context, regardless of complexity	Mentors others in situational awareness and critical self-reflection to consistently develop positive therapeutic Relationships
	Identifies barriers to effective communication (e.g., language, disability) while accurately communicating own role within the health care System	When prompted, reflects on personal biases while attempting to minimize communication barriers	Independently recognizes personal biases while attempting to proactively minimize communication barriers	Role models self- awareness while identifying a contextual approach to minimize communication barriers
Recognizes the need to adjust communication strategies based on	Verifies patient's/family's understanding of the clinical situation to	With guidance, uses shared decision making to align patient's/family's	Independently uses shared decision making to make a personalized	Role models shared decision making in patient/family

patient need and context	optimize effective Communication	values, goals, and preferences with treatment options to make a personalized care plan	care plan	communication, including those with a high degree of uncertainty/conflict

Interpersonal and Communication Skills 2: Interprofessional and Team Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Respectfully receives a consultation request Uses language that values all members of the health care team	Clearly and concisely responds to a consultation request Communicates effectively with all health care team members, including inpatient and outpatient Providers	Checks understanding of primary team when providing consultation recommendations Uses active listening to adapt communication style to fit team needs	Coordinates recommendations from different members of the health care team to optimize patient care and resolve conflicts over recommendations	Role models flexible communication strategies that value input from all health care team members, resolving conflict when needed

Interpersonal and Communication Skills 3: Communication within Health Care Systems				
Level 1	Level 2	Level 3	Level 4	Level 5
Accurately records information in the patient record Safeguards patient personal health information	Demonstrates organized diagnostic and therapeutic reasoning through notes in the patient record Demonstrates accurate and appropriate use of documentation shortcuts Communicates through appropriate channels as required by institutional policy (e.g., patient safety reports, cell phone/pager usage)	Reports diagnostic and therapeutic reasoning in the patient record in a timely manner Appropriately selects direct (e.g., telephone, in- person) and indirect (e.g., progress notes, text messages) forms of communication based on context Respectfully uses appropriate channels to offer clear and constructive suggestions to improve the system	Communicates clearly, concisely, efficiently, and in an organized written form, and provides anticipatory guidance Achieves written or verbal communication (patient notes, email, etc.) that serves as an example for others to follow Initiates difficult conversations with appropriate stakeholders in a professional manner to improve the system	Models feedback to improve others' written communication Guides departmental or institutional communication around policies and procedures Facilitates dialogue regarding systems issues among larger community stakeholders (institution, health care system, field)

Overall Clinical Competence

This rating represents assessment of the resident development of overall clinical competence during this year of training:

Superior: Far exceeds the expected level of development for this year of training.

Satisfactory: Always meets and occasionally exceeds the expected level of development for this year of training.

Conditional on Improvement: Meets some developmental milestones but occasionally falls short of the expected level of development for this year of training. An improvement plan is in place to facilitate achievement of competence appropriate to the level of training.

Unsatisfactory: Consistently falls short of the expected level of development for this year of training

Table of contents

Details of Gastrointestinal course contents		Teaching methods	Assessment
Diseases of Esophagus and Stomach	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 sec ondary 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 individual NSAID preparations based on various different properties. 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	Large class format (interactive lecture) Bed side teaching Case Base discussion Problem based learning Seminars Conferences Out patient evaluation in clinic Endoscopy Lab	MCQs & SEQs OSCE, Long case Short case DOPS

	analogues, prokinetic agents, and antibiotics. 8. Etiopathogenesis, Investigations and Management of infections involving esophagus and stomach such as viral infection (CMV, HSV, HIV etc.), fungal infections (Candidiasis, bacterial infection H.pylori) 9. Etiopathogenesis and management of corrosive injury, pill esophagitis. 10. Etiopathogensis, investigations and management of Zenker's Diverticulum, Esophageal stenosis, tracheoesophageal fistula, esophageal ring and web, vascular anomalies. 11. Investigations and management of non cardiac chest pain. 12. Etiopathogenesis, investigations and management of Collagenous, lymphocytic and eosinophilic esophagitis and gastritis, Gastritis Cystica Profunda Gastropathies: (Bile, stress,Radiation. ischemic, GVHD), Portal Hypertensive Gastropathy Menetrier's disease 13. Endoscopic and surgical treatments of above mentioned diseases.		
Biliary disorders	During residency, trainees should gain an understanding of the following: 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 gall bladderfunction. 3. Physiology of bile secretion and its derangement in cholestaticdisorders. 4. Cholelithiasis—epidemiology, etiology, clinical manifestations and complications, treatment modalities.	Large class format (interactive lecture) Bed side teaching Case Base discussion Problem based learning Conferences	MCQs & SEQs OSCE Long case Short case

	5. Other disorders of the bile ducts, including recurrent pyogenic cholangitis, parasitic and opportunistic infections. 6. Other inflammatory disorders of the gall bladder such as acalculous cholecystitis. 7. Neoplastic diseases of the gallbladder, bile duct and ampulla 8. Motility disorders including gallbladder dyskinesia, sphincter of Oddi dysfunction. 9. Principles of evaluation and treatment of common clinical syndromes: a. Cholestasis b. RUQ and "biliary-type"pain c. Incidental findings on radiographic testing 10. Radiographic evaluation of the biliary tree: basic principles, utility and lesionrecognition: a. Ultrasonography b. CT c. MRI d. Scintigraphic techniques e. MRCP Principles, utility, and complications of biliary surgery. Primary and secondary sclerosing cholangitis	Out patient evaluation in clinic MDM Radiology Rotation	
Pancreatic disorders	1 .The embryological development and anatomy of the pancreas and pancreatic duct system and congenital disorders such as pancreas divisum, annularpancreas. 2. The physiological processes involved in pancreatic exocrine secretion of digestive enzymes, water and electrolytes. 3. The types of digestive enzymes secreted by the pancreas, their mechanisms of activation and their roles in the digestive process. 2. The factors that protect the pancreas from auto digestion.	Large class format (interactive lecture) Bed side teaching Case Base discussion Problem based learning	MCQs & SEQs OSCE Long case Short case

	3. The epidemiology, etiology, pathophysiology, natural history, and management of acute pancreatitis in all spectra of severity and its complications. 4. The epidemiology, etiology, pathophysiology, natural history, and management of chronic pancreatitis with particular emphasis on management of exocrine insufficiency and chronic pain. 5. The epidemiology, etiology, natural history, and management of pancreatic cancer and its complications. 6. The molecular genetics of pancreatic disease with particular reference to hereditary pancreatitis and cystic fibrosis, their diagnosis and management. 7. Radiographic evaluation of the pancreas:basic principles, utility, and lesion recognition: a. Ultrasonography b. CT c. MRI d. MRCP 8. Principles, utility, and complications of pancreatic surgery. 9. The basis and indications for and the interpretation of diagnostic test results in the diagnosis and management of diseases of the pancreas, in particular, serum amylase and lipase determination, markers for chronic pancreatitis (fecal elastase, serum tryspinogen-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 pan- creatic masses, and analysis of cytology in endoscopic aspirates of pancreatic juice. 10. Principles and practice of nutritional support for patients with	Conferences Out patient evaluation in clinic MDM Radiology Rotation	

	both acute and chronic pancreatitis. 11. Pancreatic tumors (hereditary) 12. Auto immune pancreatitis 13. Chronic pancreatitis : Medical management Endoscopic management Surgical management		
Liver diseases	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. During the training period, comprehensive teaching of the following subjects is essential: 1. The biology and pathophysiology of liver diseases 2. Diagnosis and management of patients with the wide variety of diseases of the liver and biliary tract systems, including the following: a. Acute hepatitis: viral, toxic, drug-induced etc. 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); biochemical,	Large class format (interactive lecture) Bed side teaching Case Base discussion Problem based learning Conferences Seminars Out patient evaluation in clinic MDM Radiology rotation Pathology rotation Liver transplant rotation	MCQs & SEQs OSCE Long case Short case

	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 and HPS. e. Hepatocellular carcinoma (screening and diagnostic options, treatment options). f. Nonviral causes of chronic liver disease, such as alcohol, nonalcoholic fatty liver disease (including non alcoholic steatohepatitis), Wilson's disease, primary biliary cirrhosis, autoimmune hepatitis hemochromatosis, and $\alpha 1$-antitrypsin deficiency, Overlap syndrome / PSC. g. 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. 3. Management of the nutritional problems associated		

	with chronic liver disease (see Training in Nutrition). 4. Liver pathology, including histological interpretation and specific pathological techniques (see Training in Pathology). 5. Pediatric and congenital hepatobiliary disorders (see Training in PediatricGastroenterology). Liver imaging modalities, including interpretation of computed tomography, magnetic resonance-based techniques (magnetic resonance imaging, magnetic resonance angio- graphy, magnetic resonance cholangiography), hepatic angiography, and ultrasound (including Doppler evaluation of hepatic vasculature). 6. Etiology, pathogenesis, diagnosis and management of other diseases like infection (liver abscess, bacterial, fungal), bacterial, fungal, Granulomatous Diseases of liver, Cystic disease of liver, Infiltrative diseases, Hepatic manifestation of systemic diseases, DILI, Vascular disorders		
Intestinal diseases	During residency, trainees should gain an understanding of gastrointestinal infections, including the following: 1. The mechanisms of inflammation 2. Elements of the mucosal defense system (including the mucosal immune system and the components of intestinal	Large class format (interactive lecture) Bed side teaching	MCQs & SEQs Long case Short case

	barrier function) 3. The composition and function of normal enteric flora (including protection against pathogens, colonization resistance, role in metabolism [nitrogen, carbohydrate, fat, vitamins, bile salts], and the effects of antibiotics on the flora) 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 infection 6. The indications and contraindications for antimicrobial therapy, mechanisms of microbial drug resistance, and risk of infections from altering normal flora (e.g., Clostridium difficile) Clinical skills should include a familiarity with the following diagnostic and histopathologic studies (see Training in Pathology): 1. Microscopic examination of stool: fecal leukocytes and ova and parasites 2. Culture of stool, intestinal fluid, and mucosal biopsy specimens (specimen collection, handling, special stains, and media) 3. Mucosal biopsy interpretation 4. Antigen detection in stool and fluid (enzyme immunoassay, fluorescent antibody) and stool toxin testing 5. Rapid diagnostic tests (DNA probes or polymerase chain reaction)	Case Base discussion Problem based learning Seminars Out patient evaluation in clinic Pathology rotation	
	During residency, 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-	Bedside teaching	MCQs & SEQs OSCE

	related from AIDS- unrelated conditions. Esophageal disorders include infectious esophagitis (fungal, viral, HIV, and neo plasms). 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 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. 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. AIDS-associated pancreatic disorders, including causes of pancreatitis (infectious, neoplastic, toxic), the implications of hyperamylasemia, and the nutritional evaluation of pancreatic disorders in patients with AIDS (assessment of nutritional status and development and implementation of nutritional therapies, including enteral and parenteral) should be incorporated (see Training in Nutrition). • 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. • HIV/AIDS related Hepatic and GI tract manifestation. • Hepatico-pancreatic manifestations/complications		Long case Short case

	• Celiac Disease, tropical diarrhea and malabsorption. • Whipple diseases and food poisoning • Antibiotic associated diarrhea • Intestinal protozoa and worms • Intestinal ischemia / Ulcerations • Intestinal obstruction, ileus and pseudo obstruction syndromes. • Anal diseases • Eosinophilic disorders of GI Tract • •		
Inflammatory Bowel Diseases	▪ 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 selflimited (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'sdisease. ▪ Recognition of different presentations of IBD, including the pediatric manifestations, anorectal complications, and inflammatory versus fistulizing versus fibrostenotic patterns of Crohn's disease, and be able to recognize these various presentations on history taking and physical examination.	Large class format (interactive lecture) Bed side teaching Case Base discussion Problem based learning Seminars Out patient evaluation in clinic Pathology rotation	MCQs & SEQs Long case Short case

	▪ 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 methyl transferase)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 post operative complications of surgery in ulcerative colitis (including pouchitis after ileo-anal anastomoses) and Crohn's disease (including the differentiation and management of postoperative diarrhea). ▪ Sensitivity to psychosocial influences as wellas 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 , anticholinergic agents, anti diarrheals, and bile salt sequestrants; oral and topical aminosalicylates; parenteral, enteral, and rectal corticosteroids; and immunosuppressants (purine ana logues 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. • Understanding the indications for enteral and parenteral alimentation and be able to implement nutritional therapies • Understanding managements : Medical (drugs)Surgical(different type of surgeries) Post-operative care and complications. Microscopic colitis, CollagenousLymphocytic Pseudomembranous colitis(PMC) • IBD – ileostomies, Colostomies, Pouches and anastomoses.		
GI Malignancies	• Develop a sound knowledge of tumor biology. • Develop a thorough familiarity with the literature on cancer epidemiology, primary prevention, and screening for colorectal cancer with fecal occult blood tests as well as endoscopic and radiological approaches. • 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	Small group discussion Bed side teaching Case Base discussion Problem based learning Out patient evaluation in clinic Pathology rotation Radiology rotation	MCQs & SEQs Long case Short case

	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 isnecessary. • 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. • 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. 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 prognosis associated with different types of gastrointestinal cancer. 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	MDM Oncology rotation	

	gastroitestinal 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. • Gain additional experience, for those who desire advance training, in the placement of endoscopic stents, laser ablation, photodynamic therapy, endoscopic ultrasound, fine needle aspiration of tumors, endoscopic mucosectomy, and endoscopic celiac ganglion block for patients with pancreatic cancer. • Develop a sound knowledge of etiology, pathogenesis, diagnosis, treatment and training of benign and malignant esophageal, gastric and small intestine tumour. • Develop a sound knowledge of etiology, pathogenesis, diagnosis, treatment and training of benign and malignant liver tumor.		
Motility and Functional disorders	To diagnose and treat motility and functional disorders effectively, trainees in gastroenterology must attain knowledge and understanding of the following • 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 bio psychosocial continum. • Pharmacology of agents modulating motility and sensation, including prokinetic drugs, anti diarrheals,	Bed side teaching Case Base discussion Problem based learning Out patient evaluation in clini Radiology rotation	MCQs & SEQs Long case Short case

	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, esophageal dysmotility, including achalasia, diffuse esophageal spasm and other spastic disorders, non cardiac chest pain. • Physiology and pathophysiology of gastroesophageal reflux, singultus, and belching. • Organization and control of gastric motor activity and physiology of gastric emptying, gastroparesis and post surgical gastric syndromes, nonulcer dyspepsia. • Small bowel physiology, congenital and acquired disorders of small bowel motility, including diabetes, 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 gallbladderdyskinesia • Systemic disorders affecting gastrointestinal motility (diabetes mellitus, scleroderma, thyroid disease, paraneoplastic syndromes, and neurologic disorders including dysautonomia). • Principles of clinical psychology as it relates to the management of patients with chronic disorders including an understanding of cognitive behavioral therapy, hypnosis, and other forms of alternative medicine indications and appropriate use of psycho pharmaceuticals.		

Pediatric Gastroenterology **Geriatric Gastroenterology**	• Functional abdominal syndromes During residency, trainees of adult gastroenterology should gain an understanding of the following ▪ Neonatal jaundice, and cholestasis ▪ IBD related issues in pediatric population ▪ Eosinophilic disorders ▪ Viral hepatitis(including Metabolic liver disorders) ▪ AIH ▪ Malabsorbtion(CD) ▪ GI Bleed ▪ 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. General Issues: • Impact of age on presentation, diagnosis and treatment of important gastrointestinal conditions. • Impact of depression and dementia on presentation		

G I Endoscopy preparation and complications	and treatment. • Pathophysiology of aging • Social and ethical issues Geriatric gastroenterology . Changes of G.I. function with aging, (e.g.) slowing of colonic motility and rectal Dysfunction . Changes in drug metabolism . Effect of aging on nutrition . GI problems in institutionalized and bedridden patients (e.g) fecal impaction as risk factor for urine incontinence ▪ Endoscopic gastrostomy tube risks and complications ▪ Evaluation and risks of endoscopic procedures among elderly During residency, trainees should gain an understanding of the following: Endoscopes and accessories used in Gastroenterology Sterilization of G I endoscopes and instruments Other electrosurgical instruments knowledge, their use and complications in endoscopy ▪ 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. ▪ Correct interpretation of 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 thepatient. ▪ Anticoagulants,antiplatelet agents and GI endoscopy ▪ Safe and appropriate use of moderate sedation.		
Nutrition	○ 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.	Bed side teaching Case Base discussion Problem based learning Out patient evaluation in clini	MCQs & SEQs Long case

	○ Ethical and legal issues involved in provision and withdrawal of nutrition support. ○ 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, advantages and disadvantages of the 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. Nutrition in specific Gastrointestinal conditions Liver Diseases (cirrhosis and HCC) Pancreatitis (Acute and chronic), IBD, Obesity, Critical illness, G I Cancers and Diverticular diseases.		
GI & Liver Diseases in Pregnancy	• GI and liver changes in normal pregnancy. • Effect of pre existing GI and liver disorders on pregnancy and fertility. • Impact of pregnancy on gastrointestinal & liver disease. • GI and liver disorders unique to pregnancy • Maternal fetal transmission of infections and appropriate management of mother and infant • Pharmacokinetics and interactions of medications during pregnancy and breast feeding with potential harm to fetus. • Nutritional requirements • Rectal prolapse, hemorrhoids, fecal incontinence	Bedside teaching Large class format (Interactive lecture) Case based discussion. Small Group Discussion.	MCQs & SEQs Long case
Miscellaneous	. Learn pathophysiology, risk factors, complications, diagnosis and management of Obesity. Gain additional knowledge and experience in endoscopic and surgical management of obesity. . Developed a thorough familiarity with Diverticular diseases of Pharynx, Esophagus, Stomach, Small and Large Intestine. . Pathophysiology, Diagnosis and Management of gastrointestinal diverticular diseases and complications. . Management of GI Foreign Bodies, Bezoars and	Bedside teaching Large class format (Interactive lecture) Case based discussion. Small Group Discussion.	MCQs & SEQs Long case Short case

	caustic ingestion Learned Etiology, pathophysiology diagnosis and management of following disorders. • Gastrointestinal and Hepatic Complications of solid organ and Haemopoietic Trasnplantation. • Cutaneous Manifestations of GI and liver Diseases. • Vascular disorders of the GI Tract • Gastrointestinal and hepatic manifestations of radiation therapy • Pre and Probiotics • Palliatic care in patients with advanced gastrointestinal and hepatic diseases.		

Target of G I procedures to be achieved during residency for better competency

Procedure	total number
Esophagogastroduodenoscopy including biopsy	300
Treatment of nonvariceal hemorrhage (10 actively bleeding)	25
Treatment of variceal hemorrhage (25 actively bleeding)	100
Esophageal dilation (guidewire and through the scope)	20
Esophageal Stenting	5
Sigmoidoscopy	100
Colonoscopy (Including snare polypectomy and hemostasis)	150 20
Percutaneous endoscopic gastrostomy(PEG) placement	15
PBD	10
ERCP cannulation	25
Sphincterotomy and stone extraction	10
Biliary stenting	5
Standard esophageal motility	10

NOTE: Minimum numbers of GI procedures required for competency are mentioned in curriculum and it is understood that most trainees will require more (never less) than the stated number to meet the competency standards. Number of procedures mention in above table are RMU MD GI residency requirement to excel competency.

Books

1. Sleisenger Z. Gastrointestinal & Liver Disease (2 Vol) – Saunders
2. Yamada. Textbook of Gastroenterology (2 Vol)
3. Walker. Paediatric Gastrointestinal Disease (2 Vol) – B.C. Docker
4. A.K. Rustgi – Gastrointestinal Cancer. – Elsevier, Saunders
5. Kelsen. Principles and practice of gastrointestinal oncology – LWW
6. Schiff. Disease of Liver (2 Vol) – LWW
7. Sherlock S. Diseases of Liver & Biliary system – Blackwell
8. Blumgart. Surgery of liver & biliary tract – Saunders
9. Busutil R.W. Transplantation of Liver (2 Vol) – Elseiver Saunders
10. Gore text book of Gastrointestinal Radiology

Journals

1) Gastroenterology
2) Hepatology
3) Journal of Gastroenterology and Hepatology
4) Gut
5) Endoscopy
6) Gsatrointestinal Endoscopy
7) Lancet / NEJM / Annals Internal Medicine

Various website and CD-ROM programme which will help in keeping updated are recommended

1) Gastrohep. Com
2) Medscape. com
3) Cochrane reviews

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 five 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. (One year research, academic training, separate)

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 including, P value, +-ve/-ve Perdictive value and AUC
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: status?

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

FOR

MD SCHOLARS

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 five 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:

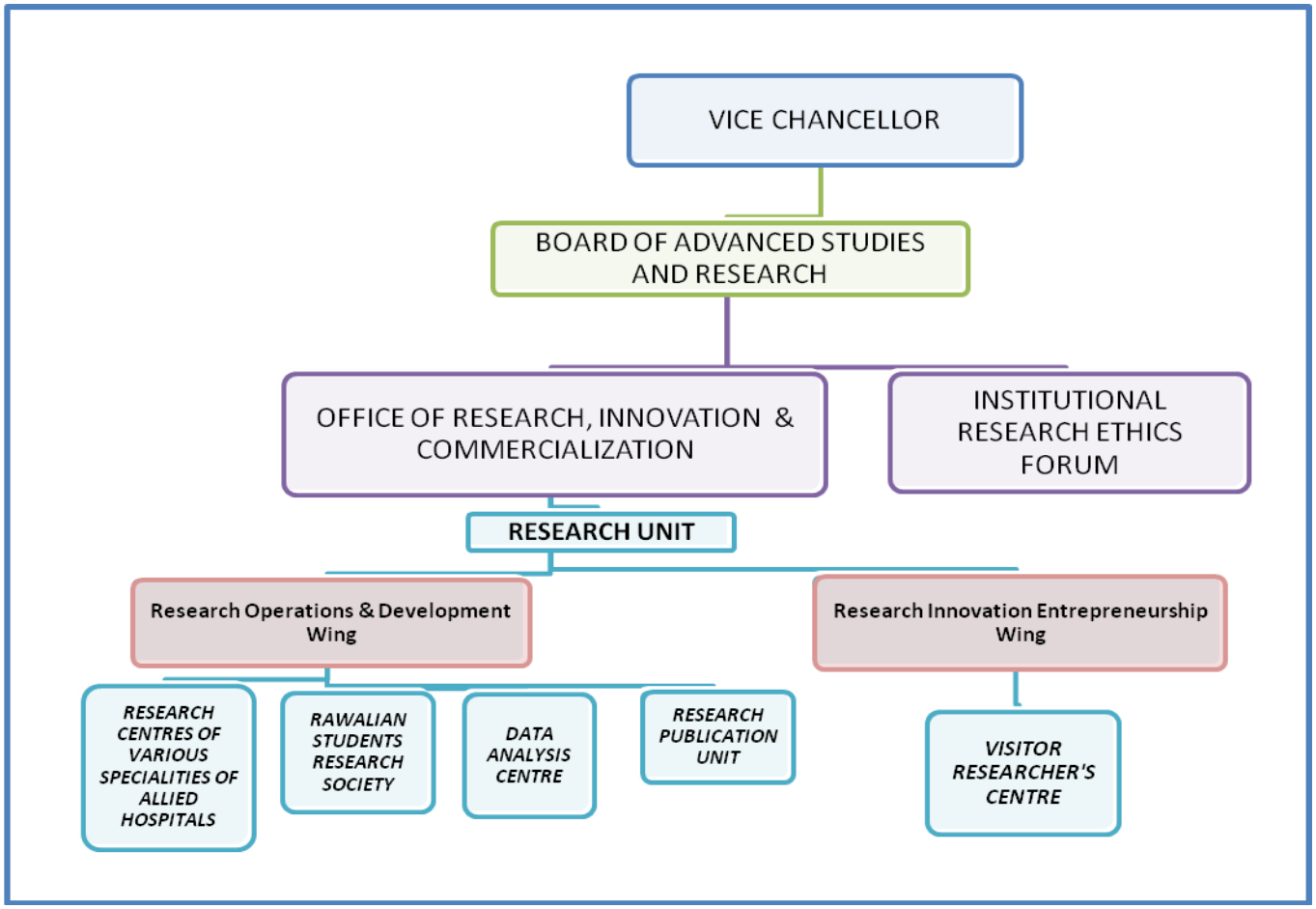
I. At the beginning of the research course, an orientation session or an introductory session of one hour duration will be held, organized by Director, Deputy Directors of ORIC (Office of Research Commercialization and Innovation) of RMU to make trainees acquainted to the research courses during five 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 five 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: ***(TIME TABLE)***

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.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 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 followed by Individual exercise & Take home assignment	Literature review Referencing systems; Vancouver & Harvard referencing systems	• Describe the methods for reviewing available literature and other information for preparation of a research. • Should be familiar with referencing systems and its importance. • Use Vancouver and Harvard referencing systems and should be able to differentiate between them.

SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 4 WEEK 1 Month 2	Lecture through power point presentation followed by Individual exercise & Take home assignment	Literature review Referencing managing systems	• Describe the methods for reviewing available literature and other information for preparation of a research. • Should be familiar with use and importance of reference managing systems; Endnote & Mendeley. • Use the literature review and other information pertaining to a research topic that will adequately describe the context of study and strengthen the statement of the problem.
SESSION 5 WEEK 2 Month 2	Lecture through power point presentation followed by Individual exercise & Take home assignment	Plagiarism	• Describe the significance and necessity of plagiarism detection • 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	• 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	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES***

& TIMINGS			***i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 7 WEEK 4 Month 2	Lecture through power point presentation followed by Individual Assignment	Formulation of Hypothesis for a research	• State the reasons and scenario for formull2ating research hypothesis. • Define and describe the types difference between one sided and two sided hypothesis. • Formulate Null hypothesis and Alternate hypothesis in an appropriate format. • Identify importance of hypothesis testing and to identify type I & type II errors.
SESSION 8 WEEK 1 Month 3	Lecture through power point presentation followed by a group exercise.	Research methodology; Variables and Indicators	• 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.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***

SESSION 9 WEEK 2 Month 3	Lecture through power point presentation followed by a group exercise.	Research methodology; Study types	• 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.
SESSION 10 WEEK 1 Month 4	Lecture through power point presentation	Data collection techniques	Describe various data collection techniques and state their uses and limitations. Advantageously use a combination of different data collection techniques. Identify various sources of bias in data collection and ways of preventing bias. Identify ethical issues involved in the implementation of research and ways of ensuring that informants or subjects are not harmed. Identify appropriate data-collection techniques.
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.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
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.
SESSION 14 WEEK 3 Month 5	Lecture through power point presentation	Plan for Data Entry , storage and Statistical Analysis	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.

SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
			Describe how data can best be analyzed and interpreted based on the objectives and variables of the study 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

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

		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	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

		presentations Presenting a research paper	research paper published in any national or international journal. Can formulate a poster of a research paper published in any national or international journal.

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 internees at departmental level.

ii. The purpose of journal club will be to collectively attempt to seek new knowledge through awareness of current and recent research findings and 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 ARTICLE/STATISTICAL REPORT OF DISEASE

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 compromise 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 andpotential of all the activities and projects of research with an aim of further progression in career development.

G. OVERALL ASSESSMENT OF PERFORMACE 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, I 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;*** oneof 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.

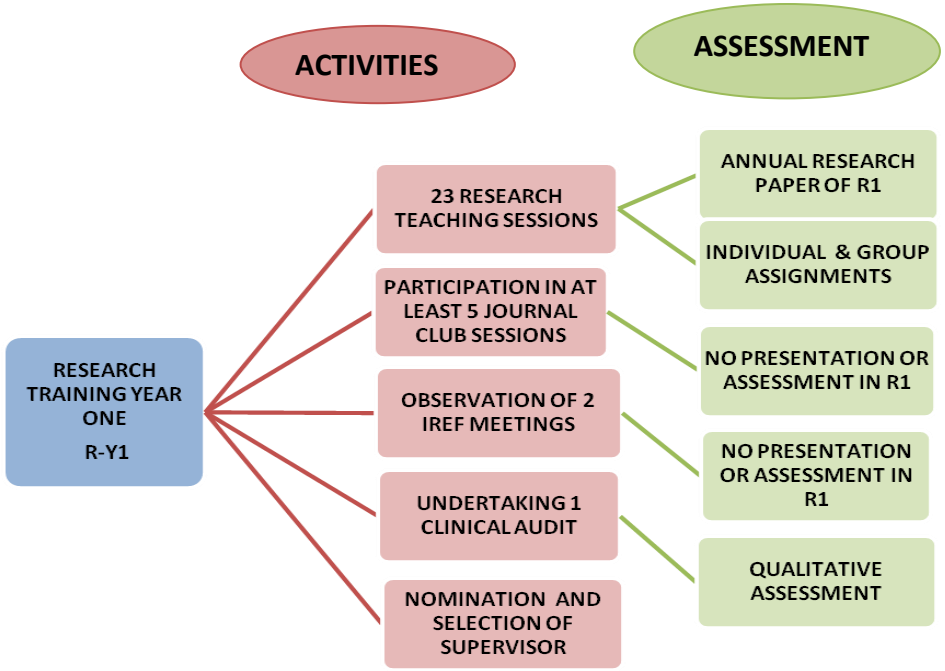
vi. The QEC will organize an external evaluation too through involvement of a third party that may include members of Quality assurance department of Higher Education Department based on their availability.

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 GRAUDATION TRAINING YEAR
R-Y2

PURPOSE OF R-Y2 RESEARCH COURSE:

The YEAR 2-R2 research course of the post graduate trainees will provide optimum skills to trainees to 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 Biostatics 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 individual exercises &Take home individual assignments.	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.
SESSIONS	***TEACHING***	***TOPIC OF***	***SESSION OBJECTIVES***

& TIMINGS	*STRATEGY*	*SESSION*	*i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;*
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	Define incidence, risk, relative risk and odds ratio. Calculate relative risk for appropriate study designs (cross-sectional comparative studies, cohort studies, case-control studies and experimental studies) Calculate measures of association manually and also through SPSS and med-calculator.
SESSION 5 WEEK 2 Month 2	Lecture through power point presentation followed by Individual	Confounding and methods to control confounding	Identify what is confounding and what are confounder variables Explain different ways of dealing with confounding at the design and analysis stage of a study. Evaluate whether an association between two variables may be influenced by another confounding variable/risk factor.

	exercise & Take home assignment		Calculate association in a way that takes into consideration the effect of potential confounding by another variable/risk factor.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 6 WEEK 3 Month 2	Lecture through power point presentation followed by Individual exercise & Take home individual assignments	Basic statistical concepts; Measure of dispersion and confidence Intervals	Explain what is meant by a range, a percentile, a standard deviation, a normal distribution, a standard error and a 95% confidence interval. Calculate ranges, standard deviations, standard errors and 95% confidence intervals for data, manually as well as through SPSS.
SESSION 7 WEEK 1 Month 3	Lecture through power point presentation	Hypothesis testing for a research	State the concept of hypothesis testing. Define and describe the types difference between one sided and two sided hypothesis. Formulate Null hypothesis and Alternate hypothesis in an appropriate format. Identify importance of hypothesis testing and to identify type I & type II errors.

SESSION 8 WEEK 2 Month 3	Lecture through power point presentation followed by a Take home individual assignment.	Tests of Significance	➢ Explain what a significance test is and what its purpose is. ➢ Explain what is probability value or p-value ➢ Identifying various tests of significances ➢ Identifying appropriate test of significance for a specific research design.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES*** ***i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
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.

SESSION 10 WEEK 2 Month 4	Lecture through power point presentation followed by an individual exercise & Take home individual assignment.	Determining difference between two groups- numerical data Paired & unpaired observations	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.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES*** ***i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 11 WEEK 1 Month 5	Lecture through power point presentation followed by an individual exercise & Take home individual assignment.	Determining difference between more than two groups- numerical data ANOVA (Analysis of Variance)	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.

SESSION 12 WEEK 2 Month 5	Lecture through power point presentation followed by an individual exercise	Determining Correlation between variables	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.
SESSION 13 WEEK 3 Month 5	Lecture through power point presentation followed by an individual exercise	Regression Analysis	Explain what is a regression analysis Differentiate between simple linear and multiple logistic regression analysis. Decide when to apply the regression analysis and how to interpret. 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 through SPSS.
SESSIONS & TIMINGS	***TEACHING STRATEGY***	***TOPIC OF SESSION***	***SESSION OBJECTIVES*** ***i.e. BY THE END OF SESSION THE TRAINEES SHOULD BE ABLE TO;***
SESSION 14 WEEK 1 Month 6	Lecture through power point presentation and individual	Diagnostic Accuracy of a test	• Identify what is a diagnostic accuracy of a test compared to gold standard tests. Identify what are true positives, true negatives, false positive and false negatives in a diagnostic testing.

	exercises		Calculate Sensitivity, specificity, Positive and negative predictive values of a diagnostic test using standard formulae.
SESSION 15 WEEK 2 Month 6	Lecture through power point presentation and individual exercises	Writing a research paper	List the main components of a research paper. Make an outline of a research paper. 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 exercise*s:**

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 willbe 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 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 evidenced-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 a 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 compulsion 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. 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.

D. OVERALL ASSESSMENT OF PERFORMACE 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.

E. 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;*** oneof 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.

F. 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.

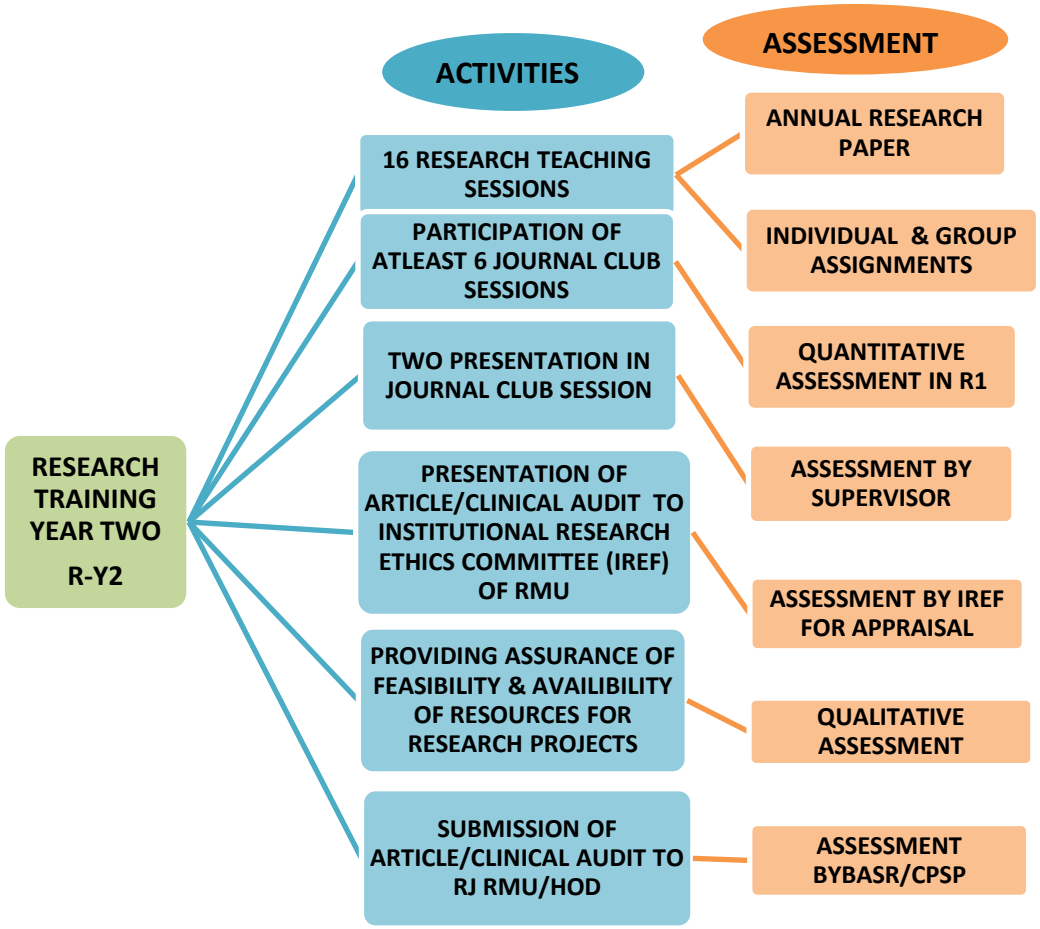
vi. An annual meeting of the quality assessment and enhancement, by end of year 2, will also be organized by the Quality Enhancement Cell of RMU, including representatives of supervisors, Head of Departments, Dean, representative members of BASR, ORIC, DME, QEC & IREF, who will be then collectively, 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 GRAUDATION TRAINING YEAR
R-Y3

PURPOSE OF R-Y3 RESEARCH COURSE:

Utilizing all the knowledge and skills in research, accrued during first two years, the post graduate trainees of RMU, will be dexterous enough to 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 of MD Gastroenterology will select his/her thesis topic. 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 RMU 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.

TIME FRAME WORK DURING THIRD YEAR R-Y3	***TOPICS OF SHORT REFRESHER COURSES***
MONTH 1	End note referencing manager
MONTH 2	Mendeley referencing manager
MONTH 3	Effective write up of Literature review(optional)
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.(optional)
MONTH 8	Research article write up (optional)
MONTH9	Critical appraisal of research(optional)
MONTH 10	How to Present Research through power-point or posters (optional)

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 10 out of 12 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. FORMULATION OF RESEARCH PROPOSAL/S OF DISSERTATION/RESEARCH PAPERS AS REQUISITE TO MD DEGREE

i. At the beginning of year 3, 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 3 i.e. R-Y3.

iii. OPTION A: Submission of one dissertation in specialty field as requisite to MD degree OR

iv. OPTION B: Publication of two original research articles in any PMC recognized journals, being first author. 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.

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-Y3 and hence decide the final title of the research project/s.

vi. During these firstsix months of R-Y3, 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-Y3 and will submit the list to BASR.

xi. BASR will give the final approval of all topics within same month.

xii. 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 eight month of R-Y3 in consultation with supervisor and the research associates of ORIC for guidance in methodology.

xiii. 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

1. Ethical Considerations
2. Work plan/Gantt chart
3. Budget with justifications
4. Reference list according to the Vancouver referencing style
5. Annexure *(including data collection tool or performa, consent form, official letters, scales, scoring systems and/or any other relevant material)*

iv. The research proposal should be completed in ninth month of R-Y3 and should also be reviewed and finalized by the Supervisor of the trainees.

v. 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 18% 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.

vi. The statistician at data analysis centre of ORIC will facilitate the trainees in sample size calculation through sample size calculators according their study designs.

vii. 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.

viii. These research proposals along with the tools will be submitted to all concerned authorities for appraisal.

xix. 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 fourth year of training leaving enough time for its write up during year 5 of training. For the post graduate trainees following option of Publication of two original research articles, the study duration will be even briefer.

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

i. The R-Y3 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 & Y2. 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-Y3. 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.

E. ASSURANCE OF FEASIBILITY & AVAILIBILITY 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/she will also provide documented proof and justification to avoid any unforeseen problems that may lead to incompletion 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 fourth year of training.

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

i. 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.

ii. 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.

iii. 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 BASR to save their time.

iv. 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.

G. 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 second earch 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.

H. OVERALL ASSESSMENT OF PERFORMACE 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.

I. 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;*** oneof 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.

J. 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.

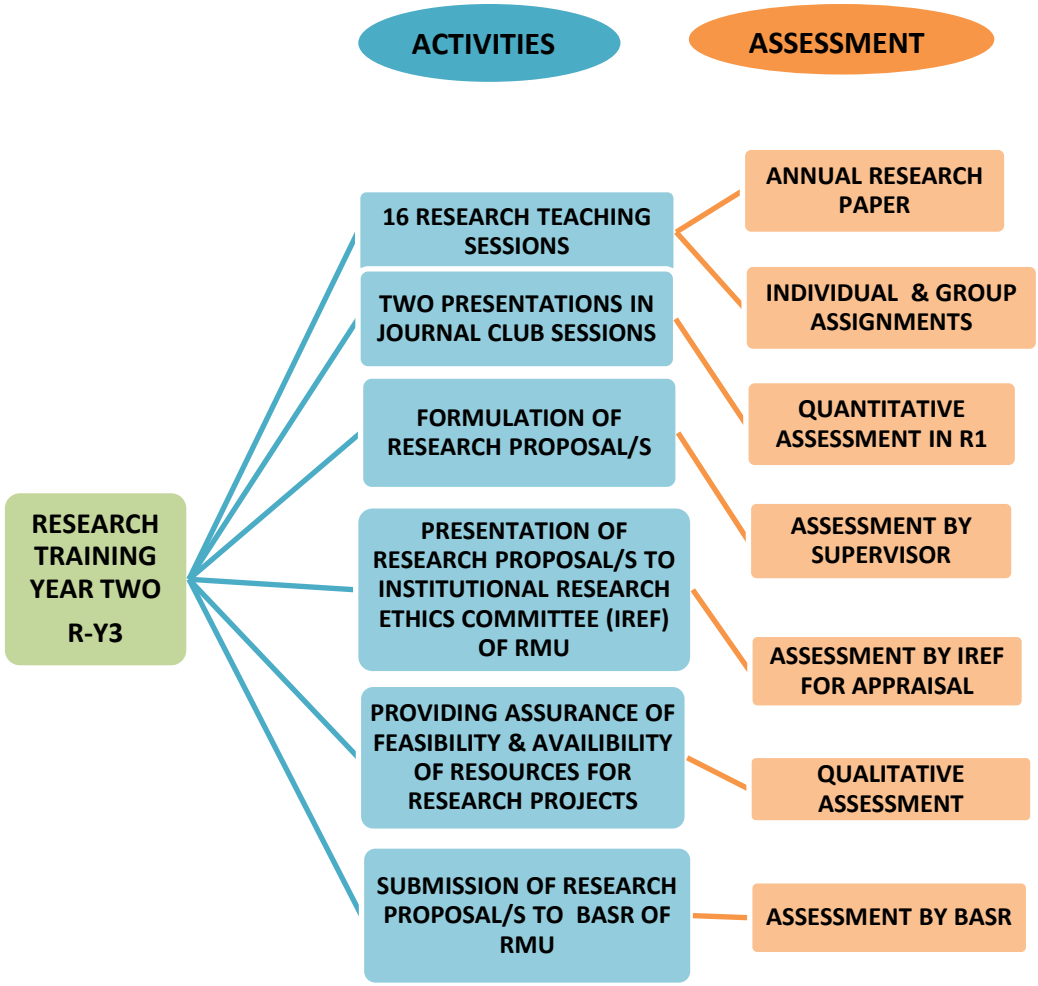
vi. Since the R-Y3 will primarily comprise of the data collection phase of research projects of trainees, therefore, Quality Enhancement Cell (QEC) in liaison with the research centers of the specialty, will ensure the originality, transparency and unambiguity of data, during entire data collection.

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 3. A FLOW CHART OF RESEARCH ACTIVITIES OF R-Y3 MD RESIDENTS OF RMU AND THEIR ASSESSMENTS



RESEARCH COURSE OF FOURTH POST GRAUDATION TRAINING YEAR
R-Y4

PURPOSE OF R-Y4 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-Y4 RESEARCH COURSE

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

1. Revise and rejuvenate all the basic concepts of Epidemiological measures and biostatistics
2. Identify and execute proficiently all procedures required for data collection, data analysis and interpretation.
3. Analyze and interpret the data collected for a research project and draw conclusions related to the objectives of study.
4. 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.
5. Collect and store high quality information for their research project in an honest and unambiguous way

RESEARCH COURSE OF FOURTH TRAINING YEAR

During the fourth 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.

Time frame work during third Year r-y3	***Topics of short refresher courses***
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. PARTICIPATION IN JOURNAL CLUB SESSIONS

i. During fourth year of training, the trainees should continue to actively participate in the journal club sessions of the department on regular basis.

ii. The R-Y4 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,R-Y2 and R-Y-3 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-Y4 trainee should actively participate in question & answer session of the journal club too. 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 for R-Y4 trainee:

The R-Y4 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-Y4 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 4 , the trainees will have received the approval from the IREF, BASR 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 4, 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-Y4, the data collection and entry of data must be completed.

vii. In case the trainee will be working on option B 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 4 of training simultaneously. Otherwise they can also collect data for first paper within first three

months of year 4 of training and then will initiate data collection of second paper from sixth to ninth month of year 4 of training. Whatever is the option followed by the trainee, the data collection phase should not extend beyond ninth month of R-Y4, in order to complete both papers for submission till end of R-Y4.

viii. MD scholars writing dissertation must also complete data collection and analysis till last month of R-Y4.

D. COMPLETION AND SUBMISSION OF TWO RESEARCH PAPERS AS REQUISITE TO MD DEGREE

This section D implies only for the trainees who will be following option B i.e. publication of two research papers, as requisite , 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 fourth 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 4 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-Y4 to journals of choice.

OPTION 2: The trainees should complete data collection of first paper within first three months of year 4 of training and then submit first paper after completion of manuscript till sixth month of R-Y4 to journal of choice. Then the trainee will initiate data collection of second paper till ninth month of year 4 of training and then submit second manuscript after completion till last month of R-Y4 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 5 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 18% 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 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-Y4

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E. MONITORING OF RESEARCH ACTIVITIES OF YEAR 4

i. During the fourth year of training of post graduate trainees, they will be scrutinized for each and every activity of dissertation writing, data collection 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 and discussion.

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 PERFORMACE 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 fourth 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 four 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 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;*** oneof 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 chairman ship 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 4 (A) . A FLOW CHART OF RESEARCH ACTIVITIES AND ASSESSMENTS OF R-Y4 MD RESIDENTS OF RMU WHO WILL OPT FOR DISSERTATION WRITING

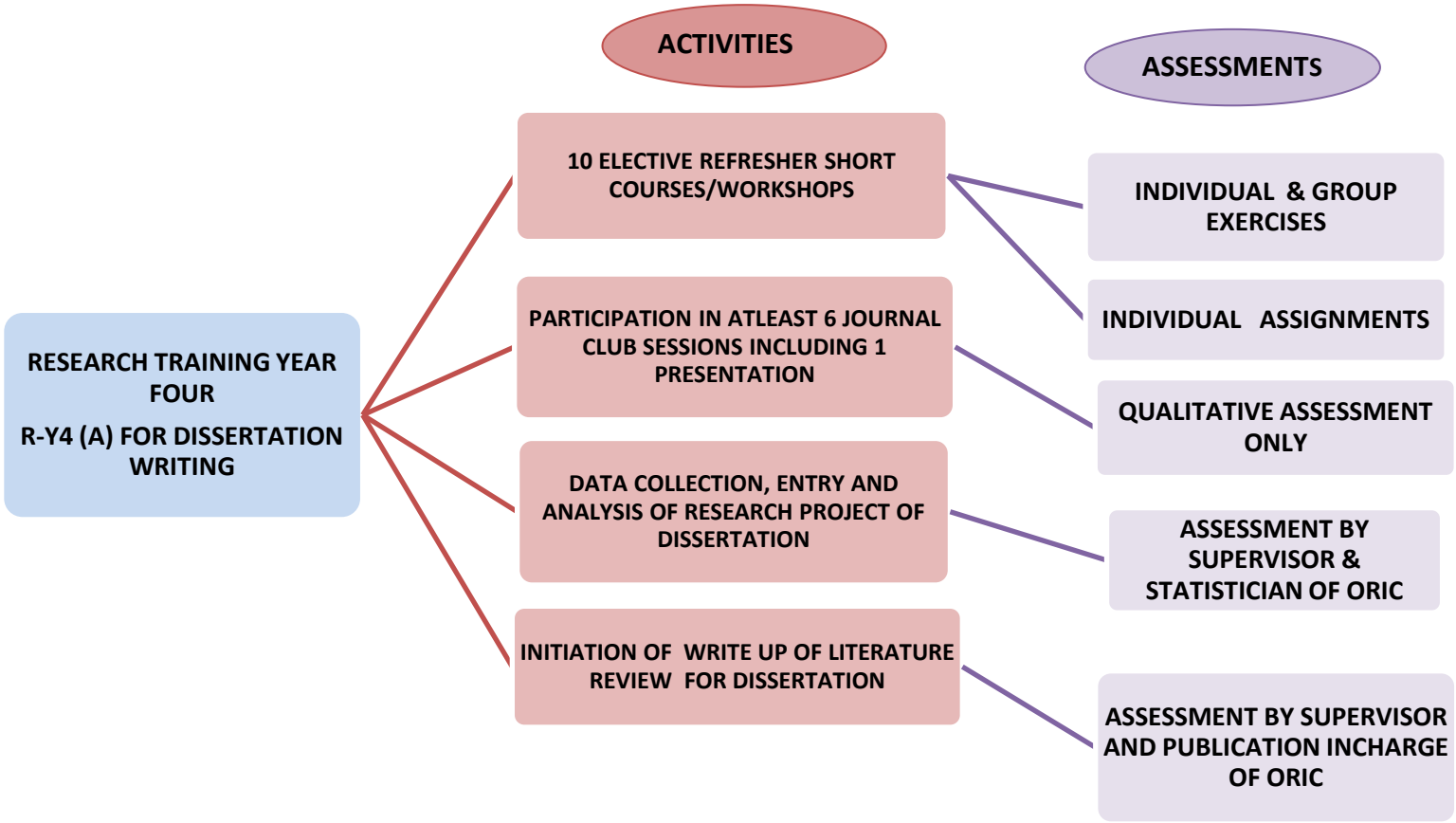
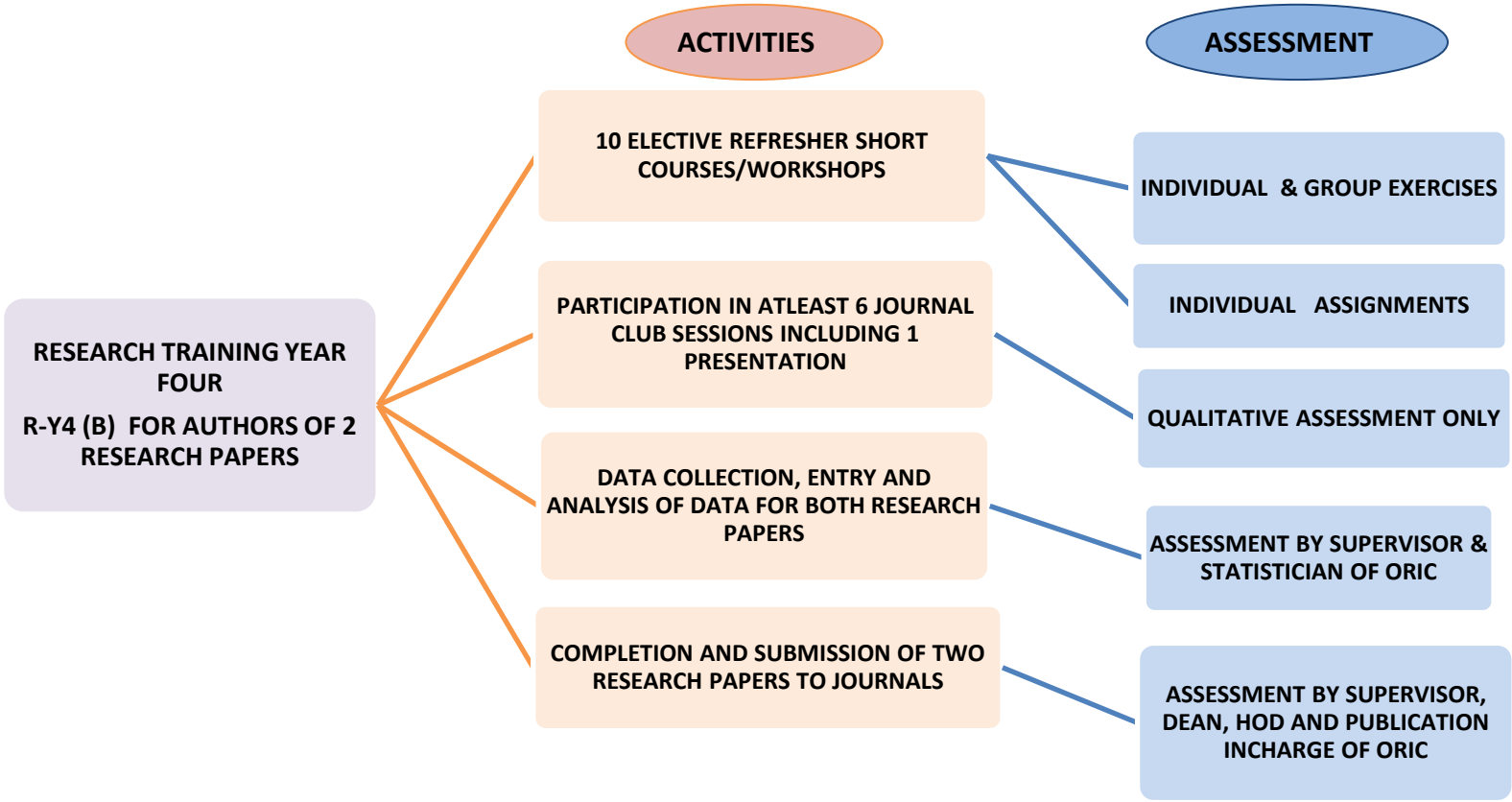


Figure 4 (B) . A FLOW CHART OF RESEARCH ACTIVITIES AND RELEVANT ASSESSMENTS

OF R-Y4 MD RESIDENTS OF RMU OPTING FOR PUBLICATION OF TWO RESEARCH PAPERS AS REQUISITE TO MD DEGREE



RESEARCH COURSE OF FOURTH POST GRAUDATION TRAINING YEAR

R-Y5

PURPOSE OF R-Y5 RESEARCH COURSE:

During the fifth 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 four 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 fifth year of training will be purely practical where no formal didactic lectures or sessions will be held.

LEARNING OUTCOMES OF R-Y5 RESEARCH COURSE

After completion of R-Y5 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 FIFTH TRAINING YEAR

The fifth 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 for MD scholars with option A i.e. writing dissertation.

i. The trainees writing dissertations should have completed their data collection, data analysis & interpretation in fouth year of training and will have also initiated write up literature view for the dissertation.

ii. As soon as the year fifth of training commence, these trainees should complete the introduction and literature review sections of their dissertations along with proper referencing during first three months of R-Y5. 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 5.

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 5.

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 ADVICED OR REJECTED FOR PUBLICATION BY A JOURNAL

This section B implies only for MD Scholars who will be opt for two research paper 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/PAPERS AND SUBMISSION OF HARD AND SOFT COPIES OF PUBLISHED RESEARCH PAPER/S

This section C implies only for the MD Scholars who will be opt for two research paper submission 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 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 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 fift 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-Y5 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-Y5.

iv. The R-Y5 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-Y5 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-Y5 trainee:

The R-Y5 trainees should attend at least 10 out of 12 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-Y5.

E. MONITORING OF RESEARCH ACTIVITIES OF YEAR 5

v. 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.

vi. The structured component of research in Log books of fifth 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.

vii. The log books will also include the attendance details of the trainees in the Journal club sessions of the department during R-Y5. This information will be endorsed by the supervisor of the trainee and the HOD.

viii. The Log Books of the trainees in addition to the Research portfolio during fifth year will be endorsed by the supervisor and Deputy Directors of ORIC. The research portfolio of the R-Y5 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-Y5.

F. OVERALL ASSESSMENT OF PERFORMACE OF TRAINEES DURING R5

iv. 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.

v. 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 final year of training. Based on their observations, they will evaluate the completeness and quality of performance of each activity of trainee during fifth year.

vi. 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 5

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

v. ***The end of year R-Y5 and end of five years' research training feedback of trainees*** will include structured evaluation through feedback questionnaire not only fifth year but also for entire five 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.

vi. ***The end of year R5 and end of fifth 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-Y5course as well as of entire five year's research training course.

vii. ***Three focus group discussions;*** oneof the R-Y5 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.

viii. ***A final evaluation report of the Research Course R-Y5 and entire 5 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 5

v. The quality assessment of research course of R-Y5 as well as the entire five years' research course will be carried out through review of materials and observations of proceedings by the evaluation team of RMU.

vi. 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.

vii. ORIC will submit evaluation content of R-Y5 to all stake holders including a copy to the Quality Enhancement Cell (QEC) of RMU for internal as well as external evaluation.

viii. An annual meeting of the trainers by end of year 5, 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-Y5, its quality and any recommendations for quality enhancement, under the chairman ship 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 MD scholar's training at RMU.

Figure 5 (A) . A FLOW CHART OF RESEARCH ACTIVITIES AND ASSESSMENTS OF R-Y5 MD RESIDENT OF RMU WHO WILL OPT FOR DISSERTATION WRITING

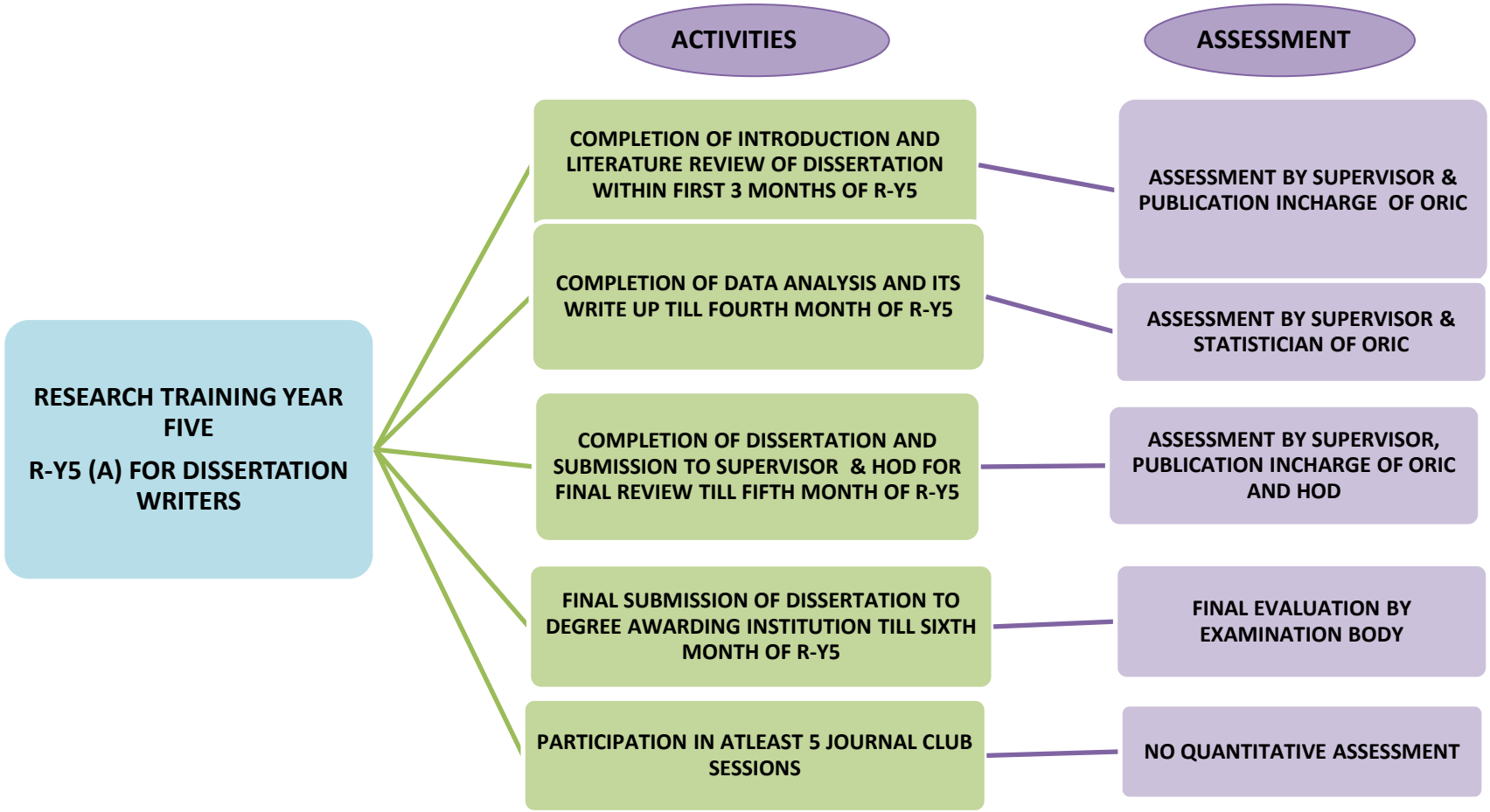
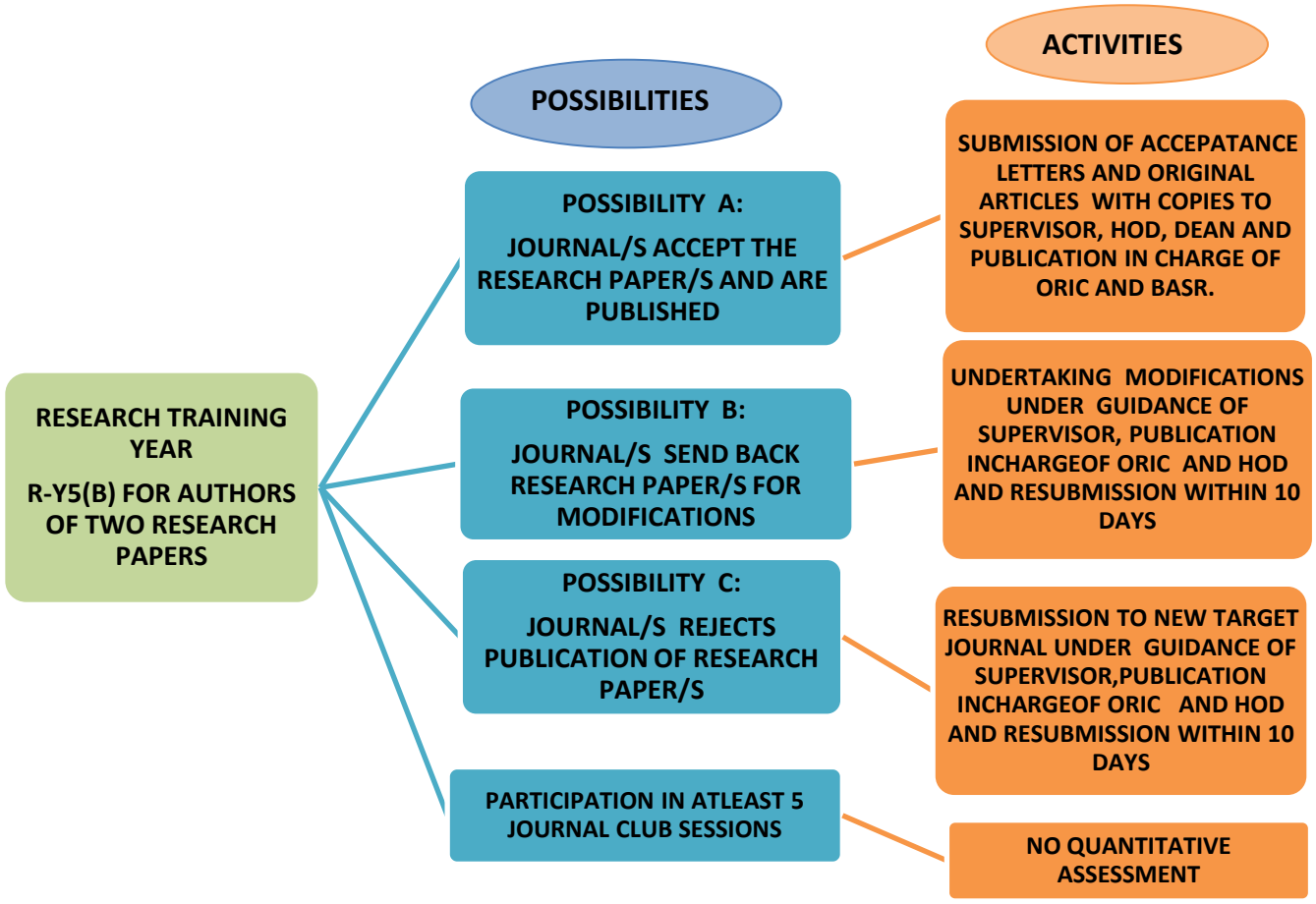


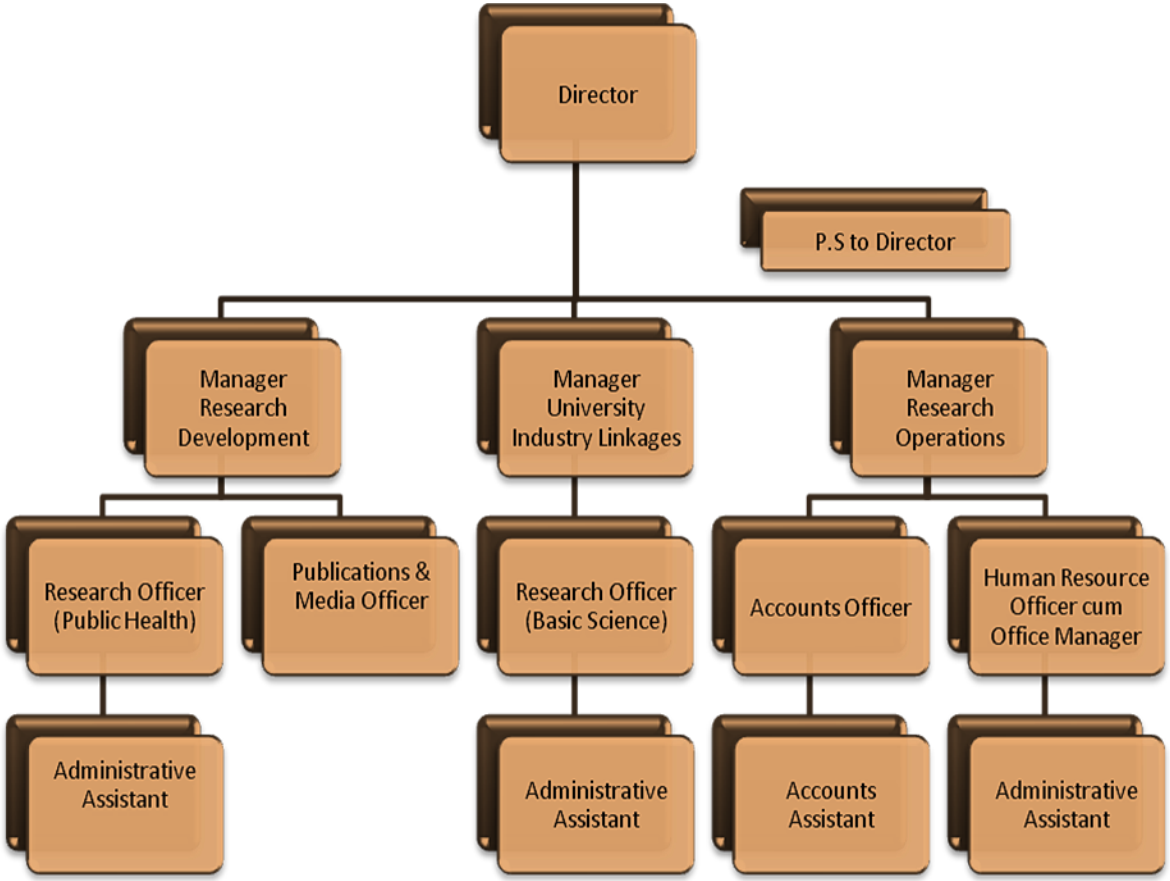
Figure 5 (B).A FLOW CHART OF RESEARCH ACTIVITIES AND ASSESSMENTS

OF R-Y5 MD RESIDENTS OF RMU WHO WILL OPT FOR 2 RESEARCH PAPERS AS REQUISITE TO MD DEGREE



ANNEXURE 1

THE ORGANIZAITONAL CHART OF ORIC OF RMU



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

ANNEXURE 2

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

A. 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 byBASR 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 presentationwill 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 bychairperson 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 specialty.
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: Supervisor – Eligibility Criteria

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 traineeswill 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 modificationsin results section then the statisticians along with the supervisor, publication in chargeand 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 ofsupervisors 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 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.
21. 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.

MANDATORY WORKSHOPS

WORKSHOPS (5 hours each for 3 days)

S.NO	NAME OF THE WORKSHOP	LEARNING OBJECTIVES	TOPICS TO BE COVERED
1.	**Biostatistics & Research Methodology (2 days)**	• 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	1. Introduction to Bio-Statistics 2. Introduction to Bio- Medical Research Why research is important? 3. What research to do? 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

2.	**Introduction to computer/Information Technology & Software (2 days)**	By the end of this workshop student should be able to: • 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	1.Hardware and Software • 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. 2.Windows • 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. 3.Working with Programs • Running multiple programs. • Desktop icons and creating a desktop shortcut. • Managing programs from the taskbar. • Closing programs. 4.File Management • Managing Windows Explorer. • Creating, moving, renaming and deleting folders and files. • Understandings file extensions. • Viewing storage devices and network connections. • Managing USB flash drives. 5.Word Processing • 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. • 6.Power Point Making Power Point presentation 7.Spreadsheets • 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. 8.Printing • Print preview. • Print settings. • Managing the print queue. 9.Using Email • The Outlook mail screen elements. • Composing and sending an email message. • Managing the Inbox. 10.Accessing the Internet • 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. 11.Statistical Package for Social Sciences • general understanding for data entry •
3.	**communication skills (2 days)**	• To learn to use Non-medicinal Interventions in Communication Skills of Clinical Practice • To discuss the importance of counseling • To role play as a counselor • To learn to manage a conflict 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	1. Use of Non-medicinal Interventions in Clinical Practice Communication Skills 2. Counseling 3. Informational Skills 4. Crisis Intervention/Disaster 5. Management Conflict Resolution 6. Breaking Bad News 7. Medical Ethics, Professionalism and Doctor-Patient Relationship Hippocratic Oath 8. Four Pillars of Medical Ethics (Autonomy, Beneficence, Non-malficence and Justice) 9. Informed Consent and Confidentiality 10. Ethical Dilemmas in a Doctor's Life
4.	**Clinical Audit (1 days) (Workshop - optional)**	**Road Map for workshop:** 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	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.

		6. Step 6: Second data collection – evaluation of change **The following are factors that may affect your choice of audit topic:** • Strong impact on health • Convincing evidence available about appropriate care • Common condition which can be clearly defined • Good reasons of believing that current performance can be improved • Readily accessible data which can be collected within a reasonable length of time • Consensus on the audit topic among the practice members	4. To use evidence of good practice in designing clinical audits. 5. To help clinicians formulate measures of quality based on evidence of good practice, as the basis for data collection and also to develop data collection protocols and tools and advise on data collection for clinical audits. 6. To help in understanding how to handle data protection issues related to clinical audit. 7. To understand use of statistics for analyzing and presenting findings of data collection and thus help clinicians to analyze causes of problems that are affecting the quality of care. This helps in applying principles and strategies for taking action to achieve changes in clinical practice. 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.	**Advanced Cardiac Life Support** **(2 days)**	Upon successful completion of the workshop, the student will be able to: • 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	The workshop is designed to give students the opportunity to practice and demonstrate proficiency in the following skills used in resuscitation: 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

		defibrillator (AED) use • Recognize and manage respiratory arrest • Recognize and manage cardiac arrest until termination of resuscitation or transfer of care, including immediate post-cardiac arrest care • Recognize and initiate early management of ACS, including appropriate disposition • Recognize and initiate early management of stroke, including appropriate disposition • Demonstrate effective communication as a member or leader of a resuscitation team and recognize the impact of team dynamics on overall team performance	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: o Normal sinus rhythm o Sinus bradycardia o Type I second-degree AV block o Type II second-degree AV block o Third-degree AV block o Sinus tachycardia o Supraventricular tachycardias o Ventricular tachycardia o Asystole o Ventricular fibrillation o Organized rhythm without a pulse 12. Basic understanding of the essential drugs used in: o Cardiac arrest o Bradycardia o Tachycardia with adequate perfusion o Tachycardia with poor perfusion o Immediate post–cardiac arrest care

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-BasedLearningand Improvement, InterpersonalandCommunication Skills, Professionalism and Systems-Based Practice.*** Mile stones 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 • Managepatients using clinical skills of interviewing and physical examination • Demonstrate competence in theperformance of procedures • Appropriately uselaboratory and imaging techniques	***Historical data gathering***		
	1.Acquireaccurateandrelevanthistoryfromthepatient inanefficientlycustomized,prioritized,andhypothesis drivenfashion	8/4	• Standardized patient • Direct observation
	2. Seek and obtain appropriate, verified, and prioritized data from secondary sources (eg, family, records, pharmacy)	12/6	
	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	24/12-18	
	4.Rolemodelgatheringsubtleandreliableinformation fromthepatientforjuniormembersofthehealthcare team	40/30	

	Performing a physical examination		
	1. Perform an accurate physical examination that is appropriately targeted to the patient's complaints and medical conditions. Identify pertinent abnormalities using common maneuvers	8/4	• Standardized patient Direct observation • Simulation
	2.Accuratelytrackimportantchangesinthephysical examinationovertimeintheoutpatientandinpatient settings	12/6	
	3. Demonstrate and teach how to elicit important physicalfindingsforjuniormembersofthehealthcare team	2 4 / 1 2 - 1 6	
	4.Routinelyidentifysubtleorunusualphysicalfindings that may influence clinical decision making, using advanced maneuvers whereapplicable	4 0 / 3 0	
	Clinical reasoning		
	1. Synthesize all available data, including interview, physical examination, and preliminary laboratory data, to define each patient's central clinical problem	1 6 / 1 2	• Chart-stimulated recall • Direct observation • Clinical vignettes
	2. Develop prioritized differential diagnoses, evidence- based diagnostic and therapeutic plan for common inpatient and ambulatory conditions	32/12-16	
	3.Modifydifferentialdiagnosisandcareplanbasedon clinicalcourseanddataasappropriate	3 2	

		/ 1 6	
	4.Recognizediseasepresentationsthatdeviatefromcommonpatternsandthat requirecomplexdecision making	4 8 / 1 8	
	Invasive procedures		
	1. Appropriately perform invasive procedures and provide post-procedure management for common procedures	24	• Simulation • Direct observation
B. Delivery of patient- centered clinical care • Managepatients with progressiveresponsibility • Managepatientsacross the spectrum of clinical diseases seen in the practice of general internal medicine • Managepatients in a variety of health care settings to include the inpatient ward, critical careunits, the	***Diagnostic tests***		
	1.Makeappropriateclinicaldecisionsbasedontheresults ofcommondiagnostictesting,includingbutnotlimitedto routine blood chemistries, hematologic studies, coagulation tests, arterial blood gases, ECG, chest radiographs, pulmonary function tests, urinalysis and otherbodyfluids	16/6	• Chart-stimulated recall • Standardized tests • Clinical vignettes
	2.Makeappropriateclinicaldecisionbasedontheresults ofmoreadvanceddiagnostictests	24/12	
	Patient management		
	1.Recognizesituationswithaneedforurgentor emergent medical care, including life-threatening conditions	8/4	• Simulation • Chart-stimulated recall
	2. Recognize when to seek additional guidance	8/6	

ambulatory setting,andthe emergency setting • Manage undifferentiated acutely and severely ill patients • Managepatientsin the prevention, counseling, detection, diagnosis, and treatment of gender-specific diseases • Managepatientsas a consultant to other physicians	3.Provideappropriatepreventivecareandteachpatient regardingself-care	8/6	• Multisource feedback • Direct observation • Chart audit
	4. With supervision, manage patients with common clinicaldisordersseenin thepracticeofinpatientand ambulatory general internalmedicine	16/6	
	5. With minimal supervision, manage patients with commonandcomplexclinicaldisordersseeninthe practiceofinpatientandambulatorygeneralinternal medicine	16/12	
	6. Initiate management and stabilize patients with emergent medical conditions	16/6	
	7.Managepatientswithconditionsthatrequireintensive care	48/12	
	8.Independentlymanagepatientswithabroadspectrum ofclinicaldisordersseeninthepracticeofgeneralinternal medicine	48/12	
	9. Manage complex or rare medical conditions	48/18	
	10.Customizecareinthecontextofthepatient's preferences and overallhealth	48/30	
	Consultative care		
	1. Provide specific, responsive consultation to other services	32/30	• Simulation • Chart-stimulated recall • Multisource feedback • Direct observation • Chart audit
	2.Provideinternalmedicineconsultationforpatientswith more complex clinical problems requiring detailed risk assessment	48/30	

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	***Knowledge of core content***		

general internal medicine and its subspecialties • Demonstrate a level of expertiseinthekn owledgeof thoseareasapprop riateforan internal medicinespecialist • Demonstrate sufficient knowledgetotre atmedical conditions commonly managed by internists, provide basic preventivecare, andrecognizean dprovide initial management of emergency medicalproblems	1. Understand the relevant pathophysiology and basic science for common medical conditions	8/4	• Direct observation • Chart audit • Chart-stimulated recall • Standardized tests
	2.Demonstratesufficientknowledgetodiagnoseand treat common conditions that requirehospitalization	16/6	
	3. Demonstrate sufficient knowledge to evaluate common ambulatory conditions	24/6	
	4.Demonstratesufficientknowledgetodiagnoseand treat undifferentiated and emergentconditions	24/12	
	5. Demonstrate sufficient knowledge to provide preventive care	24/12	
	6.Demonstratesufficientknowledgetoidentifyandtreat medicalconditionsthatrequireintensivecare	32/12	
	7. Demonstrate sufficient knowledge to evaluate complex or rare medical conditions and multiple coexistent conditions	48/24	
	8.Understandtherelevantpathophysiologyandbasic science for uncommon or complex medicalconditions	48	
	9. Demonstrate sufficient knowledge of sociobehavioral sciences including but not limited to health care economics, medical ethics, and medical education	48	
B. Commonmodalitiesus edinthe practice of internalmedicine&De monstrate sufficient knowledgetointerpre tbasic clinicaltestsandimage s,use common pharmacotherapy, and appropriately use and performdiagnostic and therapeutic procedures.	***Diagnostic tests***		
	1.Understandindicationsforandbasicinterpretationof commondiagnostictesting,includingbutnotlimitedto routine blood chemistries, hematologic studies, coagulation tests, arterial blood gases, ECG, chest radiographs,pulmonaryfunctiontests,urinalysis,and otherbodyfluids	16/4-6	• Chart-stimulated recall • Standardized tests • Clinical vignettes
	2.Understandindicationsforandhasbasicskillsin interpreting more advanced diagnostictests	24/6	
	3.Understandpriorprobabilityandtestperformance characteristics	24	

Table-3 Developmental Milestones for gastroenterology Training—Practice-BasedLearningand Improvement			
Competency	**Developmental Milestones Informing Competencies**	**Approximate Time Frame Trainee Should Achieve Stage (months)**	**General Evaluation Strategies Assessment Methods/ Tools**
A. Learningandimprovingviaauditofperformance&Systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement	***Improvethequalityofcareforapanelof patients***		
	1.Appreciatetheresponsibilitytoassessand improvecarecollectivelyforapanelofpatients	16	• Several elements of quality improvement project • Standardized tests
	2.Performorreviewauditofapanelofpatients using standardized, disease-specific, and evidence-24based criteria	32/24	
	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	32/24	
	4.Identifyareasinresident'sownpracticeand localsystemthatcanbechangedtoimprove effectoftheprocessesandoutcomesofcare	48/18	
	5.Engageinaqualityimprovementintervention	48	
B. Learning and improvement via answering clinical questions from patient scenarios • Locate, appraise, and assimilate evidence from scientific studies related to their patients' health	***Askanswerablequestionsforemerginginformationneeds***		
	1.Identifylearningneeds(clinicalquestions)as theyemergeinpatientcareactivities	16/4-6	• Evidence-based medicine
	2. Classify and precisely articulate clinical	32/6-12	

problems; • Use information technology to optimize learning	questions		evaluation instruments • EBM mini-CEX • Chart-stimulated recall
	3.Developasystemtotrack,pursue,andreflect on clinicalquestions	32	
	Acquires the best evidence		
	1. Access medical information resources to answerclinicalquestionsandsupportdecision making	16/12	• 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	32/24	
	4.Appraisethequalityofmedicalinformation resourcesandselectamongthembasedonthe characteristics of the clinicalquestion	48	
	Appraises the evidence for validity and usefulness		
	1.Withassistance,appraisestudydesign, conduct,andstatisticalanalysisinclinical researchpapers	16	• Evidence-based medicine evaluation instruments • EBM mini-CEX • Chart-stimulated recall
	2. With assistance, appraise clinical guidelines	32/24	
	3. Independently appraise study design, conduct, and statistical analysis in clinical research papers	48/30	
	4. Independently, appraise clinical guideline recommendations for bias and cost-benefit considerations	48/30	

	Appliestheevidencetodecision-makingfor individualpatients		
	1.Determineifclinicalevidencecanbe generalizedtoanindividualpatient	16	• Evidence-based medicine evaluation instruments • EBM mini-CEX • Chart-stimulated recall
	2.Customizeclinicalevidenceforanindividual patient	32/8	
	3.Communicaterisksandbenefitsof alternatives topatients	48/30	
	4. Integrate clinical evidence, clinical context, andpatientpreferencesintodecisionmaking	48/30	
C. Learning and improving via feedback and self-assessment • Identify strengths, deficiencies, and limitsin one's knowledge and expertise • Set learning and improvementgoals • Identifyandperformappropriate learning activities • Incorporate formative evaluation feedback into dailypractice • Participate in the education of patients, families, students, residents, and other healthprofessionals	***Improves via feedback***		
	1. Respond welcomingly and productively to feedback from all members of the health care team including faculty, peer residents, students, nurses, allied health workers, patients, and their advocates	16/ 12	• Multisource feedback • Self-evaluation forms with action plans
	2.Activelyseekfeedbackfromallmembersof the health careteam	24	
	3. Calibrate self-assessment with feedback and other external data	32 /3 0	
	4.Reflectonfeedbackindevelopingplansfor improvement	32 /3 0	
	Improves via self-assessment		
	1. Maintain awareness of the situation in the moment,andrespondtomeetsituationalneeds	32 /3 0	• Multisource feedback

	2.Reflect(inaction)whensurprised,applies newinsightstofutureclinicalscenarios,and reflects(onaction)backontheprocess	48 /3 0	• Reflective practice surveys
	Participates in the education of all members of the health care team		
	1. Actively participate in teaching conferences	16	• OSCE with standar dized learner s Direct observa tion • Peer evaluation s
	2. Integrate teaching, feedback, and evaluation with supervision of interns' and students' patient care	32 /3 0	
	3.Takealeadershiproleintheeducationofall membersofthehealthcareteam.	48 /3 0	

Table-4 Developmental Milestones for gastroenterology Training—InterpersonalandCommunication 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	***Communicate effectively***		
	1.Providetimelyandcomprehensivever baland written communication topatients/advocates	16/6	• Multiso urce feedbac k • Patient survey s • Direct
	2.Effectivelyuseverbalandnonverbalskillst ocreate rapport withpatients/families	16/6	
	3.Usecommunicationskillstobuildathera peutic relationship		
	4. Engage patients/advocates in shared	32/	

	decision making for uncomplicated diagnostic and therapeutic scenarios	12	observation • Mentored self-reflection
	5. Use patient-centered education strategies	32	
	6. Engage patients/advocates in shared decision making for difficult, ambiguous, or controversial scenarios	48/ 32	
	7.Appropriatelycounselpatientsabouttherisksand benefitsoftestsandprocedures,highlightingcost awareness and resourceallocation	48/ 24	
	8.Rolemodeleffectivecommunications killsin challengingsituations	48/ 30	
	Intercultural sensitivity		
	1.Effectivelyuseaninterpretertoengagepatientsin theclinicalsetting,includingpatienteducation	8	• Multisource feedback • Direct observation • Mentored self-reflection
	2.Demonstratesensitivitytodifferencesinpatients includingbutnotlimitedtorace,culture,gender, sexualorientation,socioeconomicstatus,literacy,and religiousbeliefs	16/12	
	3.Activelyseektounderstandpatientdifferencesand viewsandreflectsthisinrespectfulcommunication andshareddecision-makingwiththepatientandthe healthcareteam	40 /3 0	
B. Physicians and other health care professionals • Communicate effectively with physicians, other healthprofessionals, and health-related agencies • Workeffectivelyasa memberorleaderofa health care team or other professional group	***Transitions of care***		
	1.Effectivelycommunicatewithothercare giversin order to maintain appropriate continuity during transitions ofcare	16	• Multisource feedback • Direct
	2.Rolemodelandteacheffectivecommuni	32/	

• Actinaconsultative role to other physiciansandhealthprofessionals	cation withnextcaregiversduringtransitionsofcare	30	observation • Sign-out form ratings • Patient surveys
	Interprofessional team		
	1. Deliver appropriate, succinct, hypothesis-driven oral presentations	8	• Multisource feedback
	2.Effectivelycommunicateplanofcaretoall membersofthehealthcareteam	16	
	3.Engageincollaborativecommunicationwithall membersofthehealthcareteam	40/30	
	Consultation		
	1. Request consultative services in an effective manner	8	• Multisource feedback • Chart audit
	2.Clearlycommunicatetheroleofconsultanttothe patient,insupportoftheprimarycarerelationship	16	
	3. Communicate consultative recommendations to the referring team in an effective manner	48/30	
C. Medical records • Maintain comprehensive, timely, and legible medical records	***Health records***		
	1. Provide legible, accurate, complete, and timely written communication that is congruent with medical standards	8	• Chart audit
	2. Ensure succinct, relevant, and patient-specific written communication	32/12	

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**
A. Physicianship • Demonstrate compassion, integrity, and respect for others • Responsiveness to patient needs that supersedes self-interest • Account-abilitytopatients,society, and the profession	***Adhere to basic ethical principles***		
	1. Document and report clinical information truthfully	1.5/6	• Multisource feedback
	2. Follow formal policies	1.5/6	
	3. Accept personal errors and honestly acknowledge them	8/6	
	4. Uphold ethical expectations of research and scholarly activity	48/30	
	Demonstrate compassion and respect to patients		
	1. Demonstrate empathy and compassion to all patients	4	• 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	32/30	
	4. Provide leadership for a team that respects patient dignity and autonomy	32/30	
	Provide timely, constructive feedback to colleagues		
	1.Communicateconstructivefeedbacktoothermembersofthehealthcareteam	16	• Multisource feedback • Mentored self-reflection • Direct observation
	2.Recognize,respondto,andreportimpairmentincolleaguesorsubstandardcare viapeerreviewprocess	24/12	
	Maintain accessibility		
	1. Respond promptly and appropriately to clinical responsibilities including but not limited to calls and pages	1.5/12	• Multisource

	2.Carryouttimelyinteractionswithcolleagues,patients,andtheirdesignated caregivers	8	feedback
	Recognize conflicts of interest		
	1.Recognizeandmanageobviousconflictsofinterest,suchascaringforfamily members and professional associates aspatients	8	• Multisource feedback • Mentored self-reflection • Clinical vignettes
	2. Maintain ethical relationships with industry	40/30	
	3. Recognize and manage subtler conflicts of interest	40/30	
	Demonstrate personal accountability		
	1. Dress and behave appropriately	1.5/4	• Multisource feedback • Direct observation
	2. Maintain appropriate professional relationships with patients, families, and staff	1.5/6	
	3. Ensure prompt completion of clinical, administrative, and curricular tasks	8	
	4. Recognize and address personal, psychological, and physical limitations that may affect professional performance	16	
	5.Recognizethescopeofhis/herabilitiesandaskforsupervisionandassistance appropriately	16/12	
	6.Serveasaprofessionalrolemodelformorejuniorcolleagues(eg,medical students,interns)	40/30	
	7. Recognize the need to assist colleagues in the provision of duties	40/24	
	Practice individual patient advocacy		
	1. Recognize when it is necessary to advocate for individual patient needs	8	• Multisource feedback • Direct observation
	2. Effectively advocate for individual patient needs	40/30	
	Comply with public health policies		
	1. Recognize and take responsibility for situations where public health supersedes individual health (eg, reportable infectious diseases)	32/30	• Multisource feedback

B. Patient-centeredness • Respect for patient privacy andautonomy Sensitivity and responsiveness to a diverse patient population, including but not limited to diversity in gender, age, culture, race, religion, disabilities,andsexual orientation	***Respect the dignity, culture, beliefs, values, and opinions of the patient***		
	1.Treatpatientswithdignity,civilityandrespect,regardlessofrace,culture,gender, ethnicity, age, or socioeconomicstatus	1.5	• Multisource feedback • Direct observation
	2. Recognize and manage conflict when patient values differ from their own	40/30	
	Confidentiality		
	1. Maintain patient confidentiality	1.5/4	• Multisource feedback • Chart audits
	2. Educate and hold others accountable for patient confidentiality	24/12	
	Recognize and address disparities in health care		
	1.Recognizethatdisparitiesexistinhealthcareamongpopulationsandthatthey mayimpactcareofthepatient	16	• Multisource feedback • Direct observation • Mentored self-reflection
	2.Embracephysicians'roleinassistingthepublicandpolicymakersin understandingandaddressingcausesofdisparityindiseaseandsuffering	40/30	
	3. Advocates for appropriate allocation of limited health care resources.	40/30	

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
A. Work effectively with other care providers and settings	***Works effectively within multiple health delivery systems***		
	1.Understanduniquerolesandservicesprovidedbylocalhealth care deliverysystems.	16	• Multisource feedback

• Work effectively invarioushealth care delivery settings and systems relevant to their clinical practice • Coordinate patient care within thehealth care system relevanttotheir clinicalspecialty • Work in interprofessional teams to enhancepatient safety and improvepatient carequality • Work in teams and effectively transmit necessaryclinical information to ensuresafeand proper care of patients, including the	2.Manageandcoordinatecareandcaretransitionsacross multipledeliverysystems,includingambulatory,subacute, acute, rehabilitation, and skillednursing.	32/30	• Chart-stimulated recall • Direct observation
	3.Negotiatepatient-centeredcareamongmultiplecareproviders.	48/30	
	Works effectively within an interprofessional team		
	1.Appreciaterolesofavarietyofhealthcareproviders, including but not limited to consultants, therapists, nurses, home care workers, pharmacists, and social workers.	8	• Multisource feedback • Chart-stimulated recall • Direct observation
	2. Work effectively as a member within theinterprofessionalteamtoensuresafepatientcare.	8	
	3. Consider alternative solutions provided by other teammates	16/24	
	4.Demonstratehowtomanagetheteambyusingthe skills and coordinating the activities of interprofessional teammembers.	48/30	

transitionofcare betweensettings			
B. Improving health caredelivery • Advocate for quality patient careandoptimal patient care systems • Participate in identifying system errors and implementing potential systems solutions • Recognize and function effectively in high-qualitycare system	***Recognizessystemerrorandadvocatesforsystem improvement***		
	1.Recognizehealthsystemforcesthatincreasetheriskfor errorincludingbarrierstooptimalpatientcare	16	• Multisource feedback • Quality improvement project
	2.Identify,reflecton,andlearnfromcriticalincidents suchasnearmissesandpreventablemedicalerrors	16/30	
	3.Dialoguewithcareteammemberstoidentifyriskfor andpreventionofmedicalerror	32/30	
	4.Understandmechanismsforanalysisandcorrectionof systemserrors	32/30	
	5. Demonstrateabilitytounderstandandengageina system-level quality improvementintervention.	48/30	
	6.Partnerwithotherhealthcareprofessionalstoidentify, propose improvement opportunities within the system.	48/30	
C. Cost-effective care for patients and populations &Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or	***Identifiesforcesthatimpactthecostofhealthcareand advocates for cost-effectivecare***		
	1. Reflect awareness of common socioeconomic barriers that impact patient care.	16/6	• Standardized examinations • Direct observation • Chart-stimulated recall
	2. Understand how cost-benefit analysis is applied to patientcare(ie,viaprinciplesofscreeningtestsandthe development of clinicalguidelines)	16/6	
	3. Identify the role of various health care stakeholders includingproviders,suppliers,financiers,purchasers,and consumersandtheirvariedimpactonthecostofand	32/12	

population- based care as appropriate	accesstohealthcare.		
	4. Understand coding and reimbursement principles.	32/30	
	Practices cost-effective care		
	1.Identifycostsforcommondiagnosticortherapeutic tests.	8	• Chart-stimulated recall
	2. Minimize unnecessary care including tests, procedures, therapies, and ambulatory or hospital encounters	8/6	
	3. Demonstrate the incorporation of cost-awareness principles into standard clinical judgments and decision making	24/12	
	4. Demonstrate the incorporation of cost-awareness principles into complex clinical scenarios	48/30	

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

ASSESSMENT TIME TABLE

S#	Method /Tool		Time	Sign
1	Mini- CEX			
2	DOPS			
3	MSF			
4	CbD			
5	PS			
6	ACAT			
7	AA			
8	TO			

SECTION –VI

UNIVERSITY RESIDENCY PROGRAM OF RAWALPINDI MEDICAL UNIVERSITY: THE ASSESSMENT STRATEGIES FOR

MD Gastroenterology (updated on 26th April,2021)

The vision:

To improve health care and population health by assessing and advancing the quality of resident physician's education through accreditation.

The Mission:

We imagine a world characterized by:

- A structured approach to evaluating the competency of all residents and fellows
- Motivated physician role Models leading all program of the university.
- High quality, supervised, humanistic clinical educational experience, with customized formative feedback.
- Clinical learning environments characterized by excellence in clinical care, safety of patients, doctors and paramedics and professionalism.
- Residents and fellows achieving specific proficiency prior to graduation.
- Residents and fellows are prepared to be Virtuous Physicians who place the needs and well-being of patients first

The values:

- Honesty and Integrity
- Excellence and Innovation
- Accountability and Transparency
- Fairness and Equity
- Stewardship and Service
- Engagement of Stakeholders

- Leadership and Collaboration

Back Ground/ Rationale

:Need for Modernization of the Post Graduate Medical Training in the country.

- Need for structuration of all the components of Post Graduate Medical training in Pakistan.
- Need for better Monitoring of the System for better out comes.

Aims:

- To fulfill the need of Modernization of the Assessment strategies.
- To structure the Assessment strategies.
- To shift the paradigm from an Examination Oriented System towards a Training Oriented System.

The Characteristics of the document on Assessment Strategies:

Following aspects are tried to be accomplished while synthesis of this document on assessment strategies for MD Internal Medicine University Residency Program:

- Should be Technically Sound
- Should be acceptable by all the stakeholders
- Should bed feasible for implementation
- Should be concise
- Should be according to the need of our educational system
- Should be reproducible / can be nationalized
- Should be sustainable
- Should be able to assesses all required competencies accurately

Few definitions before we proceed further made to be clear:

1 **What Is Competency?**

The ability to do something successfully or efficiently**.**

2 What Is Competence?

Competency is described what an individual is enable to do while performance should describe what an individual actually does in clinical practice. The terms "performance" and "competency" are often used interchangeably.

3 What is performance based assessment of curriculum?

Performance based assessment measures students' ability to apply the skills & knowledge learned from a unit of study.

4 What is work place based assessment of curriculum?

The apprenticeship model of medical training has existed for thousands of years: the apprentice learns from watching the master and the master in turn observe the apprentice's performance & helps them improve. Performance assessment not therefore a new concept higher work in modern healthcare environment with its discourse of accountability, performance assessment increasing role In ensuring that professionals develop and maintain the knowledge and skills required for practice. However now it will be done in a structured manner.

5 **What is a Formative Assessment?**

- Such an Assessment which creates learning itself, from one's deficiencies.
- It is non-threatening for the students because it does not decide pass or fail.
- Provision of Feed back to the students is essential component of Formative Assessment

6 **What is a Summative Assessment?**

- Criteria Based High Stake Examinations
- Provision of Feedback to the students is not essential for Summative Examinations

7 **What is continuous Internal Assessment?**

A collection of Formative Assessments is called Continuous Internal Assessment

What is the basis of curriculum and Assessment of MD internal Medicine of Rawalpindi Medical University Rawalpindi?

The curriculum of MD internal Medicine of Rawalpindi Medical University Rawalpindi is derived from **Accreditation Council for Graduate Medical Education** which is competency / performance based system depends upon six following competencies.

1. **Medical Knowledge**
2. **Patient Care**
3. **Interpersonal & Communication Skills**
4. **Professionalism**
5. **Practice Based Learning**
6. **System Based Learning**

Rawalpindi Medical University Rawalpindi has two incorporated one additional component in this basic structure of six core competencies

8 **Research**

Model of examination for MD Gastroenterology Rawalpindi Medical University:

Distribution of weightage (if we consider total marks as 100) among various desired competencies of RMU Internal Medicine MD curriculum:

1. Medical knowledge	50% both
2. Patient care	
3. Interpersonal & communication skills	30% both
4. Professionalism	
5. Practice based learning	10% both
6. System based learning	
7. Research	10%

Continuous Internal Assessment:

Competencies included CIA	Phases of CIA	Time Line for end of various phases of CIA	Weightage of CIA	Tools for Assessment of CIA
1. Medical knowledge **2. Patient care (40% both)** **3. Interpersonal & communication skills** **4. Professionalism (40% both)** **5. Practice based learning** **6. System based learning (10% both)** **7. Research 10%)**	Phase -1 ➢ CIA Year 1 ➢ CIA Year 2	till end of Year 2	Equal to or more than 75% of the total marks of all formative assessments/ 360° Evaluations	• Multi source feedback/360 degree evaluation • MCQs for knowledge • Mini-CEX • Case based discussion • CPC presentations • TOACS/OSCE • Charts stimulated recall • Teaching rounds • Directly observed procedures • Research activities
	Phase -2 ➢ CIA Year 3 ➢ CIA Year 4 ➢ CIA Year 5 for five year training program	till end of Year 4 Or Year 5 for 5 year training program	Equal to or more than 75% of the total marks of all formative assessments/ 360° Evaluations	

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

Sr. No	Competency to be assessed	Teaching & learning strategies	Type of Assessment for the competency to be assessed	% weightage of the competency	Tools of Assessment
1.	Medical knowledge	Case based discussion & problem based learning, large group interactive session, self-directed learning, teaching rounds, and literature search.	Formative Assessment leading to continue internal assessment and also summative assessment in high stake exams	50% for both Medical Knowledge and Patient Care both	MCQs, SEQs, Directly observe procedure, mini clinical examinations, charts, OSCE, teaching ward rounds, case discussion, seminars, topic presentation
2.	Patient care	Case based discussion, teaching rounds, morbidity & mortality meetings, 360^0 feedback evaluation, DOPS, long case/ short case discussions OPDs, emergency indoor workshops, hands on trainings.	Formative assessment leading to continue internal assessment and also summative assessment in high stake exams		Teaching rounds, case base discussion, presentations, CPC participations, clinical management, problem base learning, peer assisted learning, dealing with paramedics & patient attendants, DOPS.
3.	Professionalism	Teaching rounds, known conferences, workshops, hands on training, CPC, morbidity & mortality meetings, journal Club	Formative assessment leading to continue internal assessment	30% for both professionalism & interpersonal communication skillsboth	Working in OPDs, wards, emergency DOPs, clinical case discussion, dealing with paramedics, meeting with supervisor & mentors, mini clinical examination
4.	Interpersonal & communication skills	Teaching rounds, hands on training, workshops related to research methodology, SPSS, data entry, LGIS, session with supervisor & mentors, session with research units, SDL,	Formative assessment leading to continuous internal assessment		Multi source & 360 degree evaluation.
5.	Practice based learning	Case based discussion, teaching rounds, known conferences, morbidity & mortality meetings, OPDs, emergency indoor workshops, hands on trainings.	Formative assessment leading to continuous internal assessment Multi source & 360 degree evaluation (Logbook & portfolio)	10% both Practice Based Learning & System Based Learning both	Working in OPDs, wards, emergency DOPs, clinical case discussion, dealing with paramedics, meeting with supervisor & mentors, mini clinical examination
6.	System based learning	Working in wards, OPDs, Emergency	Formative assessment leading to continuous internal assessment Multi source & 360 degree evaluation (Logbook & portfolio)		Working in OPDs, wards, emergency DOPs, clinical case discussion, dealing with paramedics, meeting with supervisor & mentors, mini clinical examination
7.	Research	Large group Interactive sessions on Research, hands on training & workshops, practical work of research including literature search, finding research question, synopsis writing, data collection, data analysis, thesis writing	Formative leading to continuous internal assessment Multi source & 360 degree evaluation (Logbook & portfolio)&also Summative assessment	10%	Approval of research topic and synopsis & thesis from URTMC, Board of Advanced studies and Research and ethical review board, Requirement of Completion certificate of research workshops as eligibility criteria for examinations, Defense of Thesis examination

Summary of all Assessments in Five year training program of MD Gastroenterology:

S.NO.	**Year of Examination**	**Name of Examination & type of Assessment**	**Competencies to be Assessed with weightage**	**Eligibility criteria**	**Pass Marks required**	**Total No. of Examinations**
1	During training of Year -1	End of Rotation Formative Assessment /Evaluations (Formative Assessment)	1. Medical knowledge 2. Patient care (40% both) 3. Interpersonal & communication skills 4. Professionalism (40% both) 5. Practice based learning 6. System based learning (10% both) 7. Research (10%)	75% or above of CIA the total marks will be considered as eligible	Not applicable as it is a Formative Assessment	04 evaluations in one year (total evaluations in five years =20)
2	At the End of Year 1	In Training -Assessment year1 (Summative Assessment)		1. Submission of certificates of completion of the Following Mandatory workshops: Communication skills-----3 days Computer & IT skills ----- 3 Days Research Methodology-----2 Basic Life Support-------- 2 days 2. Certificate article approval from DME OR • Statistical report of one disease 3. Completed and Duly signed Log Book for year one 4. Completed and duly signed Portfolio for year one 5. Submission of certificate of Continuous Internal Assessment for year one: Equal to or More than 75% (a cumulative score of the year one) 6. Certificate of completion of First year Training duly signed by the Supervisor	Details Described at the end 50% pass marks	03 Examinations in Five years training program

				7. Submission of evidence of payment of examination Fee for year-1 examination 8. Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. for year one of training		
3	During training of Year -2	End of Rotation Formative Assessment /Evaluations (Formative Assessment)		75% or above of CIA the total marks will be considered as eligible	Not applicable as it is a Formative Assessment	04 evaluations in one year (total evaluations in five years =20)

4	At the end of Year-2	Mid Training Assessment Equivalent to Intermediate Module Examination (Summative Assessment)		1. Submission of Pass Result of Examination of Year-1 2. Submission of certificates of completion of the Following Mandatory Rotations &workshops: Three rotations (each of 2 months to be completed in first two years) • Cardiology • Nephrology/ ICU • Dermatology Professionalism -----2 days SPSS (Statistical Package for Social Sciences) -------2 days 3 Certificate an article approval from DME OR Statistical report of one disease 4 Completed and Duly signed Log Book for year one and two 5 Completed and duly signed Portfolio for year one and two 6 Submission of certificate of Continuous Internal Assessment for year one: Equal to or More than 75% (a cumulative score of	Details Described at the end 60% pass marks	01

				the year one and two both) 7 Certificate of completion of second year of Training duly signed by the Supervisor 8. Submission of evidence of payment of examination Fee for intermediate Module Examination: Examination Fee once deposited cannot be refunded/carried over the next examination under any circumstances 9. Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. for year two of training		
5	During training of Year -3	End of Rotation Formative Assessment /Evaluations (FormativeAssessment)		75% or above of CIA the total marks will be considered as eligible	Not applicable as it is a Formative Assessment	04 evaluations in one year (total evaluations in five years =20

6	At the end of Year - 3	In Training -Assessment year 3 (Summative Assessment)		**1. Submission of Pass result / appeared MTA** 2. Submission of certificates of completion of the Following Mandatory workshops :Reference Manager (Endnote)---1 day Mandalay 1 day **Synopsis writing 03 days** 3. Submission of certificate of approval of Research Topic/Affidavit that if certificate of approval of Research Topic will not be provided within 30 days of submission of Application for in training examination no.2, the candidate will not be allowed to take examination.. 4. 1 rotation ICU for 2 month 5. Completed and Duly signed Log Book for year three	Details Described at the end 50% Pass marks	02 Examination in four years training program & 03 Examinations in Five years training program

				6. Completed and duly signed Portfolio for year three 7. Submission of certificate of Continuous Internal Assessment for year three: Equal to or More than 75% (a cumulative score of the year three) 8. Certificate of completion of third year of Training duly signed by the Supervisor 9. Submission of evidence of payment of examination Fee for in training examination no.2: Examination Fee once deposited cannot be refunded/carried over the next examination under any circumstances 10. Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. Foryear three		
7	During training of Year -4	End of Rotation Formative Assessment /Evaluations (FormativeAssessment)		75% or above of CIA the total marks will be considered as eligible	Not applicable as it is a Formative Assessment	04 evaluations in one year (total evaluations in five years =20)

8	At the end of year-4	In Training -Assessment year 4 (Summative Assessment)		1. Submission of Pass/Appeared result of In Examination year-3 2. Submission of certificates of completion of Rotations: Radiology(02 months) Histopathology(01 month) Liver transplant/ GI surgery (01 month) 3 Submission of certificate of approval of Data collection, Data analysis and interpretation, Thesis writing or undertaking /Affidavit that if certificate of verification of data collection, interpretation and thesis writing will not be provided within 30 days of submission of Application for in training assessment 3, the candidate will not be allowed to take examination.	Details Described at the end 60% Pass marks	01

				4 Completed and Duly signed Log Book for year four 5 Completed and duly signed Portfolio for year four 6 Submission of certificate of Continuous Internal Assessment for year four: Equal to or More than 75% (a cumulative score of the year four) 7 Certificate of completion of Fourth year of Training duly signed by the Supervisor 8 Submission of evidence of payment of examination Fee for in training assessment3: Examination Fee once deposited cannot be refunded/carried over the next examination under any circumstances 9 Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. For year four only		
7	During training of Year -5	End of Rotation Formative Assessment /Evaluations (FormativeAssessment		75% or above of CIA the total marks will be considered as eligible	Not applicable as it is a Formative Assessment	04 evaluations in one year (total evaluations in five years =20
8	At the end of year-5	Final Assessment for five year program (Summative Assessment)		1. Submission of Pass result of In training assessment year-4 2. Submission of certificates of completion of the workshops: 3. Can attend any required workshop optionally if He or She wants and can submit the certificate	Details Described at the end 60% Pass marks	01

				4 Submission of certificate of approval of Thesis or undertaking /Affidavit that if thesis not approved within 30 days of submission of Application for Final Examination, the candidate will not be allowed to take examination. 5 Completed and Duly signed Log Book for year five. 6 Completed and duly signed Portfolio for year five. 7 Submission of certificate of Continuous Internal Assessment for year five: Equal to or More than 75% (a cumulative score of the year five) 8 Certificate of completion of Fifth year of Training duly signed by the Supervisor 9 Submission of evidence of payment of examination Fee for Final Examination: Examination Fee once deposited cannot be refunded/carried over the next examination under any circumstances 10 Submission of no dues certificate from all relevant departments including Library, Hostel, Cashier etc. For year five only		

Grand total of All Assessments for Five Year Training Program						05 Summative Assessments in five years

TABLE OF SPECIFICATION & NOMENCLATURE

Details about Content, number of questions (MCQs &SEQs) and Marks of various High Stake/ Summative Examinations

<table>
<tr><th>Name of examination</th><th>Content</th><th>Eligibility criteria</th><th>Questions
MCQs/SEQs/TOACS</th></tr>
<tr>
<td>InTraining - Assessment year-1 (at the end of year 1)</td>
<td>• Basic principles of medicine
• Symptoms analysis
• Clinical methods/signs interpretation
• Differential diagnosis
• Basic investigations
• Infectious diseases
• Counseling &ethics
• Management of common emergencies
• Fluid & Electrolyte Management
• BLS/ACLS
• Principles of Antibiotic Therapy</td>
<td>i. Completion of 1 year training
ii. Workshops completion
• Communication skills----------3days
• Computer &IT skills ---------- 3days
• Research Methodology- 02 day
• BLS/ACLS ----------1 days
iii. Research
• Certificate article approval from DME OR
• Statistical report of one disease
•
iv. CIS- Minimum 75% marks- Certification by DME and Supervisor/s
Special note:
Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMC</td>
<td>A. Written Assessment for year -1 total marks 100
(100clinical / Applied Basic Sciences MCQs)
(Pass percentage: 50%)
B - Table of Specification for written Assessment
<table>
<tr><th>Sr.no</th><th>Discipline</th><th>MCQs</th></tr>
<tr><td>1.</td><td>Basic principles of medicine</td><td>15 MCQs</td></tr>
<tr><td>2.</td><td>Symptoms analysis</td><td>13 MCQs</td></tr>
<tr><td>3.</td><td>Signs interpretation</td><td>13 MCQs</td></tr>
<tr><td>4.</td><td>Differential Diagnosis</td><td>7 MCQs</td></tr>
<tr><td>5.</td><td>Clinical methods interpretation</td><td>7 MCQs</td></tr>
<tr><td>6.</td><td>Basic investigations</td><td>7 MCQs</td></tr>
<tr><td>7.</td><td>Infectious Diseases</td><td>8 MCQs</td></tr>
<tr><td>8.</td><td>Counseling &Ethics</td><td>10 MCQs</td></tr>
<tr><td>9.</td><td>Management of common emergencies</td><td>8 MCQs</td></tr>
<tr><td>10.</td><td>Fluid & Electrolyte Management</td><td>8 MCQs</td></tr>
<tr><td>11.</td><td>BLS/ACLS</td><td>2 MCQs</td></tr>
<tr><td>12.</td><td>Principles of Antibiotic Therapy</td><td>2 MCQs</td></tr>
</table>
</td>
</tr>
<tr>
<td>Mid Training Assessment (at the end of year 2)</td>
<td>• Cardiology
• Gastroenterology
• Respiratory medicine
• Neurology
• Infectious diseases</td>
<td>i- Completion of 2 year training
ii- Passed Year One examination
iii-Rotations completion
Three rotations (each of 2 months- to be completed in first two years)
1. Cardiology</td>
<td>A – Mid Training Assessment(total marks = 300)
B - Written Assessment (150 marks)
Two papers of case based 75 MCQs------ total marks 150
(Pass percentage = 60%)
C- Table of Specification for paper I & II
PAPER-I</td>
</tr>
</table>

	• Nephrology • Emergency medicine • Hematology • Rheumatology • Psychiatry • Endocrinology • Critical care • Dermatology	2. Nephrology 3. Der matology iv- Research: • Certificate an article approval from DME OR • Statistical report of one disease • v- CIS- Minimum 75% marks minimum 75% marks- Certification by DME and Supervisor/s **Special note:** Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMC	**PAPER-I** *Sr.no* / *Discipline* / *MCQs* 1. Cardiology — 15 MCQs 2. Nephrology — 15 MCQs 3. Infectious diseases — 10 MCQs 4. Respiratory medicine — 10 MCQs 5. Emergency medicine — 10 MCQs 6. Psychiatry — 10 MCQs 7. Critical care — 5 MCQs **PAPER-II** *Sr.no* / *Discipline* / *MCQs* 1. Gastroenterology — 15 MCQs 2. Neurology — 15 MCQs 3. Dermatology — 15 MCQs 4. Hematology — 10 MCQs 5. Endocrinology — 10 MCQs 6. Rheumatology — 10 MCQs **D- Clinical Assessment (TOACS 150 marks)** On passing the theory (60% pass percentage), trainee will be eligible to appear in practical exam.
InTraining - Assessment year-3 (at the end of year 3)	1. Basic principle of Gastroenterology and Liver Disease 2. Symptoms analysis and sign interpretation 3. Clinical methods assessment	i. Completion of 3rd year training **ii. Passed/ Appeared MTA** iii. Workshops completion Synopsis writing 03 days • Reference Manager(Endnote)---1 day iv. Research Allotment of thesis topic (first half of calendar	**A- Written Assessment (100 marks)** ➢ 100 MCQs-------- total marks 100 (100 clinical MCQs) ***(Pass percentage = 50%)*** ***B- Table of Specification*** *Sr.no* / *Discipline* / *MCQs* 1. Basic principle of Gastroenterology and Liver Disease — 20 MCQs

<table>
<tr>
<td></td>
<td>4. Differential diagnosis
5. Basic and Advanced GI investigations
6. Counseling and Ethics</td>
<td>year)
• Certificate of approval thesis from IRF(2nd half of calendar year
v. CIS : minimum 75% marks, certification by DME and Supervisors/s
Special note:
Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMC</td>
<td>
<table>
<tr><td></td><td></td><td></td></tr>
<tr><td>2.</td><td>Symptoms analysis and sign interpretation</td><td>20 MCQs</td></tr>
<tr><td>3.</td><td>Clinical methods assessment</td><td>20 MCQs</td></tr>
<tr><td>4.</td><td>Differential diagnosis</td><td>15 MCQs</td></tr>
<tr><td>5.</td><td>Basic and Advanced GI investigations</td><td>15 MCQs</td></tr>
<tr><td>6.</td><td>Counseling and Ethics</td><td>10 MCQs</td></tr>
</table>
</td>
</tr>
<tr>
<td>FOURTH INTRAINING ASSESSMENT</td>
<td>1. Esophagus
2. Stomach & Duodenum
3. Hepatology
4. Pancreaticobiliary diseases
5. Small intestine
6. Large intestine
7. Infectious disease
8. Nutrition
9. GI Emergencies
10. Procedures
11. Liver transplant
12. Drug and Recent advances</td>
<td>i- Completion of 4th year training
ii- Passed/ Appeared 3rd year in training assessment
iii-Research
Data collection
Data analysis and interpretation
Thesis writing
iv- Rotations
. Radiology(02 months)
. Histopathology(01 month)
. Liver transplant/ GI surgery (01 month)

v- CIA Minimum 75% marks- Certification by DME and Supervisor/s
Special note:
Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMC</td>
<td>A- Written Assessment (100 marks)
➢ 100 MCQs-------- total marks 100 (100 clinical MCQs)
(Pass percentage = 50%)
B- Table of Specification

1. Esophagus 05 MCQs
2. Stomach & Duodenum 10 MCQs
3. Hepatology 15 MCQs
4. Pancreaticobiliary diseases 10 MCQs
5. Small intestine 10 MCQs
6. Large intestine 10 MCQs
7. Infectious disease 05 MCQs
8. Nutrition 05 MCQs
9. GI Emergencies 15 MCQs
10. Procedures 05 MCQs
11. Liver transplant 05 MCQs
12. Drug and Recent advances - 05 MCQs</td>
</tr>
</table>

Final Assessment (at the end of year 5)	1. Esophagus 2. Stomach & Duodenum 3. Hepatology 4. Pancreaticobiliary diseases 5. Small intestine 6. Large intestine 7. Infectious disease 8. Nutrition 9. GI Emergencies 10. Procedures 11. Liver transplant *12.* Recent advances *13.* General	i -Completion of 5th year training ii- Passed 4th year in training assessment. iii-Research/Thesis • Completion & submission of Thesis 6 months before completion of training • Defense & Approval of Thesis in BASR • Certificate will be issued by UTMC **iV**- CIA Minimum 75% marks- Certification by DME and Supervisor/s **Special note:** Students with less than 75% CIS, such cases will be referred to relevant academic review committee which will work under the umbrella of DME/ UTMC	**TOTAL MARKS: 600** **Written: 200** Paper-1 case based 100 MCQs paper- II 10 SEQs **Clinical: 300** **Long Case** –100 **Short Cases** -50 **TOACS** -150 Passing written paper is Clinical examination Eligibility **Thesis**: **100** **Pass percentage: 60%**

1.	Esophagus	05 MCQs & 1SEQ
2.	Stomach & Duodenum	05 MCQs & 1SEQ
3.	Hepatology	15 MCQs & 1SEQ
4.	Pancreaticobiliary diseases	10 MCQs & 1SEQ
5.	Small intestine	10 MCQs & 1SEQ
6.	Large intestine	10 MCQs & 1SEQ
7.	Infectious disease	05 MCQs & 1SEQ
8.	Nutrition	05 MCQs& 1SEQ
9.	GI Emergencies	10 MCQs & 1SEQ
10.	Procedures	05 MCQs
11.	Liver transplant	05 MCQs & 1SEQ
12.	Recent advances	05 MCQs
13.	General	10 MCQs

			- Clinical Assessment (500marks) On passing the theory, trainee will be eligible to appear in practical exam. Pass marks 60%. Two short cases total 50 marks (each of 25 marks) • One long case100marks • TOACS (15 stations) ------- 150 marks **D- Defense of Thesis (100 marks)** • On passing the theory, trainee will be eligible to appear in defense of thesis. • Power Point presentation : 30 marks • Discussion session :70 marks (Pass percentage = 60%) **Format of defense of thesis** • Panel of 2 examiner's including one internal & one external/guest examiner • Power point presentations of 30 min regarding his/her research project ,including major outcomes of discussion also This will be followed by interactive discussion session/Q&A sessions of 1 hour

TABLE OF SPECIFICATION FOR INTERNAL MEDICINE & ALLIED MID TRAINING ASSESSMENT

BLOOM'S TAXONOMY

Various Levels of Cognition, Psychomotor & Attitude Domains Are Provided Here For Better Understanding Regarding Table of Specification of TOACS

Levels of domain	Stand for	Detail
Cognitive domain –C (Knowledge)		
C1	Remembering	• Ability to remember facts without necessarily understanding • Retrieving, recognizing, and recalling relevant knowledge from long - term memory
C2	Understanding	• Ability to understand and interpret learned information • Constructing meaning from oral, written, and graphic messages through interpreting, exemplifying, classifying, summarizing, inferring, comparing, and explaining.
C3	Applying	• Ability to use learned material in new situation • Carrying out or using a procedure for executing, or implementing.
C4	Analyzing	• Ability to breakdown information into its components • Breaking material into constituent parts, determining how the parts relate to one another and to an overall structure or purpose through differentiating, organizing, and attributing.
C5	Evaluating	• Ability to put parts together • Making judgments based on criteria and standards through checking and critiquing.
C6	Creating	• Ability to combine elements into a pattern not clearly there before • Putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure through generating, planning, or producing.
Psychomotor Domain –P (Skills)		

P1	Imitiation	• Observing and patterning behavior after someone else. Performance may be of low quality. • Observe other person behavior and copy it	**Example and Key Words (verbs)** **Examples:** Copying a work of art. Performing a skill while observing a demonstrator. **Key Words:** copy, follow, mimic, repeat, replicate, reproduce, trace
P2	Manipulation	• Being able to perform certain actions by memory or following instructions • Ability to perform skills by following the instructions	**Example and Key Words (verbs)** **Examples:** Being able to perform a skill on one's own after taking lessons or reading about it. Follows instructions to build a model. Key Words: act, build, execute, perform

P3	Precision		• Refining, becoming more exact. Performing a skill within a high degree of precision • Ability to perform skill with minimal errors and more precision	**Example and Key Words (verbs)** **Examples:** Working and reworking something, so it will be "just right." Perform a skill or task without assistance. Demonstrate a task to a

			beginner. **Key Words:** calibrate, demonstrate, master, perfectionism
P4	Articulation	• Coordinating and adapting a series of actions to achieve harmony and internal consistency. • Ability to solve and modify skills to fit new requirements	**Example and Key Words (verbs)** **Examples:** Combining a series of skills to produce a video that involves music, drama, color, sound, etc. Combining a series of skills or activities to meet a novel requirement. **Key Words:** adapt, constructs, combine, creates, customize, modifies, formulate
	Naturalization	• Mastering a high level performance until it becomes	**Example and Key Wo(verbs)**

P5		second-nature or natural, without needing to think much about it. • Ability to perform the skills with perfection. (flawless & perfect)	Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately. Displays competence while playing the piano. Michael Jordan playing basketball or Nancy Lopez hitting a golf ball. **Key Words:** create, design, develop, invent, manage, naturally

Attitude Domain –A (Professionalism)			
A1	Receiving	• Awareness, willingness to hear, selected attention.! • Involves being aware of and willing to freely attend to stimulus	**Example and Key Words (verbs)** **Examples:** Listen to others with respect. Listen for and remember the name of newly introduced people. Keywords: asks, chooses, describes, follows, gives, holds, identifies, locates, names, points to, selects, sits, erects, replies, uses.
	Responding	• Active participation on the part of the learners. Attends	**Example and Key Words (verbs)**

A2			and reacts to a particular phenomenon. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding (motivation).	**Examples:** Participates in class discussions. Gives a presentation. Questions new ideals, concepts, models, etc. in order to fully understand them. Know the safety rules and practices them. **Keywords**: answers, assists, aids, complies, conforms, discusses, greets, helps, labels, performs, practices, presents, reads, recites, reports, selects, tells, writes.
A3	Valuing		• The worth or value a person attaches to a particular object, phenomenon, or behavior.	**Example andKey**

		This ranges from simple acceptance to the more complex state of commitment. Valuing is based on the internalization of a set of specified values, while clues to these values are expressed in the learner's overt behavior and are often identifiable. • Refers to voluntarily giving worth to a object phenomenon or stimulus .	**Words (verbs)** **Examples:** Demonstrates belief in the democratic process. Is sensitive towards individual and cultural differences (value diversity). Shows the ability to solve problems. Proposes a plan to social improvement and follows through with commitment. Informs management on matters that one feels strongly about. **Keywords**: completes, demonstrates, differentiates, explains, follows, forms, initiates, invites, joins, justifies, proposes, reads, reports, selects, shares, studies, works.
	Organization	• Organizes values into priorities by contrasting different values, resolving	**Example and Key Words (verbs)**

A4		conflicts between them, and creating an unique value system. The emphasis is on comparing, relating, and synthesizing values • Involves building and internally consistent value system	**Examples**: Recognizes the need for balance between freedom and responsible behavior. Accepts responsibility for one's behavior. Explains the role of systematic planning in solving problems. Accepts professional ethical standards. Creates a life plan in harmony with abilities, interests, and beliefs. Prioritizes time effectively to meet the needs of the

			organization, family, and self. **Keywords:** adheres, alters, arranges, combines, compares, completes, defends, explains, formulates, generalizes, identifies, integrates, modifies, orders, organizes, prepares, relates, synthesizes.
A5	Characterization		**Example and Key Words (verbs)**
		• Has a value system that controls their behavior. The behavior is pervasive, consistent, predictable, and most importantly, characteristic of the learner. Instructional objectives are concerned with the student's general patterns of adjustment (personal, social, emotional).! • Involves building and internally consistent value system	**Examples:** Shows self-reliance when working independently. Cooperates in group activities (displays teamwork). Uses an objective approach in problem solving. Displays a professional commitment to ethical practice on a daily basis. Revises judgments and changes behavior in light of new evidence. Values people for what they are, not how they look. **Keywords:** acts, discriminates, displays, influences, listens, modifies, performs, practices, proposes, qualifies, questions, revises, serves, solves, verifies.

References: Bloom, B.S. (Ed.). Engelhart, M.D., Furst, E.J., Hill, W.H., Krathwohl, D.R. (1956). *Taxonomy of Educational Objectives, Handbook I : The Cognitive Domain.* New York: David McKay Co Inc.

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DETAILS ABOUT THE MARKS AND STATIONS

- Total number of stations – 15
- Types of stations
  - 08-Interactive
  - 07-Non-interactive
- Time allocation for each station – 5 minutes
- Marks allocation for each station – 10 marks

Station No	Domain	Activity at the station	Level of cognition-C	Level of skill -P	Level of attitude-A	Weightage
STATION 1	Instrument	Name the instrument Indications /use	C1 C1			
STATION 2	(Radiology – X-ray) Non-interactive Station	• Describe the findings	C2			
		• Relevant questions will be asked (regarding differential diagnosis and management)	C4			
STATION – 3	(Radiology – CT-scan, MRI, Non-interactive Station	IMAGE will be shown: • Describe the findings	C2			
		• Relevant questions will be asked (regarding differential diagnosis and management)	C4			
STATION – 4	(Instrument) Interactive Station	• Identify instrument/specimen	C2			
		• Relevant questions will be asked (regarding differential diagnosis and management)	C4			
STATION – 5	(G I. Emergency) Interactive Station	Examiner will share a case-scenario related to acute G I.emergency: • Diagnosis	C5			
		• Relevant questions will be asked (regarding work-up and emergency management plan)	C5			
STATION – 6	(Instrument) Interactive Station	• Identify instrument/specimen				
		• Relevant questions will be asked (regarding indications)				
STATION – 7	Radiology – CT-scan/ MRI	IMAGE will be shown: • Describe the findings				
		• Relevant questions will be asked (regarding differential diagnosis and management)				

	Interactive Station	• Describe the findings	C2			
		• Relevant questions will be asked (regarding differential diagnosis, investigations, management)	C4			
STATION – 8	Radiology – MRCP) Non-interactive Station	Describe the findings				
		Relevant questions will be asked (regarding differential diagnosis and, management)	C4			
STATION – 9	Radiology – ERCP) interactive Station	• Describe the findings	C2			
		• Relevant questions will be asked (regarding differential diagnosis, investigations, management)	C4			
STATION – 10	Case scenario Non-interactive Station	Candidate will read the case scenario				
		• Relevant questions will be asked (regarding differential diagnosis, investigations, management)	C2,3			
STATION – 11	Case scenario Non-interactive Station	Candidate will read the case scenario				
		• Relevant questions will be asked (regarding differential diagnosis, investigations, management)	C2,3			
STATION – 12	GI Drug interactive Station	Candidate will read the drug.				
		• Relevant questions will be asked (regarding uses, side effects and interactions/contraindications.)	C1			
STATION – 13	Histopathology slides Non-interactive Station	Identify pathology	C1			
		• Relevant questions will be asked (regarding diagnosis, investigations, management)	C2			
STATION – 14	Case scenario Interactive Station	• Examiner will share a case scenario and candidate will be asked about:				
		• Differential diagnosis	C2			
		• Investigation and management plan	C4			
STATION – 15	Instrument) Non interactive Station	• Identify instrument/specimen Relevant questions will be asked (regarding indications)	C4			

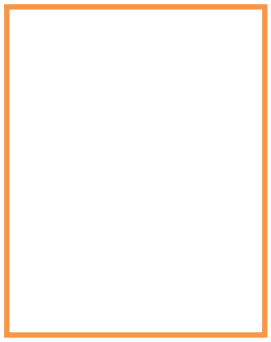
SECTION – VII

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, etal. Twelve tips for successfully implementing logbooks in clinical training. Med Teach. 2016 Jun 2; 38(6): 564–569.

INDEX:

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-3

JOURNAL CLUB

SR#	DATE	TITLE OF THE ARTICLE	NAME OF JOURNAL	DATE OF PUBLICATION	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			
2			
3			
4			
5			
6			
7			
9			
10			

11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

21			
22			
23			
24			
25			
26			
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			
2			
3			
4			
5			
6			
7			
9			

10			
11			
12			
13			
14			
15			
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17			
18			
19			

20			
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22			
23			
24			
25			
26			
27			
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
1			
2			
3			
4			
5			
6			
7			
9			
10			

11			
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24			
25			
26			
27			
28			

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-12

MORBIDITY/MORTALITY MEETINGS

SR#	DATE	REG. # OF THE PATIENT DISCUSSED	BRIEF DESCRIPTION	COMMENTS/SUGGESTIONS	SIGNATURES OF THE SUPERVISOR

SECTION-13

HANDS ON TRAINING/WORKSHOPS

SR#	DATE	TITLE	VENUE	FACILITATOR	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

SECTION-18

EVALUATION RECORDS

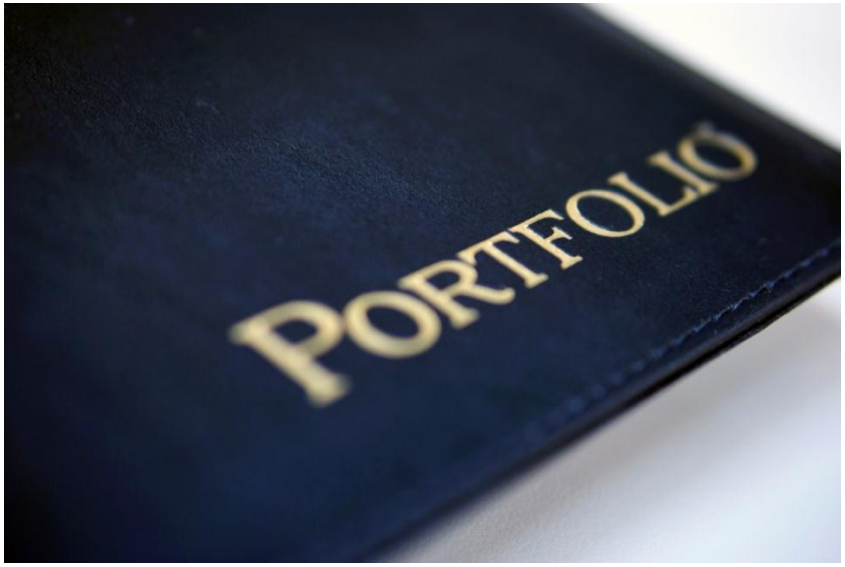
(Photocopy of consolidated evaluation record at the end of each block should be pasted here)

Portfolio Templates

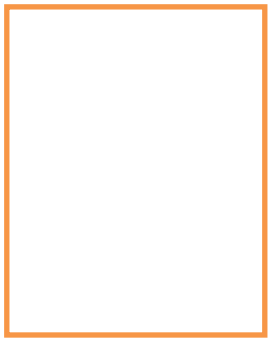
MD GASTROENTEROLOGY

RAWALPINDI MEDICAL UNIVERSITY

RAWALPINDI



ENROLMENT DETAILS



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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 & Carracio, 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.

References:

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2. Challis M. (1999). AMEE medical education guide no. 11 (revised): Portfolio-based learning and assessment in medical education. *Medical Teacher*, 21, 370-86.

3. Colbert, C.Y., Ownby, A.R., & Butler, P.M. (2008). A review of portfolio use in residency programs and considerations before implementation. *Teaching and Learning in Medicine, 20*(4), 340-345.

4. Danner, E.F., & Henson, L.C. (2007). The portfolio approach to competency-based assessment at the Cleveland

Clinic Lerner College of Medicine. *Academic Medicine*, 82(5), 493-502.

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6. Davis, M.H., Ponnamperuma, G.G., & Ker, J.J. (2009). Student perceptions of a portfolio assessment process. *Medical Education, 43*(1), 89-98.

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13. Jackson, N., Jamieson, A., & Khan, A. (2007). *Assessment in medical education and training: A practical guide*. Abingdon, UK: Radcliffe.

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INDEX:

SECTION-1

CURRICULUM VITAE (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 DICIPLINARY 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

References

Teaching Methods

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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://elpaso.ttuhsc.edu/som/internal/IM_Curriculum_8-26-13.pdf
- http://www.hkcp.org/docs/TrainingGuidelines/HKCP%20GuideBooklet%202011updated%2021.8.2013.pdf
- https://www.jrcptb.org.uk/sites/default/files/2009%20GIM%20%28amendment%202012%29.pdf
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5. http://education.med.ufl.edu/files/2010/10/InternalMedicineMilestones.pdf
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SECTION – IX

List of Appendices

1. Workplace Based Assessments-Multi source feedback profoma- 360^{o} evaluation ----Appendix " A"
2. Proforma for feedback by Nurse for core competencies of the resident ----------"Appendix B"
3. Proforma for patient Medication Record ------"Appendix C"
4. Workplace Based Assessments- guidelines for assessment of Generic & specialty specific Competencies ------ Appendix " D"
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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Workplace Based Assessments-Multi Source Feedback profoma- 360^{o} EvaluationAppendix "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 Sills

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 اُس 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 کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

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

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ 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 کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

3۔ڈاکٹر نے آپ کی بات بہت توجہ سے سنی۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

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

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

5۔ڈاکٹر نے آپ کے حدشات کو اچھی طرح سمجھا ہے۔

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

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

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

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

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ اکثر ☐ ہمیشہ ☐ لاگو نہیں ☐

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

کبھی نہیں ☐ کم سے کم ☐ کبھی کبھار ☐ 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 tream 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	O	O	O	O	O

	documented					
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	O	O	O	O	O
14.	Chart is organized no loose paper	O	O	O	O	O
15.	Investigations properly pasted	O	O	O	O	O
16.	Abnormal findings in investigations encircled.	O	O	O	O	O
17.	Procedures done on patient documented properly	O	O	O	O	O
18.	Medicine written in capital letter	O	O	O	O	O
19.	I/v fluids orders are proper with rate of infusion mentioned	O	O	O	O	O
20.	All columns of chart complete	O	O	O	O	O

***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 mobility 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.

Supervisor's Evaluation of the Resident (Continuous Internal Assessment) **Appendix "F"**

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.

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					
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					
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					
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					
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

Resident's Signature _____ Date _____

Supervisor's Signature_____ Date_____

FACULTY EVALUATION OF RESIDENT (GASTROENTEROLOGY) **Appendix "G"**

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

Practice-Based learning and improvement.

Identifies areas for improvement and applies it to practice PBL (Question 13 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

Applies lesions learned from medical errors into practice PBL (question 14 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above Average	Advanced	Outstanding	Superior
0	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

Shows Interest in learning from complex care issues PBL (Question 15 of 24)

No Interaction	Unsatisfactory	Failing	Less than Marginal	Below Average	Average	Above	Advanced	Outstanding	Superior

						Average			
0	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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
0	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐	7 ☐	8 ☐	9 ☐

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 (cost containment, patents right , humanism) into discussion of patient care — 1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

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 — 1 ☐ 2 ☐ 3 ☐ 4 ☐ N/A ☐

"Interactive" () i.e., and review pertinent topics

Provided references or other materials that stimulated me to road, 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 programm? 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	Marginal (Comment	Satisfactory	Very Good	Excellent

	Required)	Required)			
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**

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

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

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

h. 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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

i. 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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Research (Question 4 of 35)

Residents are encouraged to participate in research.

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

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

j. Faculty (Question 6 of 35)

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

.

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

	Required)	Required)			
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Faculty (Question 7 of 35)

The Knowledge of the faculty is current and appropriate.

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

k. 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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Facilities (Question 9 of 35)

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

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

	Required)	Required)			
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

l. 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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Leadership and Logistics (Question 19 of 35)

The evaluation system (E-Value) is easy to use.

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

	Required)	Required)			
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

m. Training (Question 20 of 35)

Faculty adequately supervises residents' care of patients.

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

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Training (Question 24 of 35)

Rounds and staffing are conducted professionally.

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

Training (Question 25 of 35)

Rounds and staffing are conducted efficiently.

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

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Training (Question 27 of 35)

The program is responsive to safety concems at training.

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

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Training (Question 29 of 35)

Residents experience an appropriate balance of educational and clinical responsibilities.

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

	Required)	Required)			
0 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

Training (Question 30 of 35)

The didactic sessions provide core knowledge of the field.

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

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 ☐	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐

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 EvaluationCommittee (PEC)

Background

Thepurpose of thiscommitteeis toconductanddocument aformal,systematicevaluationofthe program &curriculumonanannual basis.

Membership

Thechairandmembership ofthecommitteeare appointedbytheProgram Director.Themembership ofthe committeeconsistsofat leasttwo membersof the programfaculty,and at leastoneresident/subspecialty resident.

Meeting Frequency

Thecommitteemeets, at aminimum,annually.

ResponsibilitiesofthePEC

- ThePEC activelyparticipates inplanning, developing, implementingandevaluatingtheeducational activities oftheprogram.
- ThePECreviewsand makesrecommendationsforrevisionofcompetency-basedgoalsand objectives.
- Addressesareasofnon-compliance with the standards; andreviews theprogram annuallyusingwrittenevaluationsof faculty,residents, and others.

RequiredDocumentation of PECActivities

ThePEC provides theGMEC with awrittenAnnual ProgramEvaluation (APE)intheformat thatisappended tothisdocument.Thisdocument detailsawrittenplan ofactiontodocument initiatives to improve performance basedonmonitoringofactivities described below.

TheAPE document providesevidence that thePEC is monitoring thefollowingareas, at aminimum:

1. Residentperformance

2. Facultydevelopment

3. Graduateperformance,includingperformanceof program graduatesonthe certifying examination

4. Assessmentofprogram qualitythrough:

. **A n n u a l confidential and formalfeedback**fromresidentsandfacultyabout theprogram quality;

b. **A s s e s s m e n t ofimprovements neededbasedonprogramevaluationfeedback**from faculty, residents,andothers

5. Continuation ofprogressmadeonprioryear'sactionplan

6. Prepareandsubmit awritten plan ofaction to

a. document initiativesto improve performanceinone of moreofthe areas identified,

b. D e l i n e a t e howtheywill bemeasured andmonitored

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 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 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.		
5. Didactic Curriculum a. includes recognizing the signs of fatigue and sleep deprivation b. the didactic curriculum meets program requirements c. the didactic curriculum meets residents needs		
6. Clinical Curriculum – the effectiveness of in-patient and ambulatory teaching experience (structure, case mix, meets resident's needs)		
7. Volume and variety of patients and procedures (case log data) meets requirements and residents' needs		
8. Summary of written program evaluations completed by both faculty and residents		
9. Resident supervision complies with Program Requirement		
10. Recruiting results		
11. Duty hour monitoring results		
12. Track all research and scholarly activities of faculty and residents/fellows		
13. Educational outcomes: is the program achieving its educational objectives? What aggregate data (residents as a group)		

can be used to show the program is achieving its objectives? Board scores, in-service training exam scores, graduate surveys, employer surveys, etc.		
15. Clinical outcomes – specialty-specific metrics aligned with dept./division QI initiatives, disease outcomes, patient safety initiatives (describe resident involvement), QI projects (describe resident involvement)		

Note:

If deficiencies are found during this process, the program should prepare a written plan of action to document initiatives to improve performance in the areas that have been identified. The action plan should be reviewed and approved by the teaching faculty and documented in meeting minutes.

Annual Program Evaluation (APE)

Minutes& Action Plan

Dateof theAPEmeeting:

Date;Minutes&Action Planwerereviewed andApprovedby teachingfaculty:

Pleaseattachtheminutes of themeetingwhere theMinutes&ActionPlanwerereviewed and approved.

AcademicYearreviewed:

Faculty Membersof thePEC in attendance

OtherMembersof thePEC inattendance:

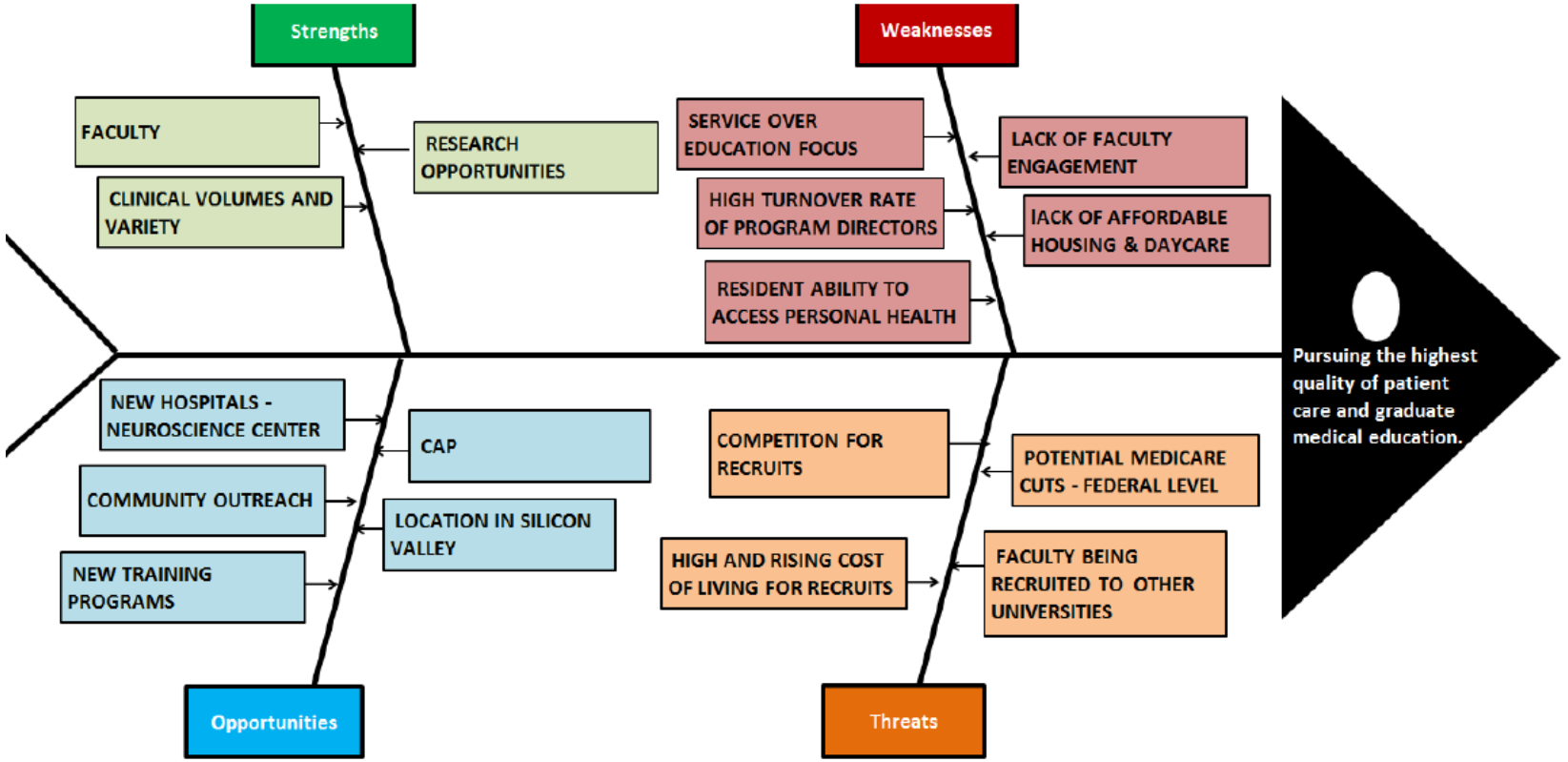
Areasreviewed:

1. Residentperformance
    - Supportingdocuments:
2. Faculty development
    - Supportingdocuments:
3. Graduateperformance
    - Supportingdocuments:
4. Programquality
    - Supportingdocuments:
5. Policies,Protocols&Procedures
    - Supportingdocuments:

SWOT Analysis

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

SOWT Analysis (Fishbone – Ishikawa Diagram)



Action Plan

Item	Strategy	Resources	Timeline	Evaluation
PreservationGoals (Strengths)				
EliminationGoals (Weaknesses)				
AchievementGoals (Opportunities)				
AvoidanceGoals (Threats)				

SECTION –X

Miscellaneous attached documents